RULE HEARING

Exhibits List

November 2, 2026

Revisor's ID 04740; CAH Docket 23-9003-39503

The Minnesota Pollution Control Agency (MPCA) places the following exhibits required under Minnesota Rules, part 1400.2220, items A to K into the hearing record for proposed amendments to Minnesota Rules, chapter 7050, governing water quality standards for lake aquatic life and recreation (known as the Lakes WQS rule).

A. Enclosed: Request for Comments published in the September 18, 2023, *State Register*.

B. Not enclosed: petition for the rulemaking—not applicable, no petition was filed.

C. Enclosed: proposed rules with the Revisor's certificate of approval.

D. Enclosed: Statement of Need and Reasonableness (SONAR)

D-1. SONAR Exhibits

E. Enclosed: transmittal letter sending the SONAR to the Legislative Reference Library.

F. Enclosed:

F-1. notice of hearing as mailed to non-email recipients from the SONAR's required-notice list (14 municipalities with postal addresses only)

F-2. notice of hearing as published in the August 24, 2026, *State Register.*

G. Enclosed: certificates of sending notice of hearing and of accuracy of the mailing list.

G-1. GovDelivery bulletin with recipient count.

H. Enclosed: certificate of additional notice.

I. Enclosed:

I-1. all written comments and submissions on the proposed rules that the Agency received during the comment period.

I-2. the Agency's response to comments received.

J. Not enclosed: a document from the Chief Judge authorizing the agency to omit the text of the proposed rule from the Notice of Hearing published in the *State Register*—not applicable, proposed rule text was published in full.

K. Enclosed: any other document or evidence to show compliance with any other law or rule that the Minnesota Pollution Control Agency must follow to adopt the rules.

K-1a. transmittal letter showing the Agency consulted with the Minnesota Management and Budget (MMB) in compliance with Minnesota Statutes § 14.131.

K-1b. MMB's reply.

K-2. transmittal letter sending the Notice and SONAR to Legislators and the Legislative Coordinating Commission in compliance with Minnesota Statutes § 14.116(b).

Additional documents from the hearing, post-hearing, and rebuttal periods will be submitted before the close of the rulemaking record:

L. MPCA hearing presentation—to be submitted into the record at the rule hearing.

M. Hearing comments—in transcript from the Court Reporter once complete.

N. Comments and materials from the post-hearing comment period.

O. Comments and materials from the rebuttal period.

Minnesota State Register

Published every Monday (Tuesday when Monday is a holiday)

Proposed, Adopted, Emergency, Expedited, Withdrawn, Vetoed Rules; Executive Orders; Appointments; Commissioners' Orders; Revenue Notices; Official Notices; State Grants & Loans; State Contracts; Non-State Public Bids, Contracts and Grants

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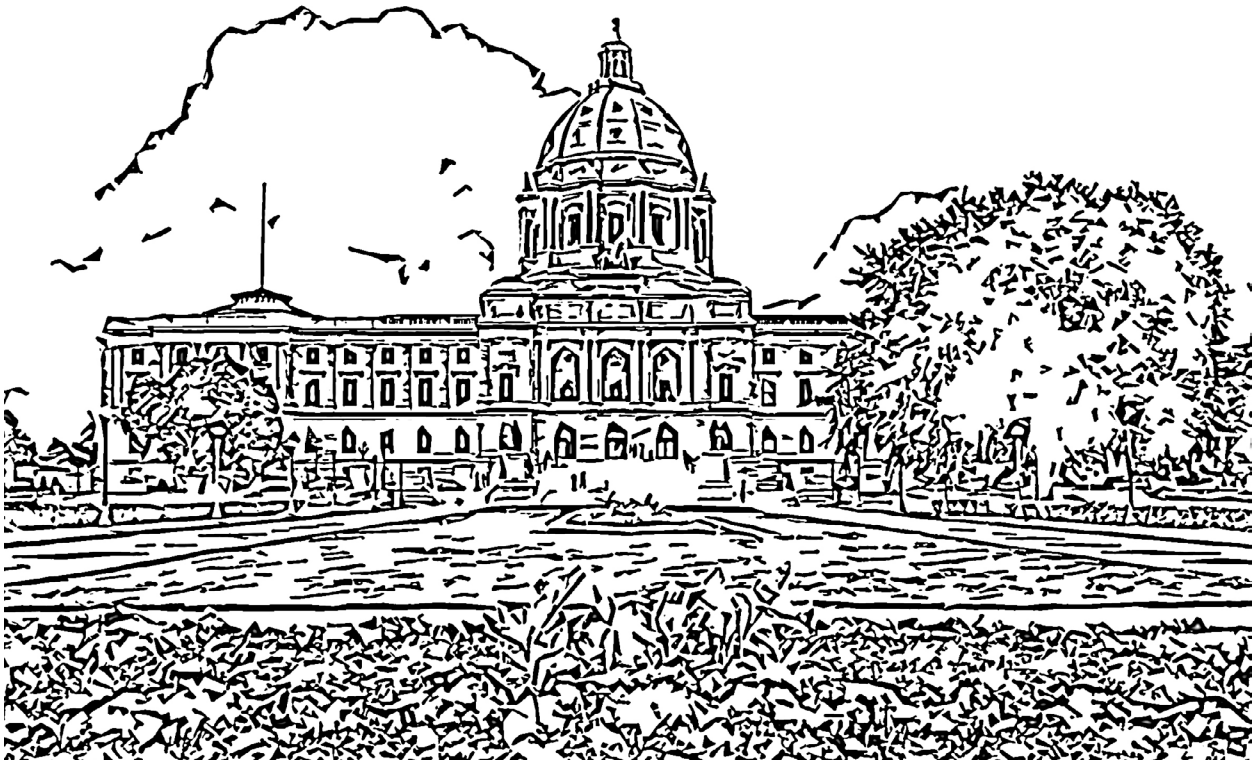
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Official Notices

Pursuant to *Minnesota Statutes* §§ 14.101, an agency must first solicit comments from the public on the subject matter of a possible rulemaking proposal under active consideration within the agency by publishing a notice in the *State Register* at least 60 days before publication of a notice to adopt or a notice of hearing, and within 60 days of the effective date of any new statutory grant of required rulemaking.

The *State Register* also publishes other official notices of state agencies and non-state agencies, including notices of meetings and matters of public interest.

Minnesota Management & Budget

Budget Services Division

Notice of Rate for Provider Tax Research Credit

NOTICE IS HEREBY GIVEN that pursuant to *Minnesota Statutes* 295.53, Subdivision 4a and 4a(e), the research tax credit for companies subject to the gross earnings tax under *Minnesota Statutes* 295.52 shall be 0.5 percent of revenues for patient services used to fund expenditures for qualifying research conducted by an allowable research program in calendar year 2024.

For additional information, please call Josh Riesen, Executive Budget Officer, at (651) 201-8025.

Erin Campbell
Commissioner

Minnesota Pollution Control Agency

REQUEST FOR COMMENTS on Possible Amendments to Rules Governing Water Quality Standards for Lake Aquatic Life and Recreation, *Minnesota Rules* chapter 7050; Revisor's ID Number R-04740

Overview. The Minnesota Pollution Control Agency (MPCA) is requesting comments on possible amendments to water quality standards (WQS) rules, *Minnesota Rules* (Minn. R.) chapter 7050. This rulemaking is referred to as the Lakes WQS Rule. The MPCA is considering amendments to the listed rule chapters and requests comments on the proposed amendments from affected or interested parties. See the **Comments** and **MPCA Contact Person** sections of this notice for information on how to submit comments.

This request for comments (RFC) is the MPCA's legal notice of its intent to begin rulemaking. This is the first of several opportunities for public comment and input on this rulemaking. At this stage, we do not have a draft of the rule amendments; we want your feedback to inform us about the ideas described under the **Subject of Rules** section. If you have other ideas related to this rulemaking that we need to consider, please submit them in writing as well. For example, we recognize that costs to regulated parties can be a concern with rulemaking, so if you have cost information or data related to this rulemaking that you wish to share with us to inform our decisions, please submit that information. Submitting your ideas and information at this early stage in rulemaking allows us more time to address issues that may come up, and helps to ensure informed decision-making on our part. If the rules under consideration affect you in any way, the MPCA encourages you to participate in the rulemaking process.

See the **Alternative Format/Accommodation** and **MPCA Contact Person** sections of this notice for information on requesting this document in an alternative format.

Subject of Rules. The MPCA requests comments on its possible amendment of WQS rules governing lake aquatic life and recreational uses. The revisions under consideration for this rulemaking include three main elements: 1) adoption of eutrophication standards for shallow or mixed lakes in the northern nutrient region, 2) adoption of nutrient and oxythermal standards to protect cold-water fish habitat, and 3) adoption of a tiered aquatic life use (TALU) framework.

1. **Shallow/mixed lake eutrophication standards for northern lakes:** Current standards for northern lakes do

not make a distinction between lakes that stratify in the summer (dimictic) and those that mix (polymictic). Trophic conditions in stratified and mixed lakes are naturally different, which demonstrates a need for a revision to the existing standard. Refining these standards to acknowledge the differences between these lake types will improve assessment accuracy and result in more appropriate management decisions.

2. **Cold-water lake standards:** Standards currently provide additional protections for lakes managed for trout, but lakes with other cold-water fishes such as cisco or lake whitefish are protected by warm-water lake standards—a gap in protections that puts these species at risk. Undertaking this rulemaking is consistent with the MPCA's overall approach to protecting cold-water habitats, which is not solely focused on waters which support trout. For example, the MPCA recently (2020) revised the rules that protect cold-water stream habitats to include streams that support other cold-water organisms such as insects. This rule revision would adopt standards (eutrophication and oxythermal) for cold-water lakes supporting cisco and lake whitefish, including determination and designation of lakes where cold-water fish habitat is an existing use. These revisions are needed to document where these fish species occur and to assign standards that will protect these species from threats such as eutrophication. Such standards will also complement programs administered by the MPCA and DNR to protect lake quality. Additional protection of refuge lakes for cold-water species is especially critical due to climate change.

3. **Lake TALU:** Currently, lake biological criteria are implemented as numeric translators for narrative standards using a one-size-fits-all approach. As part of this revision, TALU and the supporting biocriteria would be adopted for lakes following a similar model for streams, which was adopted into rule in 2017. Revisions will codify biological criteria and provide a framework for protecting high-quality lakes. The TALU framework for lakes will designate a subset of exceptional-use lakes and identify and provide additional protections to Minnesota's high-quality lakes. This approach has the benefit of providing a framework for protecting the highest-quality lakes more efficiently and at typically lower cost than restoration.

In addition to the three main objectives of this rule, we also intend to make several housekeeping revisions, including correcting an error in the river eutrophication standards and moving lake designations in Minn. R. 7050.0470 into documents incorporated by reference. Incorporating lake use designations by reference will permit additional use designation information to be codified into rule. Correcting the errors in the river eutrophication standards will assign the correct criteria adopted in rule and bring clarity to Minnesota's river eutrophication rules.

The MPCA has developed draft charge questions organized by topic area to guide peer reviewers' evaluation of the draft technical support documents (TSDs). We especially encourage comments and suggestions on our proposed charge questions, as follows:

- **Northern lakes.** In the draft TSD (*Development of eutrophication standards for northern lakes in Minnesota*), the MPCA has determined that it is appropriate to assign different eutrophication standards to stratified (dimictic) lakes and mixed (polymictic) lakes in the Northern Lakes and Forests and Northern Minnesota Wetlands ecoregions. MPCA staff determined this pattern to be the result of differences in mixing type, lake morphology, watershed features, and the types of beneficial uses supported by these lake types, and developed different criteria for dimictic and polymictic lakes for chlorophyll-a to protect aquatic life and recreational endpoints. Using these chlorophyll-a thresholds, we also developed criteria for total phosphorus and Secchi depth. In addition to describing the development of eutrophication standards for northern lakes, the TSD describes how lake type is determined and how the draft standards will be implemented.

  - Has the MPCA demonstrated that it is appropriate to assign different standards to dimictic and polymictic lakes in the Northern Lakes and Forests and Northern Minnesota Wetlands ecoregions? Is it appropriate to assign or expect different beneficial uses to be supported by dimictic and polymictic lakes?

  - Did the MPCA use appropriate methods to determine protective chlorophyll-a thresholds for beneficial uses? Are there other methods that the MPCA should consider?

  - Are the criteria developed for total phosphorus and Secchi depth reasonable? Are there other methods that the MPCA should consider?

- Are the methods for determining lake type (i.e., dimictic versus polymictic) appropriate and reasonable?

- **Cold-water lakes.** The MPCA intends to propose changes to the existing standards for cold-water lake habitats and to change the list of lakes managed as cold-water habitats. This will include the adoption of oxythermal habitat standards for lake trout, lake whitefish, and cisco lakes and the adoption of new lake eutrophication standards for lake whitefish and cisco lakes. Revisions would also be made to the eutrophication standards for lake trout and stream trout lakes. In addition, these revisions would include changes to the list of waters designated as Class 2A. Descriptions of the revisions to lake standards and use designations are provided in the TSD. In addition, the TSD describes how cold-water use designations will be reviewed and includes a statewide review of cold-water lake habitats with supporting documentation for each lake.

  - Is it reasonable and appropriate to assign specific oxythermal and eutrophication standards to lakes supporting lake whitefish and/or cisco?

  - Were appropriate methods used to determine protective eutrophication and oxythermal thresholds for cold-water fishes? Are there other methods that should be considered?

  - Will the adoption of an oxythermal habitat criterion likely improve management and protection of cold-water fishes? Are the specific draft criteria suitable for the protection of lake trout, lake whitefish, and cisco? Are there other criteria that the MPCA should consider?

  - Are the location, timing, and frequency requirements of sampling as specified in the implementation section of the TSD sufficient to make an accurate assessment using the draft criteria? Is the draft process for making an assessment determination sufficiently described?

  - The MPCA intends to assign site-specific standards (SSS) to 11 lakes with atypical conditions that still attain beneficial uses despite higher nutrient levels or poorer oxythermal conditions. Are these recommended SSS reasonable, and has the MPCA sufficiently demonstrated that a SSS is appropriate? Is the guidance for evaluating whether other lakes may be candidates for SSS sufficiently described?

  - As part of this rule, the MPCA is also considering changes to the list of lakes assigned Class 2A. These lakes are listed in the appendices of the TSD. Are the provided lists of lakes and associated cold-water designations for cold-water fish species appropriate? Is the draft process for making cold-water use designations sufficiently described?

- **TALU for lakes.** The MPCA intends to propose a TALU framework for Minnesota lakes. This framework is similar to the aquatic life use framework adopted for Minnesota streams. The draft lake TALU framework consists of fish biological criteria for high-quality or Exceptional Use lakes. Under this framework, lakes meeting Exceptional Use goals would be assigned more stringent biological goals, which would need to be maintained.

  - Is it reasonable to assign more protective biological goals for a subset of lakes that demonstrate this high quality is attainable?

  - Were appropriate methods used to determine protective biological goals for fish communities in lakes? Are there other methods that should be considered?

  - Is the process for identifying Exceptional Uses reasonable and sufficiently described in the TSD?

Comments. Interested parties may submit written comments or information on these possible rules in writing until **4:30 p.m. on Friday, November 3, 2023**. The MPCA will not publish a notice of intent to adopt the rules until more than 60 days have elapsed from the date of this RFC.

During the public comment period associated with this RFC, submit written comments or information to:

1) the Office of Administrative Hearings (OAH) Rulemaking eComments website at ***https://minnesotaoah.granicusideas.com***; or

2) OAH attn: William Moore, OAH, 600 North Robert Street, P.O. Box 64620, St. Paul, Minnesota 55164-0620 or fax 651-539-0310.

You may view frequently asked questions about the OAH Rulemaking eComments website at ***https://mn.gov/oah/assets/ecomments-faq_tcm19-82012.pdf***. Any questions about submitting comments via the Rulemaking eComments website should be directed to William Moore of the OAH at 651-361-7900 or by email at ***William.T.Moore@state.mn.us***; **please note that you may not submit rulemaking comments by phone or email**.

Comments received are public and will be available for review at the OAH Rulemaking eComments website at ***https://minnesotaoah.granicusideas.com/discussions*** and at the OAH, 600 North Robert Street, P.O. Box 64620, St. Paul, Minnesota 55164-0620. NOTE: The MPCA will carefully consider all comments received in response to this RFC. However, these comments will not necessarily be included in the formal rulemaking record submitted to the Administrative Law Judge (ALJ) if and when a proceeding to adopt rules is started. The MPCA is required to submit to the ALJ only the written comments received in response to the draft rules after they are proposed with a Notice of Intent to Adopt Rules. If you submit comments during the RFC stage of rule development and want to ensure that the ALJ reviews them, you should resubmit your comments after the rules are formally proposed with a Notice of Intent.

Parties Affected. These amendments to the existing rules would be most likely to affect people working with or interested in WQS, such as in natural resource management, soil and water conservation, and environmental protection; the changes may also affect holders of some National Pollutant Discharge Elimination System (NPDES) permits. Because the rule amendments will result in a more accurate classification of waters and more efficient, effective assessment and implementation of WQS, parties with a general interest in the quality of Minnesota's waters, such as fishing and tourism, may also be affected.

The MPCA does not plan to appoint a specific advisory committee to comment on the rule amendments under consideration. The MPCA does not anticipate that the rule amendments will require a local government to adopt or amend an ordinance or other regulation under *Minnesota Statutes* (Minn. Stat.) §14.128; local governments may submit written information to the contrary. The MPCA requests any information pertaining to the cumulative effect of the rule amendments with other federal and state regulations related to the specific purpose of the rule. Cumulative effect means the impact that results from incremental effects of the proposed rule in addition to other rules, regardless of what state or federal agency has adopted the other rules.

MPCA Contact Person. The MPCA contact person is Katie Izzo at the MPCA, 520 Lafayette Road North, St. Paul, MN 55155-4194; telephone 651-757-2595; and email ***katie.izzo@state.mn.us***. You may also call the MPCA at 651-296-6300 or 1-800-657-3864; use your preferred relay service. Again, please note that you may not submit rulemaking comments by phone or email.

1. During the public comment period associated with this RFC:
    a. Submit all comments in response to this notice as described in the **Comments** section of this RFC.
    b. Contact the MPCA contact person with clarification questions or requests for more information.
2. After the public comment period closes, please route communications to the following staff:
    a. Technical subject-matter questions: Will Bouchard, 651-757-2333 or ***will.bouchard@state.mn.us***
    b. Rulemaking process questions: Katie Izzo, 651-757-2595 or ***katie.izzo@state.mn.us***

Rules Drafts. The MPCA has not yet drafted the possible rule amendments. Parties interested in being notified when a draft of the rules is available and of other activities relating to this rulemaking are encouraged to register at ***http://public.govdelivery.com/accounts/MNPCA/subscriber/new?topic_id=MNPCA_491*** (MPCA GovDelivery-Rulemaking: Lakes Water Quality Standards).

Alternative Format/Accommodation. Upon request, this information can be made available in an alternative format, such as large print, braille, or audio. To make such a request, please contact the **MPCA contact person**.

Statutory Authority. Minn. Stat. §115.03, subd. 1(b)-(c), authorizes the MPCA to establish WQS, and Minn. Stat. §115.44 grants the MPCA authority to group designated waters of the state into classes.

Date: September 5, 2023

Katrina Kessler, Commissioner
Minnesota Pollution Control Agency

Minnesota Department of Transportation

Office of State Aid and Statewide Radio Communications

REQUEST FOR COMMENTS for Possible Amendment to Rules Governing Bridge Rehabilitation, Construction, and Reconstruction, *Minnesota Rules*, 8810.8000 through 8810.8500; Revisor's ID Number R-04830

Subject of Rules. The Minnesota Department of Transportation is considering rule amendments to incorporate revisions made to Minnesota Statutes, section 174.50, subdivision 7 during the 2023 Legislative Session. The Legislature amended the statute to authorize political subdivisions to use grants to rehabilitate bridges in addition to the already authorized use of grants for bridge construction or reconstruction. The rules will reflect the statutory amendments. The Department requests comments on its possible amendment to rules governing bridge rehabilitation, construction, and reconstruction.

Persons Affected. The amendment to the rules would likely affect political subdivisions eligible for bridge grants.

Statutory Authority. *Minnesota Statutes*, section 174.50, subdivision 7, requires the Department to develop rules, procedures for application for grants, conditions of grant administration, standards, and criteria as provided under subdivision 6, including bridge specifications, in cooperation with road authorities of political subdivisions, for use in the administration of funds appropriated to the commissioner and for the administration of grants to subdivisions.

Public Comment. Interested persons or groups may submit comments or information on these possible rules in writing until further notice is published in the *State Register* that the Department intends to adopt or to withdraw the rules. The Department will not publish a notice of intent to adopt the rules until more than 60 days have elapsed from the date of this request for comments. The Department does not plan to appoint an advisory committee to comment on the possible rules.

Rules Drafts. The Department does not anticipate that a draft of the rule amendments will be available before the publication of the proposed rules.

Agency Contact Person. Written comments, questions, requests to receive a draft of the rules when it has been prepared, and requests for more information on these possible rules should be directed to: Andrea Barker, Policy and Rules Coordinator, at Minnesota Department of Transportation, 395 John Ireland Boulevard, MS 130, St. Paul, MN 55155, or ***andrea.barker@state.mn.us***.

Alternative Format. Upon request, this information can be made available in an alternative format, such as large print, braille, or audio. To make such a request, please contact the agency contact person at the address listed above.

NOTE: Comments received in response to this notice will not necessarily be included in the formal rulemaking record submitted to the administrative law judge if and when a proceeding to adopt rules is started. The agency is required to submit to the judge only those written comments received in response to the rules after they are proposed. If you submitted comments during the development of the rules and you want to ensure that the Administrative Law Judge reviews the comments, you should resubmit the comments after the rules are formally proposed.

Dated: September 18, 2023

Nancy Daubenberger, Commissioner
Department of Transportation

Pollution Control Agency

Proposed Permanent Rules Relating to Lake Water Quality

7050.0150 DETERMINING WATER QUALITY, BIOLOGICAL AND PHYSICAL CONDITIONS, AND COMPLIANCE WITH STANDARDS.

[For text of subparts 1 to 3, see Minnesota Rules]

Subp. 4. **Definitions.** For the purposes of this chapter and chapter 7053, the following terms have the meanings given them.

[For text of items A to J, see Minnesota Rules]

K. "Dimictic lake" means a lake that mixes twice a year, in the spring and fall, and is stratified during the summer and winter.

~~K.~~ L. "Ecoregion" means an area of relative homogeneity in ecological systems based on similar soils, land use, land surface form, and potential natural vegetation. Minnesota ecoregions are shown on the map in part 7050.0468.

~~L.~~ M. "Eutrophication" means the increased productivity of the biological community in water bodies in response to increased nutrient loading. Eutrophication is characterized by increased growth and abundance of algae and other aquatic plants, reduced water transparency, reduction or loss of dissolved oxygen, and other chemical and biological changes. The acceleration of eutrophication due to excess nutrient loading from human sources and activities, called cultural eutrophication, causes a degradation of water quality and possible loss of beneficial uses.

~~M.~~ N. "Eutrophication standard" means the combination of indicators of enrichment and indicators of response as described in subpart 5. The indicators upon which the eutrophication standard for specific water bodies are based are as provided under subparts 5a to 5c.

O. "Geometry ratio" means a measure of a lake's geometric characteristics used as evidence to determine if a lake is polymictic or dimictic. The calculation used to determine lake stratification type for the purpose of assessing eutrophication standards in Minnesota is calculated as the fourth root of lake surface area (m^2) divided by maximum depth (m) ($A_0^{0.25}$/Zmax, where A_0 is lake surface area and Zmax is maximum depth).

~~N.~~ P. "Hydraulic residence time" means the time water resides in a basin or, alternately, the time it would take to fill the basin if it were empty.

~~O.~~ Q. "Impaired water" or "impaired condition" means a water body that does not meet applicable water quality standards or fully support applicable beneficial uses, due in whole or in part to water pollution from point or nonpoint sources, or any combination thereof.

~~P.~~ R. "Index of biotic integrity," "index of biological integrity, " or "IBI" means an index developed by measuring attributes of an aquatic community that change in quantifiable and predictable ways in response to human disturbance, representing the health of that community.

~~Q.~~ S. "Lake" means an enclosed basin filled or partially filled with standing fresh water with a maximum depth greater than 15 feet. Lakes may have no inlet or outlet, an inlet or outlet, or both an inlet and outlet.

~~R.~~ T. "Lake morphometry" means the physical characteristics of the lake basin that are reasonably necessary to determine the shape of a lake, such as maximum length and width, maximum and mean depth, area, volume, and shoreline configuration.

U. "Lentic water" means a standing water body, such as a lake, pond, wetland, swamp, or bog.

~~S.~~ V. "Lotic water" means a flowing or moving water body such as a stream, river, or ditch.

~~T.~~ W. "Mixing status" means the frequency of complete mixing of the lake water from surface to bottom, which is determined by whether temperature gradients are established and maintained in the water column during the summer season.

~~U.~~ X. "Measurable increase" or "measurable impact" means a change in trophic status that can be discerned above the normal variability in water quality data using a weight of evidence approach. The change in trophic status does not require a demonstration of statistical significance to be considered measurable. Mathematical models may be used as a tool in the data analysis to help predict changes in trophic status.

~~V.~~ Y. "Natural causes" means the multiplicity of factors that determine the physical, chemical, or biological conditions that would exist in a water body in the absence of measurable impacts from human activity or influence.

~~W.~~ Z. "Normal aquatic biota" and "normally present" mean a healthy aquatic community expected to be present in the water body in the absence of pollution of the water, consistent with any variability due to natural hydrological, substrate, habitat, or other physical and chemical characteristics. Expected presence is based on comparing the aquatic community in the water body of interest to the aquatic community in representative reference water bodies.

~~X.~~ AA. "Nuisance algae bloom" means an excessive population of algae that is characterized by obvious green or blue-green pigmentation in the water, floating mats of algae, reduced light transparency, aesthetic degradation, loss of recreational use, possible harm to the aquatic community, or possible toxicity to animals and humans. Algae blooms are measured through tests for chlorophyll-a, observations of Secchi disk transparency, and observations of impaired recreational and aesthetic conditions by the users of the water body, or any other reliable data that identifies the population of algae in an aquatic community.

BB. "Oxythermal habitat" means a measure of temperature and dissolved oxygen in a water column of a lake where both dissolved oxygen and temperature are suitable to support aquatic life.

~~Y.~~ CC. "Periphyton" means algae on the bottom of a water body. In rivers or streams, these forms are typically found attached to logs, rocks, or other substrates, but when dislodged the algae will become part of the seston.

DD. "Polymictic lake" means a lake with frequent mixing of the water column during the ice-free period.

~~Z.~~ EE. "Readily available and reliable data and information" means chemical, biological, and physical data and information determined by the commissioner to meet the quality assurance and quality control requirements in subpart 8, that are not more than ten years old from the time they are used for the assessment. A subset of data in the ten-year period, or data more than ten years old can be used if credible scientific evidence shows that these data are representative of current conditions.

~~AA.~~ FF. "Reference water body" means a water body minimally or least impacted by point or nonpoint sources of pollution that is representative of water bodies of a similar surface water body type and within a geographic region such as an ecoregion or watershed. Reference water bodies are used as a base for comparing the quality of similar water bodies in the same geographic region.

~~BB.~~ GG. "Reservoir" means a body of water in a natural or artificial basin or watercourse where the outlet or flow is artificially controlled by a structure such as a dam. Reservoirs are distinguished from river systems by having a hydraulic residence time of at least 14 days. For purposes of this item, residence time is determined using a flow equal to the $122Q_{10}$ for the months of June through September.

~~CC.~~ HH. "River nutrient region" means the geographic basis for regionalizing the river eutrophication criteria as described in Heiskary, S. and K. Parson, Regionalization of Minnesota's Rivers for Application of River Nutrient Criteria, Minnesota Pollution Control Agency (2013), which is incorporated by reference. The document is not subject to frequent change and is available through the Minitex interlibrary loan system.

~~DD.~~ II. "Secchi disk" means a tool that is used to measure the transparency of lake water. A Secchi disk is an eight-inch weighted disk on a calibrated rope, either white or with quadrants of black and white. To measure water transparency with a Secchi disk, the disk is viewed from the shaded side of a boat. The depth of the water at the point where the disk reappears upon raising it after it has been lowered beyond visibility is recorded.

~~EE.~~ JJ. "Secchi disk transparency" means the transparency of water as measured by a Secchi disk, a Secchi tube, or a transparency tube.

~~FF.~~ KK. "Secchi tube" means a tool that is used to measure the transparency of stream or river water. A Secchi tube is a clear plastic tube, one meter in length and 1-3/4 inch in diameter, with a mini-Secchi disk on a string. To measure water transparency, the tube is filled with water collected from a stream or river and, looking into the tube from the top, the weighted Secchi disk is lowered into the tube by a string until it disappears and then raised until it reappears, allowing the user to raise and lower the disk within the same water sample numerous times. The depth of the water at the midpoint between disappearance and reappearance of the disk is recorded in centimeters, which are marked on the side of the tube. If the Secchi disk is visible when it is lowered to the bottom of the tube, the transparency reading is recorded as "greater than 100 centimeters."

~~GG.~~ LL. "Seston" means particulate matter suspended in water bodies and includes plankton and organic and inorganic matter.

~~HH.~~ MM. "Shallow lake" means an enclosed basin filled or partially filled with standing fresh water with a maximum depth of 15 feet or less or with 80 percent or more

of the lake area shallow enough to support emergent and submerged rooted aquatic plants (the littoral zone). It is uncommon for shallow lakes to thermally stratify during the summer. The quality of shallow lakes will permit the propagation and maintenance of a healthy indigenous aquatic community and they will be suitable for boating and other forms of aquatic recreation for which they may be usable. Shallow lakes are differentiated from wetlands and lakes on a case-by-case basis. Wetlands are defined in part 7050.0186, subpart 1a.

~~H.~~ NN. "Summer-average" means a representative average of concentrations or measurements of nutrient enrichment factors, taken over one summer season.

~~JJ.~~ OO. "Summer season" means a period annually from June 1 through September 30.

~~KK.~~ PP. "Transparency tube" means a tool that is used to measure the transparency of stream or river water. A transparency tube is a graduated clear plastic tube, 24 inches or more in length by 1-1/2 inches in diameter, with a stopper at the bottom end. The inside surface of the stopper is painted black and white. To measure water transparency, the tube is filled with water from a surface water; the water is released through a valve at the bottom end until the painted surface of the stopper is just visible through the water column when viewed from the top of the tube. The depth, in centimeters, is noted. More water is released until the screw in the middle of the painted symbol on the stopper is clearly visible; this depth is noted. The two observed depths are averaged to obtain a transparency measurement.

~~LL.~~ QQ. "Trophic status or condition" means the productivity of a lake as measured by the phosphorus content, algae abundance, and depth of light penetration.

~~MM.~~ RR. "Use attainability analysis" means a structured scientific assessment of the physical, chemical, biological, and economic factors affecting attainment of the uses of water bodies. A use attainability analysis is required to remove a designated use specified in section 101(a)(2) of the Clean Water Act that is not an existing use. The allowable reasons

for removing a designated use are described in Code of Federal Regulations, title 40, section 131.10 (g).

~~NN.~~ SS. "Water body" means a lake, reservoir, wetland, or a geographically defined portion of a river or stream.

~~OO.~~ TT. "Water body type" means a group of water bodies with similar natural physical, chemical, and biological attributes, where the characteristics are similar among water bodies within each type and distinct from water bodies of other types.

[For text of subpart 5, see Minnesota Rules]

Subp. 5a. **Impaired condition; lakes~~, shallow lakes,~~ and reservoirs.**

A. For lakes~~, shallow lakes,~~ and reservoirs, a finding of an impaired condition must be supported by data showing:

[For text of subitems (1) and (2), see Minnesota Rules]

[For text of items B and C, see Minnesota Rules]

[For text of subparts 5b and 5c, see Minnesota Rules]

Subp. 6. **Impairment of biological community and aquatic habitat.** In evaluating whether the narrative standards in subpart 3, which prohibit serious impairment of the normal aquatic biota and the use thereof, material alteration of the species composition, material degradation of stream beds, and the prevention or hindrance of the propagation and migration of aquatic biota normally present, are being met, the commissioner will consider all readily available and reliable data and information for the following factors of use impairment:

[For text of items A to C, see Minnesota Rules]

D. a quantitative or qualitative assessment of habitat quality, determined by an assessment of:

[For text of subitems (1) to (5), see Minnesota Rules]

(6) types of land use in the watershed; ~~and~~

(7) oxythermal habitat; and

~~(7)~~ (8) other scientifically accepted and valid factors of habitat quality; and

E. any other scientifically objective, credible, and supportable factors.

A finding of an impaired condition must be supported by data for the factors listed in at least one of items A to C. The biological quality of any given surface water body will be assessed by comparison to the biological conditions determined by the commissioner using a biological condition gradient model or a set of reference water bodies which best represents the most natural condition for that surface water body type within a geographic region.

[For text of subparts 7 and 8, see Minnesota Rules]

7050.0220 SPECIFIC WATER QUALITY STANDARDS BY ASSOCIATED USE CLASSES.

[For text of subparts 1 to 5, see Minnesota Rules]

Subp. 5a. **Cool and warm water aquatic life and habitat and associated use classes.** Water quality standards applicable to use classes 2B, 2Be, 2Bg, 2Bm, or 2D; 3; 4A and 4B; and 5 surface waters. See part 7050.0225, subpart 2, for class 3 and 5 standards applicable to wetlands. The water quality standards in part 7050.0222, subpart 4, that apply to class 2B also apply to classes 2Be, 2Bg, and 2Bm. In addition to the water quality standards in part 7050.0222, subpart 4, the biological criteria defined in part 7050.0222, subpart 4d, apply to classes 2Be, 2Bg, and 2Bm.

A. MISCELLANEOUS SUBSTANCE, CHARACTERISTIC, OR POLLUTANT

2B&D CS	**2B&D MS**	**2B&D FAV**	**4A IR**	**4B LS**	**5 AN**

[For text of subitems (1) to (5), see Minnesota Rules]

(6) Eutrophication standards for lakes~~, shallow lakes,~~ and reservoirs (phosphorus, total, µg/L; chlorophyll-a, µg/L; Secchi disk transparency, meters)

See part 7050.0222, subparts 4 and 4a	--	--	--	--	--

[For text of subitems (7) to (20), see Minnesota Rules]

[For text of items B to H, see Minnesota Rules]

[For text of subparts 6 to 7, see Minnesota Rules]

7050.0222 SPECIFIC WATER QUALITY STANDARDS FOR CLASS 2 WATERS OF THE STATE; AQUATIC LIFE AND RECREATION.

[For text of subpart 1, see Minnesota Rules]

Subp. 2. **Class 2A waters; aquatic life and recreation.** The quality of class 2A surface waters shall be such as to permit the propagation and maintenance of a healthy community of coldwater aquatic biota, and their habitats according to the definitions in subpart 2c. These waters shall be suitable for aquatic recreation of all kinds, including bathing, for which the waters may be usable. This class of surface waters is also protected as a source of drinking water. Abbreviations, acronyms, and symbols are explained in subpart 1.

Substance, Characteristic, or Pollutant (Class 2A)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**

Acenaphthene	µg/L	20	HH	56	112	Tox
Acetochlor	µg/L	3.6	Tox	86	173	Tox
Acrylonitrile (c)	µg/L	0.38	HH	1,140*	2,281*	Tox
Alachlor (c)	µg/L	3.8	HH	800*	1,600*	Tox
Aluminum, total	µg/L	87	Tox	748	1,496	Tox
Ammonia un-ionized as N	µg/L	16	Tox	--	--	NA

The percent un-ionized ammonia can be calculated for any temperature and pH by using the following equation taken from Emerson, K., R.C. Russo, R.E. Lund, and R.V. Thurston, Aqueous ammonia equilibrium calculations; effect of pH and temperature. Journal of the Fisheries Research Board of Canada 32: 2379-2383 (1975):

$$f = \frac{1}{10^{(pk_a - pH)} + 1} \times 100$$

where: f = the percent of total ammonia in the un-ionized state

$pk_a = 0.09 + (2730/T)$ (dissociation constant for ammonia)

T = temperature in degrees Kelvin (273.16° Kelvin = 0° Celsius)

Substance, Characteristic, or Pollutant (Class 2A)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
Anthracene	µg/L	0.035	Tox	0.32	0.63	Tox
Antimony, total	µg/L	5.5	HH	90	180	Tox
Arsenic, total	µg/L	2.0	HH	360	720	Tox
Atrazine (c)	µg/L	3.4	HH	323	645	Tox
Benzene (c)	µg/L	5.1	HH	4,487*	8,974*	Tox
Bromoform	µg/L	33	HH	2,900	5,800	Tox
Cadmium, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: exp.(0.7852[ln(total hardness mg/L)]-3.490)

The MS in µg/L shall not exceed: exp.(1.128[ln(total hardness mg/L)]-3.828)

The FAV in µg/L shall not exceed: exp.(1.128[ln(total hardness mg/L)]-3.1349)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total cadmium standards for five hardness values:

TH in mg/L	50	100	200	300	400
Cadmium, total					
CS µg/L	0.66	1.1	2.0	2.7	3.4
MS µg/L	1.8	3.9	8.6	14	19
FAV µg/L	3.6	7.8	17	27	37

Substance, Characteristic, or Pollutant (Class 2A)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
Carbon tetrachloride (c)	µg/L	1.9	HH	1750*	3500*	Tox
Chlordane (c)	ng/L	0.073	HH	1200*	2400*	Tox
Chloride	mg/L	230	Tox	860	1720	Tox
Chlorine, total residual	µg/L	11	Tox	19	38	Tox

Chlorine standard applies to conditions of continuous exposure, where continuous exposure refers to chlorinated effluents that are discharged for more than a total of two hours in any 24-hour period.

Chlorobenzene (Monochlorobenzene)	µg/L	20	HH	423	846	Tox
Chloroform (c)	µg/L	53	HH	1,392	2,784	Tox
Chlorpyrifos	µg/L	0.041	Tox	0.083	0.17	Tox
Chromium +3, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: exp.(0.819[ln(total hardness mg/L)]+1.561)

The MS in µg/L shall not exceed: exp.(0.819[ln(total hardness mg/L)]+3.688)

The FAV in µg/L shall not exceed: exp.(0.819[ln(total hardness mg/L)]+4.380)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total chromium +3 standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Chromium +3, total					
CS µg/L	117	207	365	509	644
MS µg/L	984	1,737	3,064	4,270	5,405
FAV µg/L	1,966	3,469	6,120	8,530	10,797

Substance, Characteristic, or Pollutant (Class 2A)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
Chromium +6, total	µg/L	11	Tox	16	32	Tox
Cobalt, total	µg/L	2.8	HH	436	872	Tox
Color value	Pt/Co	30	NA	--	--	NA
Copper, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: exp.(0.620[ln(total hardness mg/L)]-0.570)

The MS in µg/L shall not exceed: exp.(0.9422[ln(total hardness mg/L)]-1.464)

The FAV in µg/L shall not exceed: exp.(0.9422[ln(total hardness mg/L)]-0.7703)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total copper standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Copper, total					
CS µg/L	6.4	9.8	15	19	23
MS µg/L	9.2	18	34	50	65
FAV µg/L	18	35	68	100	131

Substance, Characteristic, or Pollutant (Class 2A)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
Cyanide, free	µg/L	5.2	Tox	22	45	Tox
DDT (c)	ng/L	0.11	HH	550*	1100*	Tox
1,2-Dichloroethane (c)	µg/L	3.5	HH	45,050*	90,100*	Tox
Dieldrin (c)	ng/L	0.0065	HH	1,300*	2,500*	Tox
Di-2-ethylhexyl phthalate (c)	µg/L	1.9	HH	--*	--*	NA
Di-n-octyl phthalate	µg/L	30	Tox	825	1,650	Tox
Endosulfan	µg/L	0.0076	HH	0.084	0.17	Tox
Endrin	µg/L	0.0039	HH	0.090	0.18	Tox
Escherichia (E.) coli	See below	See below	HH	See below	See below	NA

Not to exceed 126 organisms per 100 milliliters as a geometric mean of not less than five samples representative of conditions within any calendar month, nor shall more than ten percent of all samples taken during any calendar month individually exceed 1,260 organisms per 100 milliliters. The standard applies only between April 1 and October 31.

Ethylbenzene	µg/L	68	Tox	1,859	3,717	Tox

Substance, Characteristic, or Pollutant (Class 2A)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**

Eutrophication standards for aquatic life assigned to class 2A lakes and reservoirs.

Designated lake trout lakes in all ecoregions (lake trout lakes support ~~natural~~ populations of lake trout, *Salvelinus namaycush*):

Phosphorus, total	µg/L	~~12~~ 7	NA	--	--	NA
Chlorophyll-a	µg/L	3	NA	--	--	NA
Secchi disk transparency	meters	No less than ~~4.8~~ 3.5	NA	--	--	NA

Designated lake whitefish lakes in all ecoregions (lake whitefish lakes support populations of lake whitefish, *Coregonus clupeaformis*):

Phosphorus, total	µg/L	12	NA	--	--	NA
Chlorophyll-a	µg/L	5	NA	--	--	NA
Secchi disk transparency	meters	No less than 2.8	NA	--	--	NA

Designated cisco lakes in the Northern Lakes and Forests and Northern Minnesota Wetlands Ecoregions (cisco lakes support populations of cisco, *Coregonus artedi*):

Phosphorus, total	µg/L	20	NA	--	--	NA
Chlorophyll-a	µg/L	9	NA	--	--	NA
Secchi disk transparency	meters	No less than 1.8	NA	--	--	NA

Designated cisco lakes in all other ecoregions (cisco lakes support populations of cisco, *Coregonus artedi*):

Phosphorus, total	µg/L	25	NA	--	--	NA
Chlorophyll-a	µg/L	12	NA	--	--	NA
Secchi disk transparency	meters	No less than 1.3	NA	--	--	NA

Designated stream trout lakes in all ecoregions~~, except lake trout lakes~~ (stream trout lakes support or are managed for stream trout species, such as brook trout, rainbow trout, and brown trout, or trout hybrids, such as splake):

Phosphorus, total	µg/L	~~20~~ 15	NA	--	--	NA
Chlorophyll-a	µg/L	6	NA	--	--	NA
Secchi disk transparency	meters	No less than 2.5	NA	--	--	NA

Eutrophication standards for recreation assigned to class 2A lakes and reservoirs.

Lakes and reservoirs in the Northern Lakes and Forest and Northern Minnesota Wetlands Ecoregions:

Phosphorus, total	µg/L	20	NA	--	--	NA
Chlorophyll-a	µg/L	9	NA	--	--	NA
Secchi disk transparency	meters	No less than 1.8	NA	--	--	NA

Lakes and reservoirs in the North Central Hardwood Forest Ecoregion:

Phosphorus, total	µg/L	40	NA	--	--	NA
Chlorophyll-a	µg/L	14	NA	--	--	NA
Secchi disk transparency	meters	No less than 1.4	NA	--	--	NA

Additional narrative eutrophication standards for class 2A lakes and reservoirs are found under subpart 2a.

Eutrophication standards for class 2A rivers and streams.

North River Nutrient Region:

Phosphorus, total	µg/L	less than or equal to 50
Chlorophyll-a (seston)	µg/L	less than or equal to 7
Diel dissolved oxygen flux	mg/L	less than or equal to 3.0
Biochemical oxygen demand (BOD_5)	mg/L	less than or equal to 1.5
Central River Nutrient Region:		
Phosphorus, total	µg/L	less than or equal to 100
Chlorophyll-a (seston)	µg/L	less than or equal to 18
Diel dissolved oxygen flux	mg/L	less than or equal to 3.5
Biochemical oxygen demand (BOD_5)	mg/L	less than or equal to 2.0
South River Nutrient Region:		
Phosphorus, total	µg/L	less than or equal to 150
Chlorophyll-a (seston)	µg/L	less than or equal to 35
Diel dissolved oxygen flux	mg/L	less than or equal to 4.5
Biochemical oxygen demand (BOD_5)	mg/L	less than or equal to 3.0

Additional narrative eutrophication standards for class 2A rivers and streams are found under subpart 2b.

Substance, Characteristic, or Pollutant (Class 2A)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
Fluoranthene	µg/L	1.9	Tox	3.5	6.9	Tox
Heptachlor (c)	ng/L	0.10	HH	260*	520*	Tox
Heptachlor epoxide (c)	ng/L	0.12	HH	270*	530*	Tox
Hexachlorobenzene (c)	ng/L	0.061	HH	--*	--*	Tox
Lead, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: exp.(1.273[ln(total hardness mg/L)]-4.705)

The MS in µg/L shall not exceed: exp.(1.273[ln(total hardness mg/L)]-1.460)

The FAV in µg/L shall not exceed: exp.(1.273[ln(total hardness mg/L)]-0.7643)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total lead standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Lead, total					
CS µg/L	1.3	3.2	7.7	13	19
MS µg/L	34	82	197	331	477
FAV µg/L	68	164	396	663	956

Substance, Characteristic, or Pollutant (Class 2A)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
Lindane (c) (Hexachlorocyclohexane, gamma-)	µg/L	0.0087	HH	1.0*	2.0*	Tox
Mercury, total in water	ng/L	6.9	HH	2,400*	4,900*	Tox
Mercury, total in edible fish	mg/kg ppm	0.2	HH	NA	NA	NA
Methylene chloride (c) Dichloromethane)	µg/L	45	HH	13,875*	27,749*	Tox
Metolachlor	µg/L	23	Tox	271	543	Tox
Naphthalene	µg/L	65	HH	409	818	Tox
Nickel, total	µg/L	equation	Tox/HH	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS shall not exceed the human health-based standard of 297 µg/L. For waters with total hardness values less than 212 mg/L, the CS in µg/L is toxicity-based and shall not exceed: exp.(0.846[ln(total hardness mg/L)]+1.1645)

The MS in µg/L shall not exceed: exp.(0.846[ln(total hardness mg/L)]+3.3612)

The FAV in µg/L shall not exceed: exp.(0.846[ln(total hardness mg/L)]+4.0543)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total nickel standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Nickel, total					
CS µg/L	88	158	283	297	297
MS µg/L	789	1,418	2,549	3,592	4,582
FAV µg/L	1,578	2,836	5,098	7,185	9,164

Substance, Characteristic, or Pollutant (Class 2A)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
Oil	µg/L	500	NA	5,000	10,000	NA
Oxygen, dissolved	mg/L	See below	NA	--	--	NA

7.0 mg/L as a daily minimum. This dissolved oxygen standard requires compliance with the standard 50 percent of the days at which the flow of the receiving water is equal to the $7Q_{10}$.

Oxythermal habitat (T_{DO3})	°C	See below	NA	--	--	NA

An average T_{DO3} (temperature at 3 mg/L of dissolved oxygen) sufficient to support coldwater fish species must be maintained during the summer season. The following are specific to lakes supporting different coldwater fish species:

8.8°C for designated lake trout (*Salvelinus namaycush*) lakes.

17.2°C for designated lake whitefish (*Coregonus clupeaformis*) lakes.

21.2°C for designated cisco (*Coregonus artedi*) lakes.

Parathion	µg/L	0.013	Tox	0.07	0.13	Tox
Pentachlorophenol	µg/L	0.93	HH	equation	equation	Tox

The MS and FAV vary with pH and are calculated using the following equations:

The MS in µg/L shall not exceed: exp.(1.005[pH]-4.830)

The FAV in µg/L shall not exceed: exp.(1.005[pH]-4.1373)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For pH values less than 6.0, 6.0 shall be used to calculate the standard and for pH values greater than 9.0, 9.0 shall be used to calculate the standard.

Example of pentachlorophenol standards for five pH values:

pH su	6.5	7.0	7.5	8.0	8.5
Pentachlorophenol					
CS µg/L	0.93	0.93	0.93	0.93	0.93
MS µg/L	5.5	9.1	15	25	41
FAV µg/L	11	18	30	50	82

Substance, Characteristic, or Pollutant (Class 2A)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**

pH, minimum	su	6.5	NA	--	--	NA
pH, maximum	su	8.5	NA	--	--	NA
Phenanthrene	µg/L	3.6	Tox	32	64	Tox
Phenol	µg/L	123	Tox	2,214	4,428	Tox
Polychlorinated biphenyls, total (c)	ng/L	0.014	HH	1,000*	2,000*	Tox
Radioactive materials	NA	See below	NA	See below	See below	NA

Not to exceed the lowest concentrations permitted to be discharged to an uncontrolled environment as permitted by the appropriate authority having control over their use.

Selenium, total	µg/L	5.0	Tox	20	40	Tox
Silver, total	µg/L	0.12	Tox	equation	equation	Tox

The MS and FAV vary with total hardness and are calculated using the following equations:

The MS in µg/L shall not exceed: exp.(1.720[ln(total hardness mg/L)]-7.2156)

The FAV in µg/L shall not exceed: exp.(1.720[ln(total hardness mg/L)]-6.520)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of silver standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Silver, total					
CS µg/L	0.12	0.12	0.12	0.12	0.12
MS µg/L	1.0	2.0	6.7	13	22
FAV µg/L	1.2	4.1	13	27	44

Substance, Characteristic,	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for**

or Pollutant (Class 2A)						**MS, FAV**
Temperature	°C or °F	No material increase	NA	--	--	NA
1,1,2,2-Tetrachloroethane (c)	µg/L	1.1	HH	1,127*	2,253*	Tox
Tetrachloroethylene (c)	µg/L	3.8	HH	428*	857*	Tox
Thallium, total	µg/L	0.28	HH	64	128	Tox
Toluene	µg/L	253	Tox	1,352	2,703	Tox
Toxaphene (c)	ng/L	0.31	HH	730*	1,500*	Tox
1,1,1-Trichloroethane	µg/L	329	Tox	2,957	5,913	Tox
1,1,2-Trichloroethylene (c)	µg/L	25	HH	6,988*	13,976*	Tox
2,4,6-Trichlorophenol	µg/L	2.0	HH	102	203	Tox
Total suspended solids (TSS)	mg/L	10	NA	--	--	NA
TSS standards for class 2A may be exceeded for no more than ten percent of the time. This standard applies April 1 through September 30						
Vinyl chloride (c)	µg/L	0.17	HH	--*	--*	NA
Xylene, total m,p,o	µg/L	166	Tox	1,407	2,814	Tox
Zinc, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: exp.(0.8473[ln(total hardness mg/L)]+0.7615)

The MS in µg/L shall not exceed: exp.(0.8473[ln(total hardness mg/L)]+0.8604)

The FAV in µg/L shall not exceed: exp.(0.8473[ln(total hardness mg/L)]+1.5536

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of zinc standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Zinc, total					
CS µg/L	59	106	191	269	343
MS µg/L	65	117	211	297	379
FAV µg/L	130	234	421	594	758

[For text of subparts 2a and 2b, see Minnesota Rules]

Subp. 2c. **Beneficial use definitions for ~~lotic~~ coldwater aquatic life and habitats (class 2A).**

A. Subitems (1) to (5) apply to the beneficial uses in items B and C:

[For text of subitem (1), see Minnesota Rules]

(2) The attributes of species composition, diversity, and functional organization are measured using:

(a) the fish IBI for lotic habitats as defined in Fish Data Collection Protocols for Lotic Waters in Minnesota (2017); ~~or~~

(b) the macroinvertebrate IBI for lotic habitats as defined in Macroinvertebrate Data Collection Protocols for Lotic Waters in Minnesota (2017)~~.~~; or

(c) the fish IBI for lentic habitats as defined in Manual of Instructions for Lake Survey (2017) and Lake Index of Biological Integrity (IBI) Nearshore Sampling Manual (2022).

(3) Water body types ~~for streams and rivers~~ are defined in the documents referenced in subitem (2).

(4) The following documents are incorporated by reference and are not subject to frequent change:

(a) Calibration of the Biological Condition Gradient for Streams of Minnesota, Gerritsen et al. (2012). The document is available on the agency's website at ~~www.pca.state.mn.us/regulations/minnesota-rulemaking~~ https://www.pca.state.mn.us/get-engaged/incorporations-by-reference;

(b) Fish Data Collection Protocols for Lotic Waters in Minnesota, Minnesota Pollution Control Agency (2017). The document is available on the agency's website at ~~www.pca.state.mn.us/regulations/minnesota-rulemaking~~ https://www.pca.state.mn.us/get-engaged/incorporations-by-reference;

(c) Macroinvertebrate Data Collection Protocols for Lotic Waters in Minnesota, Minnesota Pollution Control Agency (2017). The document is available on the agency's website at ~~www.pca.state.mn.us/regulations/minnesota-rulemaking~~ https://www.pca.state.mn.us/get-engaged/incorporations-by-reference; ~~and~~

(d) Development of Biological Criteria for Tiered Aquatic Life Uses, Minnesota Pollution Control Agency (2016). The document is available on the agency's website at ~~www.pca.state.mn.us/regulations/minnesota-rulemaking.~~ https://www.pca.state.mn.us/get-engaged/incorporations-by-reference;

(e) Biological Condition Gradient (BCG) Assessment Models for Lake Fish Communities of Minnesota, Gerritsen and Stamp (2014). The document is available on the agency's website at https://www.pca.state.mn.us/get-engaged/incorporations-by-reference;

(f) Manual of Instructions for Lake Survey, Minnesota Department of Natural Resources (2017). The document is available on the agency's website at https://www.pca.state.mn.us/get-engaged/incorporations-by-reference;

(g) Lake Index of Biological Integrity (IBI) Nearshore Sampling Manual, Minnesota Department of Natural Resources (2022). The document is available on the agency's website at https://www.pca.state.mn.us/get-engaged/incorporations-by-reference; and

(h) Development of Fish-Based Indices of Biological Integrity for Minnesota Lakes, Bacigalupi et al. (2021). The document is available on the agency's website at https://www.pca.state.mn.us/get-engaged/incorporations-by-reference.

(5) The beneficial use subclass designators "e" and "g" are added to the class 2A designator as specific additional designators. The additional subclass designators do not replace the class 2A designator. All requirements for class 2A coldwater ~~stream and river~~ habitats in parts 7050.0222 and 7052.0100 continue to apply in addition to requirements for class 2Ae or class 2Ag coldwater ~~stream and river~~ habitats in part 7050.0222. ~~These subclass designators are applied to lotic waters only.~~

B. "Exceptional coldwater aquatic life and habitat" or "class 2Ae" is a beneficial use that means waters capable of supporting and maintaining an exceptional and balanced, integrated, adaptive community of coldwater aquatic organisms having a species composition, diversity, and functional organization comparable to the 75th percentile of biological condition gradient level 3 as established in Calibration of the Biological Condition Gradient for Streams of Minnesota, Gerritsen et al. (2012) for streams and rivers and in Biological Condition Gradient (BCG) Assessment Models for Lake Fish Communities of Minnesota, Gerritsen and Stamp (2014) for lakes.

C. "General coldwater aquatic life and habitat" or "class 2Ag" is a beneficial use that means waters capable of supporting and maintaining a balanced, integrated, adaptive community of coldwater aquatic organisms having a species composition, diversity, and functional organization comparable to the median of biological condition gradient level 4 as established in Calibration of the Biological Condition Gradient for Streams of Minnesota,

Gerritsen et al. (2012) for streams and rivers and in Biological Condition Gradient (BCG) Assessment Models for Lake Fish Communities of Minnesota, Gerritsen and Stamp (2014) for lakes.

Subp. 2d. **Biological criteria for ~~lotic~~ coldwater aquatic life and habitats (class 2A).**

Water Body Type	**Tier**	**Class**	**Assemblage**	**Biocriterion**
Southern coldwater streams	Exceptional	2Ae	Fish	82
	General	2Ag	Fish	50
Northern coldwater streams	Exceptional	2Ae	Fish	60
	General	2Ag	Fish	35
Northern coldwater streams	Exceptional	2Ae	Macroinvertebrates	52
	General	2Ag	Macroinvertebrates	32
Southern coldwater streams	Exceptional	2Ae	Macroinvertebrates	72
	General	2Ag	Macroinvertebrates	43
Deep, complex lakes	Exceptional	2Ae	Fish	64
	General	2Ag	Fish	45
Deep, moderately complex lakes	Exceptional	2Ae	Fish	59
	General	2Ag	Fish	38
Moderately deep lakes	General	2Ag	Fish	24
Shallow lakes	General	2Ag	Fish	36

The biological criteria for lotic coldwater aquatic life and habitats (class 2A) are applicable to perennial and intermittent waters that allow for colonization of fish or macroinvertebrates.

Subp. 3. **Class 2Bd waters.** The quality of class 2Bd surface waters shall be such as to permit the propagation and maintenance of a healthy community of cool or warm water aquatic biota and their habitats according to the definitions in subpart 3c. These waters shall be suitable for aquatic recreation of all kinds, including bathing, for which the waters may be usable. This class of surface waters is also protected as a source of drinking water. The applicable standards are given below. Abbreviations, acronyms, and symbols are explained in subpart 1.

Substance, Characteristic, or Pollutant (Class 2Bd)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
Acenaphthene	µg/L	20	HH	56	112	Tox
Acetochlor	µg/L	3.6	Tox	86	173	Tox
Acrylonitrile (c)	µg/L	0.38	HH	1,140*	2,281*	Tox
Alachlor (c)	µg/L	4.2	HH	800*	1,600*	Tox
Aluminum, total	µg/L	125	Tox	1,072	2,145	Tox
Ammonia un-ionized as N	µg/L	40	Tox	--	--	NA

The percent un-ionized ammonia can be calculated for any temperature and pH by using the following equation taken from Emerson, K., R.C. Russo, R.E. Lund, and R.V. Thurston, Aqueous ammonia equilibrium calculations; effect of pH and temperature. Journal of the Fisheries Research Board of Canada 32: 2379-2383 (1975):

$$f = 1/(10^{(pka-pH)} + 1) \times 100$$

where: f = the percent of total ammonia in the un-ionized state

$pk_a = 0.09 + (2730/T)$ (dissociation constant for ammonia)

T = temperature in degrees Kelvin (273.16° Kelvin = 0° Celsius)

Substance, Characteristic,	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for**

Substance, Characteristic, or Pollutant (Class 2Bd)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
Anthracene	µg/L	0.035	Tox	0.32	0.63	Tox
Antimony, total	µg/L	5.5	HH	90	180	Tox
Arsenic, total	µg/L	2.0	HH	360	720	Tox
Atrazine (c)	µg/L	3.4	HH	323	645	Tox
Benzene (c)	µg/L	6.0	HH	4,487*	8,974*	Tox
Bromoform	µg/L	41	HH	2,900	5,800	Tox
Cadmium, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: exp.(0.7852[ln(total hardness mg/L)]-3.490)

The MS in µg/L shall not exceed: exp.(1.128[ln(total hardness mg/L)]-1.685)

The FAV in µg/L shall not exceed: exp.(1.128[ln(total hardness mg/L)]-0.9919)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total cadmium standards for five hardness values:

TH in mg/L	50	100	200	300	400
Cadmium, total					
CS µg/L	0.66	1.1	2.0	2.7	3.4
MS µg/L	15	33	73	116	160
FAV µg/L	31	67	146	231	319

							MS, FAV
Carbon tetrachloride (c)	µg/L	1.9	HH	1,750*	3,500*	Tox	
Chlordane (c)	ng/L	0.29	HH	1,200*	2,400*	Tox	
Chloride	mg/L	230	Tox	860	1,720	Tox	
Chlorine, total residual	µg/L	11	Tox	19	38	Tox	

Chlorine standard applies to conditions of continuous exposure, where continuous exposure refers to chlorinated effluents that are discharged for more than a total of two hours in any 24-hour period.

Chlorobenzene (Monochlorobenzene)	µg/L	20	HH	423	846	Tox
Chloroform (c)	µg/L	53	HH	1,392	2,784	Tox
Chlorpyrifos	µg/L	0.041	Tox	0.083	0.17	Tox
Chromium +3, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: exp.(0.819[ln(total hardness mg/L)]+1.561)

The MS in µg/L shall not exceed: exp.(0.819[ln(total hardness mg/L)]+3.688)

The FAV in µg/L shall not exceed: exp.(0.819[ln(total hardness mg/L)]+4.380)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total chromium +3 standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Chromium +3, total					
CS µg/L	117	207	365	509	644

MS µg/L	984	1,737	3,064	4,270	5,405
FAV µg/L	1,966	3,469	6,120	8,530	10,797

Substance, Characteristic, or Pollutant (Class 2Bd)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
Chromium +6, total	µg/L	11	Tox	16	32	Tox
Cobalt, total	µg/L	2.8	HH	436	872	Tox
Copper, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: exp.(0.620[ln(total hardness mg/L)]-0.570)

The MS in µg/L shall not exceed: exp.(0.9422[ln(total hardness mg/L)]-1.464)

The FAV in µg/L shall not exceed: exp.(0.9422[ln(total hardness mg/L)]-0.7703)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total copper standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Copper, total					
CS µg/L	6.4	9.8	15	19	23
MS µg/L	9.2	18	34	50	65
FAV µg/L	18	35	68	100	131

Substance, Characteristic, or Pollutant (Class 2Bd)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV

Cyanide, free	µg/L	5.2	Tox	22	45	Tox
DDT (c)	ng/L	1.7	HH	550*	1,100*	Tox
1,2-Dichloroethane (c)	µg/L	3.8	HH	45,050*	90,100*	Tox
Dieldrin (c)	ng/L	0.026	HH	1,300*	2,500*	Tox
Di-2-ethylhexyl phthalate (c)	µg/L	1.9	HH	--*	--*	NA
Di-n-octyl phthalate	µg/L	30	Tox	825	1,650	Tox
Endosulfan	µg/L	0.029	HH	0.28	0.56	Tox
Endrin	µg/L	0.016	HH	0.090	0.18	Tox
Escherichia (E.) coli	See below	See below	HH	See below	See below	NA

Not to exceed 126 organisms per 100 milliliters as a geometric mean of not less than five samples representative of conditions within any calendar month, nor shall more than ten percent of all samples taken during any calendar month individually exceed 1,260 organisms per 100 milliliters. The standard applies only between April 1 and October 31.

Ethylbenzene	µg/L	68	Tox	1,859	3,717	Tox

Substance, Characteristic, or Pollutant (Class 2Bd)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**

Eutrophication standards for class 2Bd lakes~~, shallow lakes,~~ and reservoirs.

Dimictic Lakes~~, Shallow Lakes,~~ and Reservoirs in Northern Lakes and ~~Forest Ecoregion~~ Forests and Northern Minnesota Wetlands Ecoregions:

Phosphorus, total	µg/L	~~30~~ 20	NA	--	--	NA
Chlorophyll-a	µg/L	9	NA	--	--	NA
Secchi disk transparency	meters	Not less than ~~2.0~~ 1.8	NA	--	--	NA

Dimictic Lakes and Reservoirs in North Central Hardwood ~~Forest~~ Forests Ecoregion:

Phosphorus, total	µg/L	40	NA	--	--	NA
Chlorophyll-a	µg/L	14	NA	--	--	NA
Secchi disk transparency	meters	Not less than 1.4	NA	--	--	NA

Dimictic Lakes and Reservoirs in Western Corn Belt Plains and Northern Glaciated Plains Ecoregions:

Phosphorus, total	µg/L	65	NA	--	--	NA
Chlorophyll-a	µg/L	22	NA	--	--	NA
Secchi disk transparency	meters	Not less than 0.9	NA	--	--	NA

Polymictic Lakes in Northern Lakes and Forests and Northern Minnesota Wetlands Ecoregions:

Phosphorus, total	µg/L	32	NA	--	--	NA
Chlorophyll-a	µg/L	18	NA	--	--	NA
Secchi disk transparency	meters	Not less than 0.9	NA	--	--	NA

~~Shallow~~ Polymictic Lakes in North Central Hardwood ~~Forest~~ Forests Ecoregion:

Phosphorus, total	µg/L	60	NA	--	--	NA
Chlorophyll-a	µg/L	20	NA	--	--	NA
Secchi disk transparency	meters	Not less than 1.0	NA	--	--	NA

~~Shallow~~ Polymictic Lakes in Western Corn Belt Plains and Northern Glaciated Plains Ecoregions:

Phosphorus, total	µg/L	90	NA	--	--	NA
Chlorophyll-a	µg/L	30	NA	--	--	NA
Secchi disk transparency	meters	Not less than 0.7	NA	--	--	NA

Additional narrative eutrophication standards for class 2Bd lakes~~, shallow lakes,~~ and reservoirs are found under subpart 3a.

Eutrophication standards for class 2Bd rivers and streams.

North River Nutrient Region:

Phosphorus, total	µg/L	less than or equal to 50
Chlorophyll-a (seston)	µg/L	less than or equal to 7
Diel dissolved oxygen flux	mg/L	less than or equal to 3.0
Biochemical oxygen demand (BOD_5)	mg/L	less than or equal to 1.5

Central River Nutrient Region:

Phosphorus, total	µg/L	less than or equal to 100
Chlorophyll-a (seston)	µg/L	less than or equal to 18
Diel dissolved oxygen flux	mg/L	less than or equal to 3.5
Biochemical oxygen demand (BOD_5)	mg/L	less than or equal to 2.0

South River Nutrient Region:

Phosphorus, total	µg/L	less than or equal to 150
Chlorophyll-a (seston)	µg/L	less than or equal to 35
Diel dissolved oxygen flux	mg/L	less than or equal to 4.5
Biochemical oxygen demand (BOD_5)	mg/L	less than or equal to 3.0

Additional narrative eutrophication standards for class 2Bd rivers and streams are found under subpart 3b.

Substance, Characteristic, or Pollutant (Class 2Bd)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**

Fluoranthene	µg/L	1.9	Tox	3.5	6.9	Tox
Heptachlor (c)	ng/L	0.39	HH	260*	520*	Tox
Heptachlor epoxide (c)	ng/L	0.48	HH	270*	530*	Tox
Hexachlorobenzene (c)	ng/L	0.24	HH	--*	--*	Tox
Lead, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: exp.(1.273[ln(total hardness mg/L)]-4.705)

The MS in µg/L shall not exceed: exp.(1.273[ln(total hardness mg/L)]-1.460)

The FAV in µg/L shall not exceed: exp.(1.273[ln(total hardness mg/L)]-0.7643)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total lead standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Lead, total					
CS µg/L	1.3	3.2	7.7	13	19
MS µg/L	34	82	197	331	477
FAV µg/L	68	164	396	663	956

Substance, Characteristic, or Pollutant (Class 2Bd)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
Lindane (c) (Hexachlorocyclohexane, gamma-)	µg/L	0.032	HH	4.4*	8.8*	Tox
Mercury, total in water	ng/L	6.9	HH	2,400*	4,900*	Tox

Mercury, total in edible fish tissue	mg/kg ppm	0.2	HH	NA	NA	NA
Methylene chloride (c) (Dichloromethane)	µg/L	46	HH	13,875*	27,749*	Tox
Metolachlor	µg/L	23	Tox	271	543	Tox
Naphthalene	µg/L	81	Tox	409	818	Tox
Nickel, total	µg/L	equation	Tox/HH	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS shall not exceed the human health-based standard of 297 µg/L. For waters with total hardness values less than 212 mg/L, the CS in µg/L is toxicity-based and shall not exceed: exp.(0.846[ln(total hardness mg/L)]+1.1645)

The MS in µg/L shall not exceed: exp.(0.846[ln(total hardness mg/L)]+3.3612)

The FAV in µg/L shall not exceed: exp.(0.846[ln(total hardness mg/L)]+4.0543)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total nickel standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Nickel, total					
CS µg/L	88	158	283	297	297
MS µg/L	789	1,418	2,549	3,592	4,582
FAV µg/L	1,578	2,836	5,098	7,185	9,164

Substance, Characteristic, or Pollutant (Class 2Bd)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**

Oil	µg/L	500	NA	5,000	10,000	NA
Oxygen, dissolved	mg/L	See below	NA	--	--	NA

5.0 mg/L as a daily minimum. This dissolved oxygen standard may be modified on a site-specific basis according to part 7050.0220, subpart 7, except that no site-specific standard shall be less than 5 mg/L as a daily average and 4 mg/L as a daily minimum. Compliance with this standard is required 50 percent of the days at which the flow of the receiving water is equal to the $7Q_{10}$.

Parathion	µg/L	0.013	Tox	0.07	0.13	Tox
Pentachlorophenol	µg/L	1.9	HH	equation	equation	Tox

The MS and FAV vary with pH and are calculated using the following equations:

The MS in µg/L shall not exceed: exp.(1.005[pH]-4.830)

The FAV in µg/L shall not exceed: exp.(1.005[pH]-4.1373)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For pH values less than 6.0, 6.0 shall be used to calculate the standard and for pH values greater than 9.0, 9.0 shall be used to calculate the standard.

Example of pentachlorophenol standards for five pH values:

pH su	6.5	7.0	7.5	8.0	8.5
Pentachlorophenol					
CS µg/L	1.9	1.9	1.9	1.9	1.9
MS µg/L	5.5	9.1	15	25	41
FAV µg/L	11	18	30	50	82

Substance, Characteristic, or Pollutant (Class 2Bd)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
pH, minimum	su	6.5	NA	--	--	NA
pH, maximum	su	9.0	NA	--	--	NA

Phenanthrene	µg/L	3.6	Tox	32	64	Tox
Phenol	µg/L	123	Tox	2,214	4,428	Tox
Polychlorinated biphenyls, total (c)	ng/L	0.029	HH	1,000*	2,000*	Tox
Radioactive materials	NA	See below	NA	See below	See below	NA

Not to exceed the lowest concentrations permitted to be discharged to an uncontrolled environment as permitted by the appropriate authority having control over their use.

Selenium, total	µg/L	5.0	Tox	20	40	Tox
Silver, total	µg/L	1.0	Tox	equation	equation	Tox

The MS and FAV vary with total hardness and are calculated using the following equations:

The MS in µg/L shall not exceed: exp.(1.720[ln(total hardness mg/L)]-7.2156)

The FAV in µg/L shall not exceed: exp.(1.720[ln(total hardness mg/L)]-6.520)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total silver standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Silver, total					
CS µg/L	1.0	1.0	1.0	1.0	1.0
MS µg/L	1.0	2.0	6.7	13	22
FAV µg/L	1.2	4.1	13	27	44

Substance, Characteristic, or Pollutant (Class 2Bd)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**

Temperature	°F	See below	NA	--	--	NA

5°F above natural in streams and 3°F above natural in lakes, based on monthly average of the maximum daily temperatures, except in no case shall it exceed the daily average temperature of 86°F.

1,1,2,2-Tetrachloroethane (c)	µg/L	1.5	HH	1,127*	2,253*	Tox
Tetrachloroethylene (c)	µg/L	3.8	HH	428*	857*	Tox
Thallium, total	µg/L	0.28	HH	64	128	Tox
Toluene	µg/L	253	Tox	1,352	2,703	Tox
Toxaphene (c)	ng/L	1.3	HH	730*	1,500*	Tox
1,1,1-Trichloroethane	µg/L	329	Tox	2,957	5,913	Tox
1,1,2-Trichloroethylene (c)	µg/L	25	HH	6,988*	13,976*	Tox
2,4,6-Trichlorophenol	µg/L	2.0	HH	102	203	Tox
Total suspended solids (TSS)						
North River Nutrient Region	mg/L	15	NA	-	-	NA
Central River Nutrient Region	mg/L	30	NA	-	-	NA
South River Nutrient Region	mg/L	65	NA	-	-	NA
Red River mainstem - headwaters to border	mg/L	100	NA	-	-	NA
TSS standards for the class 2Bd North, Central, and South River Nutrient Regions and the Red River mainstem may be exceeded for no more than ten percent of the time. This standard applies April 1 through September 30						

Total suspended solids (TSS), summer average						
Lower Mississippi River mainstem - Pools 2 through 4	mg/L	32	NA	-	-	NA
Lower Mississippi River mainstem below Lake Pepin	mg/L	30	NA	-	-	NA

TSS standards for the class 2Bd Lower Mississippi River may be exceeded for no more than 50 percent of the time. This standard applies June 1 through September 30

Substance, Characteristic, or Pollutant (Class 2Bd)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
Vinyl chloride (c)	µg/L	0.18	HH	--*	--*	NA
Xylene, total m,p,o	µg/L	166	Tox	1,407	2,814	Tox
Zinc, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: exp.(0.8473[ln(total hardness mg/L)]+0.7615)

The MS in µg/L shall not exceed: exp.(0.8473[ln(total hardness mg/L)]+0.8604)

The FAV in µg/L shall not exceed: exp.(0.8473[ln(total hardness mg/L)]+1.5536)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total zinc standards for five total hardness values:

TH in mg/L	50	100	200	300	400

Zinc, total					
CS µg/L	59	106	191	269	343
MS µg/L	65	117	211	297	379
FAV µg/L	130	234	421	594	758

Subp. 3a. **Narrative eutrophication standards for class 2Bd lakes~~, shallow lakes,~~ and reservoirs.**

A. Eutrophication standards applicable to lakes~~, shallow lakes,~~ and reservoirs that lie on the border between two ecoregions or that are in the Red River Valley (also referred to as Lake Agassiz Plains), Northern Minnesota Wetlands, or Driftless Area Ecoregion must be applied on a case-by-case basis. The commissioner shall use the standards applicable to adjacent ecoregions as a guide.

[For text of item B, see Minnesota Rules]

C. It is the policy of the agency to protect all lakes~~, shallow lakes,~~ and reservoirs from the undesirable effects of cultural eutrophication. Lakes~~, shallow lakes,~~ and reservoirs with a baseline quality better than the numeric eutrophication standards in subpart 3 must be maintained in that condition through the strict application of all relevant federal, state, and local requirements governing antidegradation, the discharge of nutrients from point and nonpoint sources, and the protection of lake~~, shallow lake,~~ and reservoir resources, including, but not limited to:

[For text of subitems (1) to (7), see Minnesota Rules]

D. Lakes~~, shallow lakes,~~ and reservoirs with a baseline quality that is poorer than the numeric eutrophication standards in subpart 3 must be considered to be in compliance with the standards if the baseline quality is the result of natural causes. The commissioner

shall determine baseline quality and compliance with these standards using data and the procedures in part 7050.0150, subpart 5.

[For text of item E, see Minnesota Rules]

[For text of subpart 3b, see Minnesota Rules]

Subp. 3c. **Beneficial use definitions for ~~lotic~~ warm or cool water aquatic life and habitats (class 2Bd).**

A. Subitems (1) to (5) apply to the beneficial uses in items B to D:

[For text of subitem (1), see Minnesota Rules]

(2) The attributes of species composition, diversity, and functional organization are measured using:

(a) the fish IBI as defined in Fish Data Collection Protocols for Lotic Waters in Minnesota (2017); ~~or~~

(b) the macroinvertebrate IBI as defined in Macroinvertebrate Data Collection Protocols for Lotic Waters in Minnesota (2017)~~.~~; or

(c) the fish IBI for lentic habitats as defined in Manual of Instructions for Lake Survey (2017) and Lake Index of Biological Integrity (IBI) Nearshore Sampling Manual (2022).

(3) Water body types ~~for streams and rivers~~ are defined in the documents referenced in subitem (2).

(4) The following documents are incorporated by reference and are not subject to frequent change:

(a) Calibration of the Biological Condition Gradient for Streams of Minnesota, Gerritsen et al. (2012). The document is available on the agency's website at

~~www.pca.state.mn.us/regulations/minnesota-rulemaking~~
https://www.pca.state.mn.us/get-engaged/incorporations-by-reference;

(b) Fish Data Collection Protocols for Lotic Waters in Minnesota, Minnesota Pollution Control Agency (2017). The document is available on the agency's website at ~~www.pca.state.mn.us/regulations/minnesota-rulemaking~~
https://www.pca.state.mn.us/get-engaged/incorporations-by-reference;

(c) Macroinvertebrate Data Collection Protocols for Lotic Waters in Minnesota, Minnesota Pollution Control Agency (2017). The document is available on the agency's website at ~~www.pca.state.mn.us/regulations/minnesota-rulemaking~~
https://www.pca.state.mn.us/get-engaged/incorporations-by-reference; ~~and~~

(d) Development of Biological Criteria for Tiered Aquatic Life Uses, Minnesota Pollution Control Agency (2016). The document is available on the agency's website at ~~www.pca.state.mn.us/regulations/minnesota-rulemaking.~~
https://www.pca.state.mn.us/get-engaged/incorporations-by-reference;

(e) Biological Condition Gradient (BCG) Assessment Models for Lake Fish Communities of Minnesota, Gerritsen and Stamp (2014). The document is available on the agency's website at
https://www.pca.state.mn.us/get-engaged/incorporations-by-reference;

(f) Manual of Instructions for Lake Survey, Minnesota Department of Natural Resources (2017). The document is available on the agency's website at
https://www.pca.state.mn.us/get-engaged/incorporations-by-reference;

(g) Lake Index of Biological Integrity (IBI) Nearshore Sampling Manual, Minnesota Department of Natural Resources (2022). The document is available on the agency's website at https://www.pca.state.mn.us/get-engaged/incorporations-by-reference; and

(h) Development of Fish-Based Indices of Biological Integrity for Minnesota Lakes, Bacigalupi et al. (2021). The document is available on the agency's website at https://www.pca.state.mn.us/get-engaged/incorporations-by-reference.

(5) The beneficial use subclass designators "e," "g," and "m" are added to the class 2Bd designator as specific additional designators. The additional subclass designators do not replace the class 2Bd designator. All requirements for class 2Bd warm or cool water ~~stream and river~~ habitats in parts 7050.0222 and 7052.0100 continue to apply in addition to requirements for class 2Bde, class 2Bdg, or class 2Bdm warm or cool water ~~stream and river~~ habitats in part 7050.0222. ~~These~~ The "m" subclass ~~designators are~~ designator is applied to lotic waters only.

B. "Exceptional cool and warm water aquatic life and habitat, also protected as a source for drinking water" or "class 2Bde" is a beneficial use that means waters capable of supporting and maintaining an exceptional and balanced, integrated, adaptive community of warm or cool water aquatic organisms having a species composition, diversity, and functional organization comparable to the 75th percentile of biological condition gradient level 3 as established in Calibration of the Biological Condition Gradient for Streams of Minnesota, Gerritsen et al. (2012) for streams and rivers and in Biological Condition Gradient (BCG) Assessment Models for Lake Fish Communities of Minnesota, Gerritsen and Stamp (2014) for lakes.

C. "General cool and warm water aquatic life and habitat, also protected as a source for drinking water" or "class 2Bdg" is a beneficial use that means waters capable of supporting and maintaining a balanced, integrated, adaptive community of warm or cool water aquatic organisms having a species composition, diversity, and functional organization comparable to the median of biological condition gradient level 4 as established in Calibration of the Biological Condition Gradient for Streams of Minnesota, Gerritsen et al. (2012) for

streams and rivers and in Biological Condition Gradient (BCG) Assessment Models for Lake Fish Communities of Minnesota, Gerritsen and Stamp (2014) for lakes.

[For text of item D, see Minnesota Rules]

Subp. 3d. **Biological criteria for ~~lotic~~ warm or cool water aquatic life and habitats (class 2Bd).**

Water Body Type	Tier	Class	Assemblage	Biocriterion
Southern rivers	Exceptional	2Bde	Fish	71
	General	2Bdg	Fish	49
Southern streams	Exceptional	2Bde	Fish	66
	General	2Bdg	Fish	50
	Modified	2Bdm	Fish	35
Southern headwaters	Exceptional	2Bde	Fish	74
	General	2Bdg	Fish	55
	Modified	2Bdm	Fish	33
Northern rivers	Exceptional	2Bde	Fish	67
	General	2Bdg	Fish	38
Northern streams	Exceptional	2Bde	Fish	61
	General	2Bdg	Fish	47
	Modified	2Bdm	Fish	35
Northern headwaters	Exceptional	2Bde	Fish	68
	General	2Bdg	Fish	42
	Modified	2Bdm	Fish	23
Low gradient	Exceptional	2Bde	Fish	70
	General	2Bdg	Fish	42
	Modified	2Bdm	Fish	15
Northern forest rivers	Exceptional	2Bde	Macroinvertebrates	77

		General	2Bdg	Macroinvertebrates	49
Prairie and southern forest rivers		Exceptional	2Bde	Macroinvertebrates	63
		General	2Bdg	Macroinvertebrates	31
High-gradient northern forest streams		Exceptional	2Bde	Macroinvertebrates	82
		General	2Bdg	Macroinvertebrates	53
Low-gradient northern forest streams		Exceptional	2Bde	Macroinvertebrates	76
		General	2Bdg	Macroinvertebrates	51
		Modified	2Bdm	Macroinvertebrates	37
High-gradient southern streams		Exceptional	2Bde	Macroinvertebrates	62
		General	2Bdg	Macroinvertebrates	37
		Modified	2Bdm	Macroinvertebrates	24
Low-gradient southern forest streams		Exceptional	2Bde	Macroinvertebrates	66
		General	2Bdg	Macroinvertebrates	43
		Modified	2Bdm	Macroinvertebrates	30
Low-gradient prairie streams		Exceptional	2Bde	Macroinvertebrates	69
		General	2Bdg	Macroinvertebrates	41
		Modified	2Bdm	Macroinvertebrates	22
Deep, complex lakes		Exceptional	2Ae	Fish	64
		General	2Ag	Fish	45
Deep, moderately complex lakes		Exceptional	2Ae	Fish	59
		General	2Ag	Fish	38

Moderately deep lakes	General	2Ag	Fish		24
Shallow lakes	General	2Ag	Fish		36

The biological criteria for lotic warm or cool water aquatic life and habitats (class 2Bd) are applicable to perennial and intermittent waters that allow for colonization of fish or macroinvertebrates.

Subp. 4. **Class 2B waters.** The quality of class 2B surface waters shall be such as to permit the propagation and maintenance of a healthy community of cool or warm water aquatic biota, and their habitats according to the definitions in subpart 4c. These waters shall be suitable for aquatic recreation of all kinds, including bathing, for which the waters may be usable. This class of surface water is not protected as a source of drinking water. The applicable standards are given below. Abbreviations, acronyms, and symbols are explained in subpart 1.

Substance, Characteristic, or Pollutant (Class 2B)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
Acenaphthene	µg/l	20	HH	56	112	Tox
Acetochlor	µg/L	3.6	Tox	86	173	Tox
Acrylonitrile (c)	µg/l	0.89	HH	1,140*	2,281*	Tox
Alachlor (c)	µg/L	59	Tox	800	1,600	Tox
Aluminum, total	µg/L	125	Tox	1,072	2,145	Tox
Ammonia un-ionized as N	µg/L	40	Tox	--	--	NA

The percent un-ionized ammonia can be calculated for any temperature and pH by using the following equation taken from Emerson, K., R.C. Russo, R.E. Lund, and R.V. Thurston, Aqueous ammonia equilibrium calculations; effect of pH and temperature. Journal of the Fisheries Research Board of Canada 32: 2379-2383 (1975):

$$f = 1/(10^{(pka-pH)} + 1) \times 100$$

where: f = the percent of total ammonia in the un-ionized state

$pk_a = 0.09 + (2730/T)$ (dissociation constant for ammonia)

T = temperature in degrees Kelvin (273.16° Kelvin = 0° Celsius)

Substance, Characteristic, or Pollutant (Class 2B)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
Anthracene	µg/L	0.035	Tox	0.32	0.63	Tox
Antimony, total	µg/L	31	Tox	90	180	Tox
Arsenic, total	µg/L	53	HH	360	720	Tox
Atrazine (c)	µg/L	10	Tox	323	645	Tox
Benzene (c)	µg/L	98	HH	4,487	8,974	Tox
Bromoform	µg/L	466	HH	2,900	5,800	Tox
Cadmium, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: exp.(0.7852[ln(total hardness mg/L)]-3.490)

The MS in µg/L shall not exceed: exp.(1.128[ln(total hardness mg/L)]-1.685)

The FAV in µg/L shall not exceed: exp.(1.128[ln(total hardness mg/L)]-0.9919)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total cadmium standards for five hardness values:

TH in mg/L	50	100	200	300	400
Cadmium, total					
CS µg/L	0.66	1.1	2.0	2.7	3.4

MS µg/L	15	33	73	116	160
FAV µg/L	31	67	146	231	319

Substance, Characteristic, or Pollutant (Class 2B)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
Carbon tetrachloride (c)	µg/L	5.9	HH	1,750*	3,500*	Tox
Chlordane (c)	ng/L	0.29	HH	1,200*	2,400*	Tox
Chloride	mg/L	230	Tox	860	1,720	Tox
Chlorine, total residual	µg/L	11	Tox	19	38	Tox

Chlorine standard applies to conditions of continuous exposure, where continuous exposure refers to chlorinated effluents that are discharged for more than a total of two hours in any 24-hour period.

Chlorobenzene (Monochlorobenzene)	µg/L	20	HH	423	846	Tox
Chloroform (c)	µg/L	155	Tox	1,392	2,784	Tox
Chlorpyrifos	µg/L	0.041	Tox	0.083	0.17	Tox
Chromium +3, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations

The CS in µg/L shall not exceed: exp.(0.819[ln(total hardness mg/L)]+1.561)

The MS in µg/L shall not exceed: exp.(0.819[ln(total hardness mg/L)]+3.688)

The FAV in µg/L shall not exceed: exp.(0.819[ln(total hardness mg/L)]+4.380)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total chromium +3 standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Chromium +3, total					
CS µg/L	117	207	365	509	644
MS µg/L	984	1,737	3,064	4,270	5,405
FAV µg/L	1,966	3,469	6,120	8,530	10,797

Substance, Characteristic, or Pollutant (Class 2B)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
Chromium +6, total	µg/L	11	Tox	16	32	Tox
Cobalt, total	µg/L	5.0	Tox	436	872	Tox
Copper, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: exp.(0.6200[ln(total hardness mg/L)]-0.570)

The MS in µg/L shall not exceed: exp.(0.9422[ln(total hardness mg/L)]-1.464)

The FAV in µg/L shall not exceed: exp.(0.9422[ln(total hardness mg/L)]-0.7703)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total copper standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Copper, total					
CS µg/L	6.4	9.8	15	19	23
MS µg/L	9.2	18	34	50	65
FAV µg/L	18	35	68	100	131

Substance, Characteristic, or Pollutant (Class 2B)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
Cyanide, free	µg/L	5.2	Tox	22	45	Tox
DDT (c)	ng/L	1.7	HH	550*	1,100*	Tox
1,2-Dichloroethane (c)	µg/L	190	HH	45,050*	90,100*	Tox
Dieldrin (c)	ng/L	0.026	HH	1,300*	2,500*	Tox
Di-2-ethylhexyl phthalate (c)	µg/L	2.1	HH	--*	--*	NA
Di-n-octyl phthalate	µg/L	30	Tox	825	1,650	Tox
Endosulfan	µg/L	0.031	HH	0.28	0.56	Tox
Endrin	µg/L	0.016	HH	0.090	0.18	Tox
Escherichia (E.) coli	See below	See below	HH	See below	See below	NA

Not to exceed 126 organisms per 100 milliliters as a geometric mean of not less than five samples representative of conditions within any calendar month, nor shall more than ten percent of all samples taken during any calendar month individually exceed 1,260 organisms per 100 milliliters. The standard applies only between April 1 and October 31.

Substance, Characteristic, or Pollutant (Class 2B)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
Ethylbenzene	µg/L	68	Tox	1,859	3,717	Tox

Eutrophication standards for class 2B lakes~~, shallow lakes,~~ and reservoirs.

Dimictic Lakes~~, Shallow Lakes,~~ and Reservoirs in Northern Lakes and ~~Forest~~ Forests and Northern Minnesota Wetlands Ecoregions:

Phosphorus, total	µg/L	~~30~~ 20	NA	--	--	NA
Chlorophyll-a	µg/L	9	NA	--	--	NA
Secchi disk transparency	meters	Not less than ~~2.0~~ 1.8	NA	--	--	NA

Dimictic Lakes and Reservoirs in North Central Hardwood ~~Forest~~ Forests Ecoregion:

Phosphorus, total	µg/L	40	NA	--	--	NA
Chlorophyll-a	µg/L	14	NA	--	--	NA
Secchi disk transparency	meters	Not less than 1.4	NA	--	--	NA

Dimictic Lakes and Reservoirs in Western Corn Belt Plains and Northern Glaciated Plains Ecoregions:

Phosphorus, total	µg/L	65	NA	--	--	NA
Chlorophyll-a	µg/L	22	NA	--	--	NA
Secchi disk transparency	meters	Not less than 0.9	NA	--	--	NA

Polymictic Lakes in Northern Lakes and Forests and Northern Minnesota Wetlands Ecoregions:

Phosphorus, total	µg/L	32	NA	--	--	NA
Chlorophyll-a	µg/L	18	NA	--	--	NA
Secchi disk transparency	meters	Not less than 0.9	NA	--	--	NA

~~Shallow~~ Polymictic Lakes in North Central Hardwood ~~Forest~~ Forests Ecoregion:

Phosphorus, total	µg/L	60	NA	--	--	NA
Chlorophyll-a	µg/L	20	NA	--	--	NA
Secchi disk transparency	meters	Not less than 1.0	NA	--	--	NA

~~Shallow~~ Polymictic Lakes in Western Corn Belt Plains and Northern Glaciated Plains Ecoregions:

Phosphorus, total	µg/L	90	NA	--	--	NA
Chlorophyll-a	µg/L	30	NA	--	--	NA
Secchi disk transparency	meters	Not less than 0.7	NA	--	--	NA

Additional narrative eutrophication standards for class 2B lakes~~, shallow lakes,~~ and reservoirs are found in subpart 4a.

Substance, Characteristic, or Pollutant (Class 2B)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**

Eutrophication standards for class 2B rivers and streams.

North River Nutrient Region:

Phosphorus, total	µg/L	less than or equal to 50
Chlorophyll-a (seston)	µg/L	less than or equal to 7
Diel dissolved oxygen flux	mg/L	less than or equal to 3.0
Biochemical oxygen demand (BOD_5)	mg/L	less than or equal to 1.5

Central River Nutrient Region:

Phosphorus, total	µg/L	less than or equal to 100
Chlorophyll-a (seston)	µg/L	less than or equal to 18
Diel dissolved oxygen flux	mg/L	less than or equal to 3.5
Biochemical oxygen demand (BOD_5)	mg/L	less than or equal to 2.0

South River Nutrient Region:

Phosphorus, total	µg/L	less than or equal to 150
Chlorophyll-a (seston)	µg/L	less than or equal to ~~40~~ 35
Diel dissolved oxygen flux	mg/L	less than or equal to ~~5.0~~ 4.5
Biochemical oxygen demand (BOD_5)	mg/L	less than or equal to ~~3.5~~ 3.0

Site-specific standards for specified river reaches or other waters are:

Mississippi River Navigational Pool 1 (river miles 854.1 to 847.7 reach from ~~Fridley~~ Upper St. Anthony Falls to Ford Lock and Dam No. 1 in St. Paul):

Phosphorus, total	µg/L	less than or equal to 100
Chlorophyll-a (seston)	µg/L	less than or equal to 35

Mississippi River Navigational Pool 2 (river miles 847.7 to 815.2 reach from Ford Lock and Dam No. 1 to Hastings Lock and Dam No. 2):

Phosphorus, total	µg/L	less than or equal to 125
Chlorophyll-a (seston)	µg/L	less than or equal to 35

Mississippi River Navigational Pool 3 (river miles 815.2 to 796.9 reach from Hastings Lock and Dam No. 2 to Red Wing Lock and Dam No. 3):

Phosphorus, total	µg/L	less than or equal to 100
Chlorophyll-a (seston)	µg/L	less than or equal to 35

Mississippi River Navigational Pool 4 (river miles 796.9 to 752.8 reach from Red Wing Lock and Dam No. 3 to Alma Lock and Dam No. 4)~~.~~: Lake Pepin occupies majority of Pool 4 and Lake Pepin site-specific standards are used for this pool.

Mississippi River Navigational Pools 5 to 8 (river miles 752.8 to 679.1 Alma Lock and Dam No. 4 to Genoa Lock and Dam No. 8):

Phosphorus, total	µg/L	less than or equal to 100
Chlorophyll-a (seston)	µg/L	less than or equal to 35

Lake Pepin:

Phosphorus, total	µg/L	less than or equal to 100
Chlorophyll-a (seston)	µg/L	less than or equal to 28

Crow Wing River from confluence of Long Prairie River to the mouth of the Crow Wing River at the Mississippi River:

Phosphorus, total	µg/L	less than or equal to 75
Chlorophyll-a (seston)	µg/L	less than or equal to 13

Diel dissolved oxygen flux	mg/L	less than or equal to 3.5
Biochemical oxygen demand (BOD_5)	mg/L	less than or equal to 1.7

Crow River from the confluence of the North Fork of the Crow River and South Fork of the Crow River to the mouth of the Crow River at the Mississippi River:

Phosphorus, total	µg/L	less than or equal to 125
Chlorophyll-a (seston)	µg/L	less than or equal to 27
Diel dissolved oxygen flux	mg/L	less than or equal to 4.0
Biochemical oxygen demand (BOD_5)	mg/L	less than or equal to 2.5

Additional narrative eutrophication standards for class 2B rivers and streams are found in subpart 4b.

Substance, Characteristic, or Pollutant (Class 2B)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
Fluoranthene	µg/L	1.9	Tox	3.5	6.9	Tox
Heptachlor (c)	ng/L	0.39	HH	260*	520*	Tox
Heptachlor epoxide (c)	ng/L	0.48	HH	270*	530*	Tox
Hexachlorobenzene (c)	ng/L	0.24	HH	--*	--*	Tox
Lead, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: exp.(1.273[ln(total hardness mg/L)]-4.705)

The MS in µg/L shall not exceed: exp.(1.273[ln(total hardness mg/L)]-1.460)

The FAV in µg/L shall not exceed: exp.(1.273[ln(total hardness mg/L)]-0.7643)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total lead standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Lead, total					
CS µg/L	1.3	3.2	7.7	13	19
MS µg/L	34	82	197	331	477
FAV µg/L	68	164	396	663	956

Substance, Characteristic, or Pollutant (Class 2B)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
Lindane (c) (Hexachlorocyclobenzene, gamma-)	µg/L	0.036	HH	4.4*	8.8*	Tox
Mercury, total in water	ng/L	6.9	HH	2,400*	4,900*	Tox
Mercury, total in edible fish tissue	mg/kg ppm	0.2	HH	NA	NA	NA
Methylene chloride (c) (Dichloromethane)	µg/L	1,940	HH	13,875	27,749	Tox
Metolachlor	µg/L	23	Tox	271	543	Tox
Naphthalene	µg/L	81	Tox	409	818	Tox
Nickel, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: exp.(0.846[ln(total hardness mg/L)]+1.1645)

The MS in µg/L shall not exceed: exp.(0.846[ln(total hardness mg/L)]+3.3612)

The FAV in µg/L shall not exceed: exp.(0.846[ln(total hardness mg/l)]+4.0543)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total nickel standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Nickel, total					
CS µg/L	88	158	283	399	509
MS µg/L	789	1,418	2,549	3,592	4,582
FAV µg/L	1,578	2,836	5,098	7,185	9,164

Substance, Characteristic, or Pollutant (Class 2B)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
Oil	µg/l	500	NA	5,000	10,000	NA
Oxygen, dissolved	mg/L	See below	NA	--	--	NA

5.0 mg/L as a daily minimum. This dissolved oxygen standard may be modified on a site-specific basis according to part 7050.0220, subpart 7, except that no site-specific standard shall be less than 5 mg/L as a daily average and 4 mg/L as a daily minimum. Compliance with this standard is required 50 percent of the days at which the flow of the receiving water is equal to the $7Q_{10}$. This standard applies to all class 2B waters except for:

(1) those portions of the Mississippi River from the outlet of the Metro Wastewater Treatment Works in Saint Paul (River Mile 835) to Lock and Dam No. 2 at Hastings (River Mile 815). For this reach of the Mississippi River, the standard is not less than 5 mg/L as a daily average from April 1 through November 30, and not less than 4 mg/L at other times; and

(2) the portion of the Minnesota River from the outlet of the Blue Lake wastewater treatment works (River Mile 21) to the mouth at Fort Snelling. For the specified reach of the Minnesota River, the standard is not less than 5 mg/L as a daily average year round.

Parathion	µg/L	0.013	Tox	0.07	0.13	Tox
Pentachlorophenol	µg/L	equation	Tox/HH	equation	equation	Tox

The CS, MS, and FAV vary with pH and are calculated using the following equations:

For waters with pH values greater than 6.95, the CS shall not exceed the human health-based standard of 5.5 µg/L.

For waters with pH values less than 6.96, the CS in µg/L shall not exceed the toxicity-based standard of exp.(1.005[pH]-5.290)

The MS in µg/L shall not exceed: exp.(1.005[pH]-4.830)

The FAV in µg/L shall not exceed: exp.(1.005[pH]-4.1373)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For pH values less than 6.0, 6.0 shall be used to calculate the standard and for pH values greater than 9.0, 9.0 shall be used to calculate the standard.

Example of pentachlorophenol standards for five pH values:

pH su	6.5	7.0	7.5	8.0	8.5
Pentachlorophenol					
CS µg/L	3.5	5.5	5.5	5.5	5.5
MS µg/L	5.5	9.1	15	25	41
FAV µg/L	11	18	30	50	82

Substance, Characteristic, or Pollutant (Class 2B)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
pH, minimum	su	6.5	NA	--	--	NA
pH, maximum	su	9.0	NA	--	--	NA
Phenanthrene	µg/L	3.6	Tox	32	64	Tox
Phenol	µg/L	123	Tox	2,214	4,428	Tox

Polychlorinated biphenyls, total (c)	ng/L	0.029	HH	1,000*	2,000*	Tox
Radioactive materials	NA	See below	NA	See below	See below	NA

Not to exceed the lowest concentrations permitted to be discharged to an uncontrolled environment as permitted by the appropriate authority having control over their use.

Selenium, total	µg/L	5.0	Tox	20	40	Tox
Silver, total	µg/L	1.0	Tox	equation	equation	Tox

The MS and FAV vary with total hardness and are calculated using the following equations:

The MS in µg/L shall not exceed: exp.(1.720[ln(total hardness mg/L)]-7.2156)

The FAV in µg/L shall not exceed: exp.(1.720[ln(total hardness mg/L)]-6.520

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total silver standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Silver, total					
CS µg/L	1.0	1.0	1.0	1.0	1.0
MS µg/L	1.0	2.0	6.7	13	22
FAV µg/L	1.2	4.1	13	27	44

Substance, Characteristic, or Pollutant (Class 2B)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
Temperature	°F	See below	NA	--	--	NA

5°F above natural in streams and 3°F above natural in lakes, based on monthly average of the maximum daily temperatures, except in no case shall it exceed the daily average temperature of 86°F.

1,1,2,2-Tetrachloroethane (c)	µg/L	13	HH	1,127	2,253	Tox
Tetrachloroethylene (c)	µg/L	8.9	HH	428	857	Tox
Thallium, total	µg/L	0.56	HH	64	128	Tox
Toluene	µg/L	253	Tox	1,352	2,703	Tox
Toxaphene (c)	ng/L	1.3	HH	730*	1,500*	Tox
1,1,1-Trichloroethane	µg/L	329	Tox	2,957	5,913	Tox
1,1,2-Trichloroethylene (c)	µg/L	120	HH	6,988	13,976	Tox
2,4,6-Trichlorophenol	µg/L	2.0	HH	102	203	Tox
Total suspended solids (TSS)						
North River Nutrient Region	mg/L	15	NA	--	--	NA
Central River Nutrient Region	mg/L	30	NA	--	--	NA
South River Nutrient Region	mg/L	65	NA	--	--	NA
Red River mainstem - headwaters to border	mg/L	100	NA	--	--	NA
TSS standards for the class 2B North, Central, and South River Nutrient Regions and the Red River mainstem may be exceeded for no more than ten percent of the time. This standard applies April 1 through September 30						
Total suspended solids (TSS), summer average						
Lower Mississippi River mainstem - Pools 2 through 4	mg/L	32	NA	--	--	NA
Lower Mississippi River mainstem below Lake Pepin	mg/L	30	NA	--	--	NA
TSS standards for the class 2B Lower Mississippi River may						

be exceeded for no more than 50 percent of the time. This standard applies June 1 through September 30

Substance, Characteristic, or Pollutant (Class 2B)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
Vinyl chloride (c)	µg/L	9.2	HH	--*	--*	NA
Xylene, total m,p,o	µg/L	166	Tox	1,407	2,814	Tox
Zinc, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: exp.(0.8473[ln(total hardness mg/L)]+0.7615)

The MS in µg/L shall not exceed: exp.(0.8473[ln(total hardness mg/L)]+0.8604)

The FAV in µg/L shall not exceed: exp.(0.8473[ln(total hardness mg/L)]+1.5536)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total zinc standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Zinc, total					
CS µg/L	59	106	191	269	343
MS µg/L	65	117	211	297	379
FAV µg/L	130	234	421	594	758

Subp. 4a. **Narrative eutrophication standards for class 2B lakes~~, shallow lakes,~~ and reservoirs.**

A. Eutrophication standards applicable to lakes~~, shallow lakes,~~ and reservoirs that lie on the border between two ecoregions or that are in the Red River Valley (also referred to as Lake Agassiz Plains), Northern Minnesota Wetlands, or Driftless Area Ecoregion must be applied on a case-by-case basis. The commissioner shall use the standards applicable to adjacent ecoregions as a guide.

[For text of item B, see Minnesota Rules]

C. It is the policy of the agency to protect all lakes~~, shallow lakes,~~ and reservoirs from the undesirable effects of cultural eutrophication. Lakes~~, shallow lakes,~~ and reservoirs with a baseline quality better than the numeric eutrophication standards in subpart 4 must be maintained in that condition through the strict application of all relevant federal, state, and local requirements governing antidegradation, the discharge of nutrients from point and nonpoint sources, and the protection of lake~~, shallow lake,~~ and reservoir resources, including, but not limited to:

[For text of subitems (1) to (7), see Minnesota Rules]

D. Lakes~~, shallow lakes,~~ and reservoirs with a baseline quality that is poorer than the numeric eutrophication standards in subpart 4 must be considered to be in compliance with the standards if the baseline quality is the result of natural causes. The commissioner shall determine baseline quality and compliance with these standards using data and the procedures in part 7050.0150, subpart 5.

[For text of item E, see Minnesota Rules]

[For text of subpart 4b, see Minnesota Rules]

Subp. 4c. **Beneficial use definitions for ~~lotic~~ warm or cool water aquatic life and habitats (class 2B).**

A. Subitems (1) to (5) apply to the beneficial uses in items B to D:

[For text of subitem (1), see Minnesota Rules]

(2) The attributes of species composition, diversity, and functional organization are measured using:

(a) the fish IBI as defined in Fish Data Collection Protocols for Lotic Waters in Minnesota (2017); ~~or~~

(b) the macroinvertebrate IBI as defined in Macroinvertebrate Data Collection Protocols for Lotic Waters in Minnesota (2017)~~.~~; or

(c) the fish IBI for lentic habitats as defined in Manual of Instructions for Lake Survey (2017) and Lake Index of Biological Integrity (IBI) Nearshore Sampling Manual (2022).

[For text of subitem (3), see Minnesota Rules]

(4) The following documents are incorporated by reference and are not subject to frequent change:

(a) Calibration of the Biological Condition Gradient for Streams of Minnesota, Gerritsen et al. (2012). The document is available on the agency's website at ~~www.pca.state.mn.us/regulations/minnesota-rulemaking~~ https://www.pca.state.mn.us/get-engaged/incorporations-by-reference;

(b) Fish Data Collection Protocols for Lotic Waters in Minnesota, Minnesota Pollution Control Agency (2017). The document is available on the agency's website at ~~www.pca.state.mn.us/regulations/minnesota-rulemaking~~ https://www.pca.state.mn.us/get-engaged/incorporations-by-reference;

(c) Macroinvertebrate Data Collection Protocols for Lotic Waters in Minnesota, Minnesota Pollution Control Agency (2017). The document is available on the agency's website at ~~www.pca.state.mn.us/regulations/minnesota-rulemaking~~ https://www.pca.state.mn.us/get-engaged/incorporations-by-reference; ~~and~~

(d) Development of Biological Criteria for Tiered Aquatic Life Uses, Minnesota Pollution Control Agency (2016). The document is available on the agency's website at ~~www.pca.state.mn.us/regulations/minnesota-rulemaking.~~ https://www.pca.state.mn.us/get-engaged/incorporations-by-reference;

(e) Biological Condition Gradient (BCG) Assessment Models for Lake Fish Communities of Minnesota, Gerritsen and Stamp (2014). The document is available on the agency's website at https://www.pca.state.mn.us/get-engaged/incorporations-by-reference;

(f) Manual of Instructions for Lake Survey, Minnesota Department of Natural Resources (2017). The document is available on the agency's website at https://www.pca.state.mn.us/get-engaged/incorporations-by-reference;

(g) Lake Index of Biological Integrity (IBI) Nearshore Sampling Manual, Minnesota Department of Natural Resources (2022). The document is available on the agency's website at https://www.pca.state.mn.us/get-engaged/incorporations-by-reference; and

(h) Development of Fish-Based Indices of Biological Integrity for Minnesota Lakes, Bacigalupi et al. (2021). The document is available on the agency's website at https://www.pca.state.mn.us/get-engaged/incorporations-by-reference.

(5) The beneficial use subclass designators "e," "g," and "m" are added to the class 2B designator as specific additional designators. The additional subclass designators do not replace the class 2B designator. All requirements for class 2B warm or cool water

~~stream and river~~ habitats in parts 7050.0222 and 7052.0100 continue to apply in addition to requirements for class 2Be, class 2Bg, or class 2Bm warm or cool water ~~stream and river~~ habitats in part 7050.0222. ~~These~~ The "m" subclass ~~designators are~~ designator is applied to lotic waters only.

B. "Exceptional cool and warm water aquatic life and habitat" or "class 2Be" is a beneficial use that means waters capable of supporting and maintaining an exceptional and balanced, integrated, adaptive community of warm or cool water aquatic organisms having a species composition, diversity, and functional organization comparable to the 75th percentile of biological condition gradient level 3 as established in Calibration of the Biological Condition Gradient for Streams of Minnesota, Gerritsen et al. (2012) for streams and rivers and in Biological Condition Gradient (BCG) Assessment Models for Lake Fish Communities of Minnesota, Gerritsen and Stamp (2014) for lakes.

C. "General cool and warm water aquatic life and habitat" or "class 2Bg" is a beneficial use that means waters capable of supporting and maintaining a balanced, integrated, adaptive community of warm or cool water aquatic organisms having a species composition, diversity, and functional organization comparable to the median of biological condition gradient level 4 as established in Calibration of the Biological Condition Gradient for Streams of Minnesota, Gerritsen et al. (2012) for streams and rivers and in Biological Condition Gradient (BCG) Assessment Models for Lake Fish Communities of Minnesota, Gerritsen and Stamp (2014) for lakes.

[For text of item D, see Minnesota Rules]

Subp. 4d. **Biological criteria for ~~lotic~~ warm or cool water aquatic life and habitats (class 2B).**

Water Body Type	Tier	Class	Assemblage	Biocriterion
Southern rivers	Exceptional	2Be	Fish	71

		General	2Bg	Fish	49
Southern streams		Exceptional	2Be	Fish	66
		General	2Bg	Fish	50
		Modified	2Bm	Fish	35
Southern headwaters		Exceptional	2Be	Fish	74
		General	2Bg	Fish	55
		Modified	2Bm	Fish	33
Northern rivers		Exceptional	2Be	Fish	67
		General	2Bg	Fish	38
Northern streams		Exceptional	2Be	Fish	61
		General	2Bg	Fish	47
		Modified	2Bm	Fish	35
Northern headwaters		Exceptional	2Be	Fish	68
		General	2Bg	Fish	42
		Modified	2Bm	Fish	23
Low gradient		Exceptional	2Be	Fish	70
		General	2Bg	Fish	42
		Modified	2Bm	Fish	15
Northern forest rivers		Exceptional	2Be	Macroinvertebrates	77
		General	2Bg	Macroinvertebrates	49
Prairie and southern forest rivers		Exceptional	2Be	Macroinvertebrates	63
		General	2Bg	Macroinvertebrates	31
High-gradient northern forest streams		Exceptional	2Be	Macroinvertebrates	82
		General	2Bg	Macroinvertebrates	53
Low-gradient northern forest streams		Exceptional	2Be	Macroinvertebrates	76

		General	2Bg	Macroinvertebrates	51
		Modified	2Bm	Macroinvertebrates	37
High-gradient southern streams		Exceptional	2Be	Macroinvertebrates	62
		General	2Bg	Macroinvertebrates	37
		Modified	2Bm	Macroinvertebrates	24
Low-gradient southern forest streams		Exceptional	2Be	Macroinvertebrates	66
		General	2Bg	Macroinvertebrates	43
		Modified	2Bm	Macroinvertebrates	30
Low-gradient prairie streams		Exceptional	2Be	Macroinvertebrates	69
		General	2Bg	Macroinvertebrates	41
		Modified	2Bm	Macroinvertebrates	22
Deep, complex lakes		Exceptional	2Ae	Fish	64
		General	2Ag	Fish	45
Deep, moderately complex lakes		Exceptional	2Ae	Fish	59
		General	2Ag	Fish	38
Moderately deep lakes		General	2Ag	Fish	24
Shallow lakes		General	2Ag	Fish	36

The biological criteria for lotic warm or cool water aquatic life and habitats (class 2B) are applicable to perennial and intermittent waters that allow for colonization of fish or macroinvertebrates.

[For text of subparts 5 to 9, see Minnesota Rules]

7050.0460 WATERS SPECIFICALLY CLASSIFIED; EXPLANATION OF LISTINGS IN PART 7050.0470.

[For text of subparts 1 and 2, see Minnesota Rules]

Subp. 3. **Abbreviations and symbols.** The listings in part 7050.0470 include the following abbreviations and symbols:

T., R., S. means township, range, and section, respectively.

An asterisk (*) preceding the name of the water body means the water body is an outstanding resource value water.

[month/day/year/letter code] ~~following the name of the outstanding resource value water in brackets~~ is the effective date the water resource was designated as an outstanding resource value water. The letter code (P or R) indicates the applicable discharge restrictions in part 7050.0265, subpart 6 or 7, or 7050.0270, subpart 5 or 6. The letter code P corresponds to the prohibited discharges provision in part 7050.0265, subpart 7, or 7050.0270, subpart 6. The letter code R corresponds to the restricted discharges provision in part 7050.0265, subpart 6, or 7050.0270, subpart 5.

[WR] ~~following the name of the water body~~ means the water body is a designated ~~as a~~ wild rice water in part 7050.0470, subpart 1.

[LAT] means the water body is a designated lake trout (*Salvelinus namaycush*) lake in part 7050.0470.

[LKW] means the water body is a designated lake whitefish (*Coregonus clupeaformis*) lake in part 7050.0470.

[TLC] means the water body is a designated cisco (*Coregonus artedi*) lake in part 7050.0470.

[SRT] means the water body is a designated stream trout lake in part 7050.0470.

Class 2Bd waters are class 2B waters also protected for domestic consumption purposes (class 1). Applicable standards for class 2Bd waters are listed in part 7050.0222, subparts 3 and 3a.

7050.0470 CLASSIFICATIONS FOR SURFACE WATERS IN MAJOR DRAINAGE BASINS.

Subpart 1. **Lake Superior basin.** The water-use classifications for the stream reaches within each of the major watersheds in the Lake Superior basin listed in item A are found in tables entitled "Beneficial Use Designations for Stream Reaches" published on the website of the Minnesota Pollution Control Agency at ~~www.pca.state.mn.us/regulations/incorporations-reference~~ https://www.pca.state.mn.us/get-engaged/incorporations-by-reference. The tables are incorporated by reference and are not subject to frequent change. The date after each watershed listed in item A is the publication date of the applicable table. The water-use classifications for the other listed waters in the Lake Superior basin are as identified in items B to D. See part 7050.0415 for the classifications of waters not listed. Designated use information for water bodies can also be accessed through the agency's Environmental Data Access (http://www.pca.state.mn.us/quick-links/eda-surface-water-data). For an explanation of listings and abbreviations, see part 7050.0460.

[For text of item A, see Minnesota Rules]

B. Lakes (by eight-digit hydrologic unit code):

(1) 04010101 Lake Superior - North (November 2025);

(2) 04010102 Lake Superior - South (November 2025);

(3) 04010201 St. Louis River (November 2025);

(4) 04010202 Cloquet River (November 2025); and

(5) 04010301 Nemadji River (November 2025).

~~(1) *Alder Lake, 16-0114-00, [11/5/84P] (T.64, R.1E): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(2) *Alton Lake, 16-0622-00, [11/5/84P] (T.62, 63, R.4, 5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(3) Artichoke Lake, 69-0623-00, [WR] (T.52, R.17, S.17, 18, 19, 20): 2B, 3, 4A, 4B, 5, 6;~~

~~(4) Bath Lake, 16-0164-00, (T.62, R.1W, S.5, 6; T.63, R.1W, S.31, 32): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(5) Bean Lake (lower Twin), 38-0409-00, (T.56, R.8W, S.25, 26): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(6) Bear Lake (see Twin Lake, upper);~~

~~(7) Bearskin Lake, East, 16-0146-00, (T.64, R.1E, 1W): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(8) *Bearskin Lake, West, 16-0228-00, [3/7/88R] (T.64, 65, R.1): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(9) *Bench Lake, 16-0063-00, [11/5/84P] (T.64, 2E, S.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(10) Benson Lake, 38-0018-00, (T.58, R.6W, S.29): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(11) *Birch Lake, 16-0247-00, [3/7/88R] (T.65, R.1, 2): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(12) *Black Lake, 58-0001-00, [3/7/88P] (T.45, R.15): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(13) Bluebill Lake, 38-0261-00, [WR] (T.59, R.7, S.15): 2B, 3, 4A, 4B, 5, 6;~~

~~(14) Bogus Lake, 16-0050-00, (T.62, R.2E, S.12): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(15) Bone Lake, 38-0065-00, (T.61, R.6W, S.13, 14): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(16) Bow Lake, 16-0211-00, (T.64, R.1W, S.15): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(17) Boys Lake, 16-0044-00, (T.62, R.2E, S.5, 8): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(18) Breda Lake, 69-0037-00, [WR] (T.56, R.12, S.16): 2B, 3, 4A, 4B, 5, 6;~~

~~(19) Briar Lake, 69-0128-00, (T.53, R.13W, S.14, 15, 23): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(20) *Brule Lake, 16-0348-00, [11/5/84P] (T.63, R.2, 3): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(21) Cabin Lake, 38-0260-00, [WR] (T.59, R.7, S.13, 14, 23, 24): 2B, 3, 4A, 4B, 5, 6;~~

~~(22) Canton Mine Pit Lake, 69-1294-00, (T.58, R.16, S.2, 3): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(23) Caribou Lake, 16-0360-00, [WR] (T.60, R.3W, S.1, 2, 11, 12; T.61, R.3W, S.35, 36): 2B, 3, 4A, 4B, 5, 6;~~

~~(24) Carrot Lake, 16-0071-00, (T.64, R.2E, S.17): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(25) Cedar Lake, 69-0431-00, (T.58, R.15W, S.20): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(26) Chester Lake, 69-0033-00, (T.64, R.3E, S.32, 33): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(27) Christine Lake, 16-0373-00, [WR] (T.61, R.3W, S.28, 29, 32): 2B, 3, 4A, 4B, 5, 6;~~

~~(28) Clearwater Lake (Clear Lake), 69-0397-00, (T.52, R.15W, S.23): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(29) *Clearwater Lake (Emby Lake), 16-0139-00, [11/5/84P] (T.65, R.1E): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(30) Colby Lake, 69-0249-00, (T.58, R.14): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(31) *Cone Lake, 16-0412-00, North, [11/5/84P] (T.63, 64, R.3): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(32) Corona Lake, 09-0048-00, (T.48, R.19W, S.11, 12): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(33) Corsica Mine Pit Lake, 69-1316-00, (T.58, R.16, S.18): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(34) Crosscut Lake, 38-0257-00, (T.59, R.7W, S.7, 18): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(35) *Crystal Lake, 16-0090-00, [11/5/84P] (T.64, R.1E, 2E): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(36) *Daniels Lake, 16-0150-00, [11/5/84P] (T.65, R.1E, 1W): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(37) *Davis Lake, 16-0435-00, [11/5/84P] (T.64, R.3): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(38) Devilfish Lake, 16-0029-00, (T.64, R.3E): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(39) Divide (Towhey) Lake, 38-0256-00, (T.59, R.7W, S.7, 8): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(40) Duke Lake, 16-0111-00, (T.63, R.1E, S.30): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(41) *Duncan Lake, 16-0232-00, [11/5/84P] (T.65, R.1): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(42) *Dunn Lake, 16-0245-00, [11/5/84P] (T.65, R.1, 2): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(43) East Lake, 38-0020-00, (T.59, R.6W, S.1, 2): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(44) *Echo Lake, 38-0028-00, [3/7/88R] (T.59, R.6, S.14, 15, 22, 23): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(45) Elbow Lake, Little, 69-1329-00, (T.57, R.18W, S.9, 10, 16): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(46) Embarrass Mine Pit (Sabin Lake or Lake Mine), 69-0429-00, (T.58, R.15W, S.5, 6): 1B, 2A,; 3, 4A, 4B, 5, 6~~

~~(47) Esther Lake, 16-0023-00, (T.63, R.3E, S.6; T.64, R.3E, S.31): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(48) *Fan Lake (West Lily), 16-0084-00, [11/5/84P] (T.65, R.2E): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(49) Feather Lake, 16-0905-00, (T.61, R.5W, S.35): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(50) Flour Lake, 16-0147-00, (T.64, R.1E, 1W): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(51) Fourmile Lake, 16-0639-00, [WR] (T.60, R.5W, S.4, 8, 9, 10, 16, 17): 2B, 3, 4A, 4B, 5, 6;~~

~~(52) Fowl Lake, North, 16-0036-00, (T.64, 65, R.3E): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(53) Fowl Lake, South, 16-0034-00, (T.64, 65, R.3E): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(54) Fraser Mine Pit Lake, (T.58, R.20, S.23): 1C, 2Bd, 3, 4A, 4B, 5, 6, until the city of Chisholm no longer uses Fraser Mine Pit Lake as a water supply source for its public water system, and then the classification is identified in part 7050.0415, subpart 4;~~

~~(55) *Gadwall Lake (Gadwell Lake), 16-0060-00, [11/5/84P] (T.64, R.2E, S.3): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(56) *Gaskin Lake, 16-0319-00, [11/5/84P] (T.64, R.2): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(57) *Gogebic Lake, 16-0087-00, [11/5/84P] (T.65, R.2E, S.30, 31): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(58) Goldeneye (Duck) Lake, 38-0029-00, (T.59, R.6W, S.15): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(59) *Greenwood Lake, 16-0077-00, [3/7/88R] (T.64, R.2E): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(60) Hay Lake, 69-0435-00, [WR] (T.59, R.15, S.8): 2B, 3, 4A, 4B, 5, 6;~~

~~(61) Hungry Jack Lake, 16-0227-00, (T.64, 65, R.1): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(62) Jim Lake (Jerry Lake), 16-0135-00, (T.64, R.1E): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(63) Judson Mine Pit, 69-1295-00, (T.58, R.19W, S.20, 29): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(64) Junco Lake, 16-0159-00, (T.62, R.1W, S.11, 12, 13): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(65) *Kemo Lake, 16-0188-00, [3/7/88R] (T.63, R.1): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(66) Kimball Lake, 16-0045-00, (T.62, R.2E, S.7, 8, 17): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(67) Leo Lake, 16-0198-00, (T.64, R.1W, S.4, 5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(68) Lieung (Lieuna) Lake, 69-0123-00, [WR] (T.53, R.13, S.3, 4, 9, 10): 2B, 3, 4A, 4B, 5, 6;~~

~~(69) *Lily Lakes (Vaseux Lake and Fan Lake), 16-0083-00 and 16-0084-00, [11/5/84P] (T.65, R.2E): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(70) Lima Lake, 16-0226-00, (T.64, R.1W, S.35): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(71) *Lizz Lake, 16-0199-00, [11/5/84P] (T.64, R.1W, S.7, 18): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(72) Loaine (Sand) Lake, 69-0016-00, (T.54, R.12W, S.16, 17): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(73) Loft Lake, 16-0031-00, (T.64, R.3E, S.21): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(74) Long Lake, 69-0044-00, [WR] (T.57, R.12, S.4, 5; T.58, R.12, S.32, 33): 2B, 3, 4A, 4B, 5, 6;~~

~~(75) Margaret Lake, 16-0896-00, (T.64, R.3E, S.27, 28, 33, 34): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(76) Marsh Lake, 16-0488-00, [WR] (T.62, R.4W, S.22, 23, 27, 28): 2B, 3, 4A, 4B, 5, 6;~~

~~(77) McFarland Lake, 16-0027-00, (T.64, R.3E): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(78) Mesabi (Missabe) Mountain Mine Pit Lake, 69-1292-00, (T.58, R.17, S.8): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(79) Mink Lake, 16-0046-00, (T.62, R.2E, S.8): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(80) Mirror Lake, 69-0234-00, (T.52, R.14W, S.19, 30): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(81) *Misquah Lake, 16-0225-00, [11/5/84P] (T.64, R.1): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(82) Moore Lake, 16-0489-00, [WR] (T.62, R.4W, S.23, 24): 2B, 3, 4A, 4B, 5, 6;~~

~~(83) Moosehorn Lake, 16-0015-00, (T.63, R.3E, S.36; T.63, R.4E, S.31): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(84) *Moose Lake, 16-0043-00, [11/5/84P] (T.65, R.2E, 3E): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(85) Morton Mine Pit Lake, 69-1310-00, (T.57, R.21, S.10, 11, 14): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(86) *Moss Lake, 16-0234-00, [3/7/88R] (T.65, R.1): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(87) *Mountain Lake, 16-0093-00, [11/5/84P] (T.65, R.1E, 2E): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(88) Muckwa Lake, 16-0105-00, (T.63, R.1E, S.21, 28): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(89) *Mulligan Lake, 16-0389-00, [11/5/84P] (T.63, R.3W, S.1, 12): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(90) Musquash Lake, 16-0104-00, (T.63, R.1E, S.20, 28, 29): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(91) Normanna Lake, 69-0122-00, (T.52, R.13W, S.7, 8): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(92) Northern Light Lake, 16-0089-00, [WR] (T.63, R.2E, S.29, 30, 31, 32, 33; T.63, R.1E, S.25): 2B, 3, 4A, 4B, 5, 6;~~

~~(93) Olga Lake, 16-0024-00, (T.63, R.3E, S.6; T.64, R.3E, S.31): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(94) Olson Lake, 16-0158-00, (T.62, R.1W, S.9, 16): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(95) *Onega Lake (Omega Lake), 16-0353-00, [11/5/84P] (T.64, R.2, 3): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(96) *Otto Lake, lower (South Otto), 16-0323-00, [11/5/84P] (T.64, R.2): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(97) Pancore (Lost) Lake, 16-0475-00, (T.61, R.4W, S.22, 27): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(98) Papoose Lake, 69-0024-00, [WR] (T.55, R.12, S.9): 2B, 3, 4A, 4B, 5, 6;~~

~~(99) *Partridge Lake, 16-0233-00, [11/5/84P] (T.65, R.1): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(100) *Pemmican Lake, 16-0085-00, [11/5/84P] (T.65, R.2E, S.22): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(101) *Pike Lake, West, 16-0086-00, [11/5/84P] (T.65, R.2E): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(102) Pine Lake, 16-0194-00, (T.63, R.1W, S.35, 36): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(103) *Pine Lake, 16-0041-00, [11/5/84P] (T.64, 65, R.1E, 2E, 3E): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(104) Pine Mountain Lake, 16-0108-00, (T.63, R.1E, S.26, 27, 34, 35): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(105) Poplar Lake, 16-0239-00, (T.64N, R.1, 2W): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(106) *Ptarmigan Lake, 16-0183-00, [11/5/84P] (T.63, R.1, S.20, 29): 1B 2Bd, 3, 4A, 4B, 5, 6;~~

~~(107) *Ram Lake, 16-0174-00, [11/5/84P] (T.63, R.1W, S.9, 10): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(108) Rice Lake, 16-0453-00, [WR] (T.61 R.3W, S.7; T.61, R.4W, S.2, 11, 12): 2B, 3, 4A, 4B, 5, 6;~~

~~(109) *Rose Lake, 16-0230-00, [11/5/84P] (T.65, R.1): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(110) Round Island Lake, 38-0417-00 [WR] (T.59, R.8, S.12): 2B, 3, 4A, 4B, 5, 6;~~

~~(111) Round Lake, 69-0048-00, [WR] (T.58, R.12, S.25, 26): 2B, 3, 4A, 4B, 5, 6;~~

~~(112) St. James Mine Pit, 69-0428-00, (T.58, R.15W, S.3, 4): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(113) Saint Mary's Lake, 69-0651-00, (T.57, R.17, S.9, 16, 17): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(114) *Sawbill Lake, 16-0496-00, [11/5/84P] (T.62, 63, R.4): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(115) Section 8 Lake, 38-0258-00, (T.59, R.7W, S.8): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(116) Seven Beaver Lake, 69-0002-00, [WR] (T.58, R.11, 12): 2B, 3, 4A, 4B, 5, 6;~~

~~(117) Shady, North, Lake, 16-0076-00, (T.64, R.2E, S.21, 22): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(118) Shoe Lake, 16-0080-00, (T.64, 2E, S.30): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(119) Sled Lake, 16-0897-00, (T.63, R.1W, S.3): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(120) *Sock Lake, 16-0335-00, [11/5/84P] (T.65, R.2W, S.26): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(121) Sonju Lake, 38-0248-00, (T.58, R.7W, S.27, 28): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(122) *South Lake, 16-0244-00, [11/5/84P] (T.65, R.1, 2): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(123) Spring Hole Lake, 69-1372-00, (T.55, R.14W, S.14): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(124) *State Lake, 16-0293-00, [11/5/84P] (T.63, 64, R.2): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(125) Steer Lake, 38-0920-00, (T.60, R.6W, S.32): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(126) Stone Lake, 69-0686-00, [WR] (T.55, R.17, S.6; T.55, R.18, S.1; T.56, R.17, S.31; T.56, R.18, S.36): 2B, 3, 4A, 4B, 5, 6;~~

~~(127) Stone Lake (Skibo Lake), 69-0046-00, [WR] (T.58, R.12, S.17, 19, 20): 2B, 3, 4A, 4B, 5, 6;~~

~~(128) Stone Lake (Murphy Lake or Tommila Lake), 69-0035-00, [WR] (T.56, R.12, S.13, 24): 2B, 3, 4A, 4B, 5, 6;~~

~~(129) *Superior, Lake, excluding the portions identified in subitem (130) 16-0001-00, [11/5/84R] (T.49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, R.14W-7E): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(130) *Superior, Lake, 16-0001-00, [3/9/98P] (those portions of Lake Superior north of latitude 47 degrees, 57 minutes, 13 seconds, east of Hat Point, south of the Minnesota-Ontario boundary, and west of the Minnesota-Michigan boundary): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(131) Swamp River (Reservoir), 16-0901-00, [WR] (T.63, R.4E, S.4; T.64, R.4E, S.33): 2B, 3, 4A, 4B, 5, 6;~~

~~(132) *Swan Lake, 16-0268-00, [11/5/84P] (T.63, R.2): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(133) Talus Lake, 16-0187-00, (T.63, R.1W, S.26, 27): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(134) Thompson Lake, 16-0160-00, (T.62, R.1W, S.19, 20, 29, 30): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(135) Thrasher Lake, 16-0192-00, (T.63, R.1W, S.31): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(136) Thrush Lake, 16-0191-00, (T.63, R.1W, S.31): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(137) *Topper Lake, 16-0336-00, [11/5/84P] (T.65, R.2W, S.27): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(138) *Trout Lake, 16-0049-00, [3/7/88R] (T.62, R.2E): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(139) *Trout Lake, Little, 16-0170-00, [11/5/84P] (T.63, R.1): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(140) Turnip Lake, 16-0132-00, (T.64, R.1E, S.24): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(141) Twin Lake, lower, 69-0967-02, (T.50, R.14W, S.28, 33): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(142) Twin Lake, upper, 69-0967-01, (T.50, R.14W, S.28, 33): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(143) *Twin Lake, upper (Bear Lake), 38-0408-00, [3/7/88R] (T.56, R.8, S.25): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(144) unnamed lake, 16-0903-00, (T.63, R.3E, S.20, 21, 28, 29): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(145) unnamed lake, 16-0908-00, (T.63, R.1W, S.31): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(146) *unnamed lake, 16-0237-00, [11/5/84P] (T.63, R.1, S.19, 30; T.63, R.2, S.24, 25): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(147) *Vale Lake, 16-0061-00, [11/5/84P] (T.64, R.2E, S.3): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(148) Vaseux Lake (East Lily), see Lily Lakes;~~

~~(149) *Vista Lake, 16-0224-00, [11/5/84P] (T.64, R.1): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(150) *Wanihigan Lake (Trap Lake), 16-0349-00, [11/5/84P] (T.63, 64, R.2, 3): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(151) *Wee Lake, 16-0183-00, [11/5/84P] (T.62, R.4W, S.13): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(152) *Wench Lake, 16-0398-00, [11/5/84P] (T.63, R.3W, S.7, 18): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(153) White Pine Lake, 16-0369-00, [WR] (T.61, R.3W, S.19, 20, 29, 30): 2B, 3, 4A, 4B, 5, 6; and~~

~~(154) *Winchell Lake, 16-0354-00, [11/5/84P] (T.64, R.2, 3): 1B, 2A, 3, 4A, 4B, 5, 6.~~

[For text of items C and D, see Minnesota Rules]

Subp. 2. **Lake of the Woods basin.** The water-use classifications for the stream reaches within each of the major watersheds in the Lake of the Woods basin listed in item A are found in tables entitled "Beneficial Use Designations for Stream Reaches" published on the website of the Minnesota Pollution Control Agency at ~~www.pca.state.mn.us/regulations/incorporations-reference~~ https://www.pca.state.mn.us/get-engaged/incorporations-by-reference. The tables are incorporated by reference and are not subject to frequent change. The date after each watershed listed in item A is the publication date of the applicable table. The water-use classifications for the other listed waters in the Lake of the Woods basin are as identified in items B to D. See part 7050.0415 for the classifications of waters not listed. Designated

use information for water bodies can also be accessed through the agency's Environmental Data Access (http://www.pca.state.mn.us/quick-links/eda-surface-water-data).

[For text of item A, see Minnesota Rules]

B. Lakes (by eight-digit hydrologic unit code):

(1) 09030001 Rainy River - Headwaters (November 2025);

(2) 09030002 Vermilion River (November 2025);

(3) 09030003 Rainy River - Rainy Lake (November 2025);

(4) 09030005 Little Fork River (November 2025);

(5) 09030006 Big Fork River (November 2025);

(6) 09030007 Rapid River (November 2025);

(7) 09030008 Rainy River - Lower (November 2025); and

(8) 09030009 Lake of the Woods (November 2025).

~~(1) *Adams Lake, 38-0153-00, [11/5/84P] (T.64, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(2) *Agamok Lake, 38-0011-00, [11/5/84P] (T.65, R.5, 6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(3) *Ahmakose Lake, 38-0365-00 [11/5/84P] (T.64, R.7): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(4) *Ahsub Lake, 38-0516-00, [11/5/84P] (T.64, R.8W, S.27, 28): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(5) *Alpine Lake, 16-0759-00, [11/5/84P] (T.65, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(6) *Alruss Lake, 69-0005-00, [11/5/84P] (T.64, R.11W, S.7; T.64, R.12W, S.12): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(7) *Amoeber Lake, 38-0227-00, [11/5/84P] (T.65, R.6, 7): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(8) *Arkose Lake, 38-0382-00, [11/5/84P] (T.64, 65, R.7): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(9) *Ashdick Lake (Caribou Lake), 38-0210-00, [11/5/84P] (T.66, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(10) *Basswood Lake, 38-0645-00, [11/5/84P] (T.64, 65, R.9, 10): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(11) *Bat Lake, 16-0752-00, [11/5/84P] (T.64, 65, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(12) *Beartrack Lake, 69-0480-00, [11/5/84P] (T.67, R.15): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(13) *Beaver Lake (Elbow Lake), 38-0223-00, [11/5/84P] (T.63, 64, R.6, 7): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(14) Beaver Hut Lake, 38-0737-00, (T.61, R.10W, S.30, 31; T.61, R.11, S.25, 36): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(15) Beetle Lake, 38-0551-00, (T.60, R.9W, S.7): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(16) Big Lake, 69-0190-00, (T.64, 65, R.13): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(17) *Bingshick Lake, 16-0627-00, [11/5/84P] (T.65, R.4, 5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(18) *Brandt Lake (Brant Lake), 16-0600-00, [11/5/84P] (T.65, R.4): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(19) *Burntside Lake, 69-0118-00, [3/7/88R] (T.63, 64, R.12, 13, 14): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(20) Camp Four (Wessman) Lake, 69-0788-00, (T.59, R.19W, S.4): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(21) *Camp Lake, 38-0789-00, [11/5/84P] (T.64, R.11): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(22) *Caribou Lake, 31-0620-00, [3/7/88R] (T.58, R.26): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(23) *Cash Lake, 16-0438-00, [11/5/84P] (T.64, R.3): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(24) Cedar Lake, 38-0810-00, (T.63, R.11, 12): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(25) Chant Lake, 69-0172-00, (T.63, R.13W, S.10): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(26) *Cherokee Lake, 16-0524-00, [11/5/84P] (T.63, 64, R.4): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(27) *Cherry Lake, 38-0166-00, [11/5/84P] (T.65, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(28) *Conchu Lake, 38-0720-00, [11/5/84P] (T.63, R.10W, S.21, 22): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(29) *Crab Lake (includes West Crab Lake, 69-0297-00), 69-0220-00, [11/5/84P] (T.63, R.13, 14): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(30) Crab Lake, 16-0357-00, (T.65, R.2, 3): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(31) Crane Lake, 69-0616-00, (T.67, 68, R.16, 17): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(32) *Crooked Lake, 16-0723-00, [11/5/84P] (T.64, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(33) *Crooked Lake, 38-0817-00, [11/5/84P] (T.66, R.11, 12): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(34) *Cruiser Lake (Trout Lake), 69-0832-00, [11/5/84P] (T.69, 70, R.19): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(35) Cub Lake, 69-1318-00, (T.61, R.14W, S.2): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(36) Dan Lake, 38-0853-00, (T.63, R.10W, S.17): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(37) Deepwater Lake, 69-0858-00, (T.59, R.20W, S.2): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(38) Dry Lake, 69-0064-00, (T.63, R.12W, S.9): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(39) Dry Lake, Little, 69-1040-00, (T.63, R.12W, S.9): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(40) *Eddy Lake, 38-0187-00, [11/5/84P] (T.65, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(41) Eikela Lake, 38-0677-00, (T.60, R.10W, S.22): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(42) Ennis Lake, 38-0634-00, (T.64, R.9W, S.33): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(43) Erskine Lake, 31-0311-00, (T.61, R.24W, S.2, 3): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(44) *Ester Lake (Gnig Lake), 38-0207-00, [11/5/84P] (T.65, 66, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(45) *Eugene Lake, 69-0473-00, [11/5/84P] (T.67, R.15): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(46) *Explorer Lake (South Three Lake), 38-0399-00, [11/5/84P] (T.64, R.7, 8): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(47) Extortion Lake, 16-0450-00, (T.65, R.3W, S.31, 32): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(48) Fall Lake, 38-0811-00, (T.63, 64, R.11, 12): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(49) Farm Lake, 38-0779-00, (T.62, 63, R.11): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(50) *Fat Lake, 69-0481-00, [11/5/84P] (T.67, R.15): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(51) *Fay Lake, 16-0783-00, [11/5/84P] (T.65, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(52) Fenske Lake, 69-0085-00, (T.64, R.12, S.29, 30, 32): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(53) *Fern Lake, 16-0716-00, [11/5/84P] (T.64, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(54) *Fern Lake, West, 16-0718-00, [11/5/84P] (T.64, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(55) *Finger Lake, 69-0348-00, [11/5/84P] (T.67, R.14): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(56) *Fishdance Lake, 38-0343-00, [11/5/84P] (T.63, R.7): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(57) *Found Lake, 38-0620-00, [11/5/84P] (T.64, R.9W, S.10, 15): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(58) *Fraser Lake, 38-0372-00, [11/5/84P] (T.64, R.7): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(59) *French Lake, 16-0755-00, [11/5/84P] (T.64, 65, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(60) *Frost Lake, 16-0571-00, [11/5/84P] (T.64, R.4): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(61) *Gabimichigami Lake, 16-0811-00, [11/5/84P] (T.64, 65, R.5, 6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(62) *Ge-Be-On-Equat Lake, 69-0350-00, [11/5/84P] (T.67, R.14): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(63) *Gijikiki Lake (Cedar Lake), 38-0209-00, [11/5/84P] (T.65, 66, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(64) *Gillis Lake, 16-0753-00, [11/5/84P] (T.64, 65, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(65) Glacier Pond No. 1, 38-0712-00, (T.63, R. 10W, S.11): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(66) Glacier Pond No. 2, 38-0712-02, (T.63, R.10W, S.11): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(67) *Gordon Lake, 16-0569-00, [11/5/84P] (T.64, R.4): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(68) Gull Lake, 16-0632-00, (T.66, R.4, 5): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(69) *Gun Lake, 69-0487-00, [11/5/84P] (T.67, 68, R.15): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(70) *Gunflint Lake, 16-0356-00, [3/7/88R] (T.65, R.2, 3, 4): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(71) Gunflint Lake, Little, 16-0330-00, (T.65, R.2): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(72) Gypsy Lake, 38-0665-00, (T.60, R.10W, S.6, 7): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(73) Hanson Lake, 69-0189-00, (T.64, R.13W, S.36): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(74) *Hanson Lake, 38-0206-00, [11/5/84P] (T.65, 66, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(75) High Lake, 69-0071-00, (T.63, R.12W, S.3, 4, 5; T.64, R.12W, S.33, 34): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(76) Hogback (Twin or Canal) Lake, 38-0057-01 and 38-0057-02, (T.60, R.6W, S.31): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(77) *Holt Lake, 38-0178-00, [11/5/84P] (T.65, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(78) *Howard Lake, 16-0789-00, [11/5/84P] (T.65, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(79) *Hustler Lake, 69-0343-00, [11/5/84P] (T.66, 67, R.14): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(80) *Ima Lake (Slate Lake), 38-0400-00, [11/5/84P] (T.64, R.7, 8): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(81) Indian Lake, 38-0440-00, (T.60, R.8W, S.35): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(82) *Jacob (Louis) Lake, 69-0077-00, [11/5/84P] (T.64, R.12W, S.11, 12): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(83) James (Jammer) Lake, 69-0734-00, (T.60, R.18W, S.27): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(84) Jasper Lake, 38-0641-00, (T.63, 64, R.9, 10): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(85) *Jasper Lake, 16-0768-00, [11/5/84P] (T.65, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(86) *Johnson Lake, 69-0691-00, [3/7/88R] (T.67, 68, R.17, 18): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(87) Jouppi Lake, 38-0909-00, (T.59, R.8W, S.14, 22, 23): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(88) Judd Lake, 38-0615-00, (T.63, R.9W, S.4, 5; T.64, R.9W, S.32, 33): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(89) *Kabetogama Lake, 69-0845-00, [11/5/84P] (T.69, 70, R.19, 20, 21, 22): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(90) *Karl Lake, 16-0461-00, [11/5/84P] (T.64, R.3, 4): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(91) *Kek Lake, Little, 38-0228-00, [11/5/84P] (T.65, R.6, 7): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(92) *Kekekabic Lake, 38-0226-00, [11/5/84P] (T.64, 65, R.6, 7): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(93) *Knife Lake, 38-0404-00, [11/5/84P] (T.65, R.6, 7, 8): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(94) *Lake of the Clouds Lake (Dutton Lake), 38-0169-00, [11/5/84P] (T.65, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(95) Lake of the Woods, 39-0002-00, (T.161, 162, 163, 164, 165, 166, 167, 168, R.30, 31, 32, 33, 34, 35, 36): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(96) Lake Vermilion, 69-0378-00, (T.61, 62, 63, R.14, 15, 16, 17, 18): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(97) *Larson Lake, 31-0317-00, [3/7/88R] (T.61, R.24W, S.16, 21): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(98) Little Long Lake, 69-0066-00, (T.63, R.12): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(99) *Long Island Lake, 16-0460-00, [11/5/84P] (T.64, R.3, 4): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(100) *Loon Lake, 16-0448-00, [3/7/88R] (T.65, R.3): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(101) *Loon Lake, 69-0470-00, [11/5/84P] (T.66, 67, R.15): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(102) *Lunar Lake (Moon Lake), 38-0168-00, [11/5/84P] (T.65, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(103) *Lynx Lake, 69-0383-00, [11/5/84P] (T.66, R.14, 15): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(104) *Magnetic Lake, 16-0463-00, [3/7/88R] (T.65, R.3, 4): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(105) *Makwa Lake (Bear Lake), 38-0147-00, [11/5/84P] (T.64, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(106) *Marble Lake, 38-0109-00, [11/5/84P] (T.64, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(107) *Mavis Lake, 16-0528-00, [11/5/84P] (T.64, R.4W, S.4): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(108) *Mayhew Lake, 16-0337-00, [3/7/88R] (T.65, R.2): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(109) *Meditation Lake, 16-0583-00, [11/5/84P] (T.65, R.4W, S.7, 8): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(110) *Mesaba Lake, 16-0673-00, [11/5/84P] (T.63, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(111) Miner's Mine Pit, 69-1293-00, (T.63, R.12W, S.26, 27, 28): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(112) *Missing Link Lake, 16-0529-00, [11/5/84P] (T.64, R.4W, S.4): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(113) *Missionary Lake (East Three Lake), 38-0398-00, [11/5/84P] (T.64, R.7, 8): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(114) *Moose Lake, 38-0644-00, [11/5/84P] (T.64, R.9, 10): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(115) *Mora Lake, 16-0732-00, [11/5/84P] (T.64, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(116) *Mukooda Lake, 69-0684-00, [11/5/84P] (T.68, R.17): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(117) *Namakan Lake, 69-0693-00, [11/5/84P] (T.69, 70, R.17, 18, 19): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(118) *Neglige Lake, 38-0492-00, [11/5/84P] (T.64, R.8W, S.1, 2, 11, 12): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(119) Nickel (Nichols) Lake, 31-0470-00, (T.59, R.25W, S.12): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(120) Norberg Lake, 69-1312-00, (T.61, R.14W, S.1): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(121) *North Lake, 16-0331-00, [3/7/88R] (T.65, R.2): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(122) North Lake, Little, 16-0329-00, (T.65, R.2): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(123) Norway Lake, 38-0688-00, (T.61, R.10W, S.3): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(124) *Ogishkemuncie Lake, 38-0180-00, [11/5/84P] (T.65, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(125) *Ojibway Lake (upper Twin), 38-0640-00, [3/7/88R] (T.63, R.9, 10): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(126) *Owl Lake, 16-0726-00, [11/5/84P] (T.64, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(127) *Oyster Lake, 69-0330-00, [11/5/84P] (T.66, R.14): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(128) *Paulson Lake, 16-0626-00, [11/5/84P] (T.65, R.4W, S.19; T.65, R.5W, S.24): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(129) Peanut Lake, 38-0662-00, (T.60, R.10W, S.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(130) Pelican Lake, 69-0841-00, (T.64, 65, R.19, 20, 21): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(131) *Pellet Lake, 16-0592-00, [11/5/84P] (T.65, R.4, S.19, 20): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(132) *Peter Lake, 16-0757-00, [11/5/84P] (T.64, 65, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(133) Pickerel Lake, 69-0934-00, (T.60, R.21W, S.17): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(134) Portage Lake, 16-0327-00, (T.64, R. 2W, S.3, 4, 5; T.65, R.2W, S.33): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(135) *Portage Lake, 38-0524-00, [11/5/84P] (T.65, R.8): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(136) Portage Lake, Little, 16-0297-00, (T.64, R.2W, S.3): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(137) *Powell Lake, 16-0756-00, [11/5/84P] (T.64, 65, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(138) *Rabbit Lake, 38-0214-00, [11/5/84P] (T.66, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(139) *Rainy Lake, 69-0694-00, [11/5/84P] (T.70, 71, R.18, 19, 20, 21, 22, 23): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(140) *Raven Lake (Lynx Lake), 38-0113-00, [11/5/84P] (T.64, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(141) *Red Rock Lake, 16-0793-00, [11/5/84P] (T.65, 66, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(142) Regenbogan Lake, 69-0081-00, (T.64, R.12W, S.18): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(143) *Rog Lake, 16-0765-00, [11/5/84P] (T.65, R.5W, S.16, 17): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(144) *Ruby Lake, Big, 16-0333-00, [11/5/84P] (T.66, R.14): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(145) *Saganaga Lake, 16-0633-00, [11/5/84P] (T.66, 67, R.4, 5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(146) *Saganaga Lake, Little, 16-0890-00, [11/5/84P] (T.64, R.5, 6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(147) *Sand Point Lake, 69-0617-00, [11/5/84P] (T.67, 68, 69, R.16, 17): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(148) Scarp (Cliff) Lake, 38-0058-00, (T.60, R.6W, S.31, 32): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(149) *Sea Gull Lake, 16-0629-00, [11/5/84P] (T.65, 66, R.4, 5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(150) *Sema Lake (Coon Lake), 38-0386-00, [11/5/84P] (T.65, R.7): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(151) Shoo-fly Lake, 38-0422-00, (T.59, R.8W, S.1; T.60, R.8W, S.36): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(152) *Skull Lake, 38-0624-00, [11/5/84P] (T.64, R.9W, S.14): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(153) *Snowbank Lake, 38-0529-00, [11/5/84P] (T.63, 64, R.8, 9): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(154) *Spoon Lake (Fames Lake), 38-0388-00, [11/5/84P] (T.65, R.7): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(155) *Spring Lake, 69-0761-00, [3/7/88R] (T.68, R.18): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(156) Steamhaul Lake, 38-0570-00, (T.60, R.9W, S.23): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(157) *Strup Lake, 38-0360-00, [11/5/84P] (T.64, R.7): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(158) *Sumpet Lake, 38-0283-00, [11/5/84P] (T.61, R.7): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(159) Surber Lake, 16-0343-00, (T.65, R.2W, S.34): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(160) *Takuemich Lake, 69-0369-00, [11/5/84P] (T.67, 68, R.14): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(161) *Tarry Lake, 16-0731-00, [11/5/84P] (T.64, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(162) *Thomas Lake, 38-0351-00, [11/5/84P] (T.63, 64, R.7): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(163) *Thumb Lake, 69-0352-00, [11/5/84P] (T.67, R.14): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(164) Tofte Lake, 38-0724-00, (T.63, R.10W, S.2, 3, 10, 11; T.64, R.10W, S.35): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(165) *Topaz Lake (Star Lake), 38-0172-00, [11/5/84P] (T.65, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(166) *Town Lake, 16-0458-00, [11/5/84P] (T.63, 64, R.3, 4): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(167) Trappers Lake, 38-0431-00, (T.60, R.8W, S.27, 34): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(168) Trip Lake, 16-0451-00, (T.65, R.3W, S.32): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(169) *Trout Lake, Big, 69-0498-00, [11/5/84P] (T.63, 64, R.15, 16): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(170) *Trout Lake, Little (Pocket Lake), 69-0682-00, [11/5/84P] (T.68, R.17): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(171) *Trygg (Twigg) Lake, 69-0389-00, [11/5/84P] (T.68, R.14W, S.31; T.68, R.15W, S.36): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(172) *Tucker Lake (Trucker Lake), 16-0417-00, [11/5/84P] (T.64, R.3): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(173) *Tuscarora Lake, 16-0623-00, [11/5/84P] (T.64, R.4, 5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(174) unnamed (Pear) lake, 38-0769-00, (T.60, R.11W, S.4): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(175) *unnamed lake, 16-0598-00, [11/5/84P] (T.65, R.4, S.29, 30): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(176) unnamed swamp, Winton, (T.63, R.11, S.19; T.63, R.12, S.24): 3, 4A, 4B, 5, 6, 7;~~

~~(177) *Vera Lake, 38-0491-00, [11/5/84P] (T.64, R.8): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(178) Vermilion, Lake, 69-0378-00, (see Lake Vermilion);~~

~~(179) *Virgin Lake, 16-0719-00, [11/5/84P] (T.64, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(180) West Crab Lake, 69-0220-00, (see Crab Lake);~~

~~(181) White Iron Lake, 69-0004-00, (T.62, 63, R.11, 12): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(182) *Wine Lake, 16-0686-00, [11/5/84P] (T.63, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(183) *Wisini Lake, 38-0361-00, [11/5/84P] (T.64, R.7): 1B, 2A, 3, 4A, 4B, 5, 6; and~~

~~(184) Woods, Lake of the, 39-0002-00, (see Lake of the Woods).~~

[For text of items C and D, see Minnesota Rules]

Subp. 3. **Red River of the North basin.** The water-use classifications for the stream reaches within each of the major watersheds in the Red River of the North basin listed in item A are found in tables entitled "Beneficial Use Designations for Stream Reaches" published on the website of the Minnesota Pollution Control Agency at ~~www.pca.state.mn.us/regulations/incorporations-reference~~ https://www.pca.state.mn.us/get-engaged/incorporations-by-reference. The tables are incorporated by reference and are not subject to frequent change. The date after each watershed listed in item A is the publication date of the applicable table. The water-use classifications for the other listed waters in the Red River of the North basin are as identified in items B to D. See part 7050.0415 for the classifications of waters not listed. Designated

use information for water bodies can also be accessed through the agency's Environmental Data Access (http://www.pca.state.mn.us/quick-links/eda-surface-water-data).

[For text of item A, see Minnesota Rules]

B. Lakes (by eight-digit hydrologic unit code):

(1) 09020101 Bois de Sioux River (November 2025);

(2) 09020102 Mustinka River (November 2025);

(3) 09020103 Otter Tail River (November 2025);

(4) 09020104 Upper Red River of the North (November 2025);

(5) 09020106 Buffalo River (November 2025);

(6) 09020107 Red River of the North - Marsh River (November 2025);

(7) 09020108 Wild Rice River (November 2025);

(8) 09020301 Red River of the North - Sandhill River (November 2025);

(9) 09020302 Upper/Lower Red Lake (November 2025);

(10) 09020303 Red Lake River (November 2025);

(11) 09020304 Thief River (November 2025);

(12) 09020305 Clearwater River (November 2025);

(13) 09020306 Red River of the North - Grand Marais Creek (November 2025);

(14) 09020309 Snake River (November 2025);

(15) 09020311 Red River of the North - Tamarac River (November 2025);

(16) 09020312 Two Rivers (November 2025); and

(17) 09020314 Roseau River (November 2025).

~~(1) Bass Lake, 56-0722-00, (T.135, R.42W, S.10, 11): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(2) Hanson Lake, 03-0177-00, (T.139, R.39W, S.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(3) Hoot Lake, 56-0782-00, (T.133, R.42, 43): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(4) Lake Bronson, 35-0003-00, (T.160, 161, R.46): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(5) Twin Lake, East, 03-0362-00, (T.138, R.41): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(6) unnamed slough, Vergas, (T.137, R.40, S.18; T.137, R.41, S.13, 24): 3, 4A, 4B, 5, 6, 7;~~

~~(7) Wapatus (Island) Lake, 15-0127-00, (T.144, R.38W, S.21, 28): 1B, 2A, 3, 4A, 4B, 5, 6; and~~

~~(8) Wright Lake, 56-0783-00, (T.133, R.42, 43): 1C, 2Bd, 3, 4A, 4B, 5, 6.~~

[For text of items C and D, see Minnesota Rules]

Subp. 4. **Upper Mississippi River basin (headwaters to the confluence with the St. Croix River).** The water-use classifications for the stream reaches within each of the major watersheds in the upper Mississippi River basin from the headwaters to the confluence with the St. Croix River listed in item A are found in tables entitled "Beneficial Use Designations for Stream Reaches" published on the website of the Minnesota Pollution Control Agency at ~~www.pca.state.mn.us/regulations/incorporations-reference~~ https://www.pca.state.mn.us/get-engaged/incorporations-by-reference. The tables are incorporated by reference and are not subject to frequent change. The date after each watershed listed in item A is the publication date of the applicable table. The water-use

classifications for the other listed waters in the upper Mississippi River basin from the headwaters to the confluence with the St. Croix River are as identified in items B to D. See part 7050.0415 for the classifications of waters not listed. Designated use information for water bodies can also be accessed through the agency's Environmental Data Access (http://www.pca.state.mn.us/quick-links/eda-surface-water-data).

[For text of item A, see Minnesota Rules]

B. Lakes (by eight-digit hydrologic unit code):

(1) 07010101 Mississippi River - Headwaters (November 2025);

(2) 07010102 Leech Lake River (November 2025);

(3) 07010103 Mississippi River - Grand Rapids (November 2025);

(4) 07010104 Mississippi River - Brainerd (November 2025);

(5) 07010105 Pine River (November 2025);

(6) 07010106 Crow Wing River (November 2025);

(7) 07010107 Redeye River (November 2025);

(8) 07010108 Long Prairie River (November 2025);

(9) 07010201 Mississippi River - Sartell (November 2025);

(10) 07010202 Sauk River (November 2025);

(11) 07010203 Mississippi River - St. Cloud (November 2025);

(12) 07010204 North Fork Crow River (November 2025);

(13) 07010205 South Fork Crow River (November 2025);

(14) 07010206 Mississippi River - Twin Cities (November 2025); and

(15) 07010207 Rum River (November 2025).

~~(1) Allen Lake, 18-0208-00, (T.138, R.26W, S.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(2) Bald Eagle Lake, 62-0002-00, (T.30, 31, R.21, 22): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(3) Bee Cee Lake, 31-0443-00, (T.58, R.25W, S.28, 33): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(4) Benedict Lake, 29-0048-00, (T.142, R.32): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(5) Benjamin Lake, 04-0033-00, (T.148, R.30W, S.7, 18; T.148, R.31W, S.13): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(6) Blacksmith Lake, 29-0275-00, (T.142, R.35W, S.13): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(7) *Blue Lake, 01-0181-00, [3/7/88R] (T.46, 47, R.27): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(8) *Blue Lake, 29-0184-00, [3/7/88R] (T.141, R.34): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(9) *Bluewater Lake, 31-0395-00, [3/7/88R] (T.57, R.25): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(10) Cenaiko Lake (unnamed), 02-0654-00, (T.31, R.24W, S.26): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(11) Centerville Lake, 02-0006-00, (T.31, R.22): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(12) Charley Lake, 62-0062-00, (T.30, R.23): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(13) Crappie Lake, 29-0127-00, (T.143, R.33W, S.31):1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(14) Deep Lake, 62-0018-00, (T.30, R.22): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(15) Diamond Lake, 11-0396-00, (T.141, R.30W, S.26, 27, 34): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(16) Hazel Lake, 11-0295-00, (T.141, R.29W, S.25): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(17) Hay Lake, lower, 18-0378-00, (T.137, R.28, 29): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(18) *Kabekona Lake, 29-0075-00, [3/7/88R] (T.142, 143, R.32, 33): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(19) Kennedy Lake, 31-0137-00, (T.58, R.23): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(20) Kremer Lake, 31-0645-00, (T.58, R.26W, S.33, 34): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(21) LaSalle Lake, lower, 29-0309-00, (T.145, R.35): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(22) Loon (Townline) Lake, 01-0024-00, (T.50, R.22W, S.7; T.50, R.23W, S.12, 13): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(23) Lucky Lake, 31-0603-00, (T.57, R.26W, S.14): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(24) Mallen Mine Pit, 18-0740-00, (T.46, R.29W, S.17): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(25) Manuel (South Yawkey) Mine Pit, 18-0435-00, (T.46, R.29W, S.1): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(26) Margaret Lake, 11-0045-00, (T.139, R.26W, S.16): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(27) Marion Lake, 11-0046-00, (T.139, R.26W, S.16, 17): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(28) Martin (Huntington, Feigh) Mine Pit, 18-0441-00, (T.46, R.29W, S.9, 10, 16): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(29) Moonshine Lake, Little (Moonshine), 31-0444-00, (T.58, R.25W, S.28, 33): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(30) Newman (Putnam) Lake, 29-0237-00, (T.145, R.34W, S.10, 11): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(31) Otter Lake, 02-0003-00, (T.30, 31, R.22): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(32) Pennington (Mahnomen, Alstead, Arco) Mine Pit, 18-0439-00, (T.46, R.29W, S.3, 9, 10, 11): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(33) Perch Lake, 11-0826-00, (T.139, R.31W, S.33): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(34) Pleasant Lake, 62-0046-00, (T.30, R.22, 23): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(35) Pleasant Lake, 18-0278-00, (T.137, R.27W, S.19): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(36) *Pokegama Lake, 31-0532-01 and 31-0532-02, [3/7/88R] (T.54, 55, R.25, 26): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(37) Portsmouth Mine Pit, 18-0437-00, (T.46, R.29W, S.1, 2, 11): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(38) *Roosevelt Lake, 11-0043-00, [3/7/88R] (T.138, 139, R.26): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(39) Sagamore Mine Pit, 18-0523-00, (T.46, R.29W, S.19; T.46, R.30W, S.24): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(40) Section 6 Mine Pit, 18-0667-00, (T.46, R.29W, S.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(41) Snoshoe Mine Pit, 18-0524-00, (T.46, R.29W, S.17, 18): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(42) Snowshoe (Little Andrus) Lake, 11-0054-00, (T.139, R.26W, S.29, 30): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(43) Strawberry Lake, 18-0363-00, (T.137, R.28W, S.27, 34): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(44) Sucker Lake, 62-0028-00, (T.30, R.22): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(45) Taylor Lake, 01-0109-00, (T.52, R.25W, S.16): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(46) Teepee Lake, 11-0312-00, (T.141, R.29W, S.30; T.141, R.30W, S.25): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(47) Tioga Mine Pit, 31-0946-00, (T.55, R.26W, S.26): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(48) Trout Lake, 31-0216-00, (T.55, 56, R.24): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(49) *Trout Lake, Big, 31-0410-00, [3/7/88R] (T.57, 58, R.25): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(50) *Trout Lake, Big, 18-0315-00, [3/7/88R] (T.137, 138, R.27, 28): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(51) *Trout Lake, Little, 31-0394-00, [3/7/88R] (T.57, R.25): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(52) unnamed swamp, Flensburg, (T.129, R.31, S.25): 3, 4A, 4B, 5, 6, 7;~~

~~(53) unnamed slough, Miltona, (T.130, R.37, S.26, 35, 36): 3, 4A, 4B, 5, 6, 7;~~

~~(54) unnamed swamp, Staples, (T.133, R.33, S.1): 3, 4A, 4B, 5, 6, 7;~~

~~(55) unnamed swamp, Taconite, (T.56, R.24, S.22): 3, 4A, 4B, 5, 6, 7;~~

~~(56) Vadnais Lake, 62-0038-00, (T.30, R.22): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(57) Wabana Lake, 31-0392-00, (T.57, R.25): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(58) Watab Lake, Big, 73-0102-00, (T.124, R.30): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(59) Wilkinson Lake, 62-0043-00, (T.30, R.22): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(60) Willard Lake, 11-0564-00, (T.139, R.30W, S.15): 1B, 2A, 3, 4A, 4B, 5, 6; and~~

~~(61) Yawkey (North Yawkey) Mine Pit, 18-0434-00, (T.46, R.29W, S.1): 1B, 2A, 3, 4A, 4B, 5, 6.~~

[For text of items C and D, see Minnesota Rules]

Subp. 5. **Minnesota River basin.** The water-use classifications for the stream reaches within each of the major watersheds in the Minnesota River basin listed in item A are found in tables entitled "Beneficial Use Designations for Stream Reaches" published on the website of the Minnesota Pollution Control Agency at ~~www.pca.state.mn.us/regulations/incorporations-reference~~ https://www.pca.state.mn.us/get-engaged/incorporations-by-reference. The tables are incorporated by reference and are not subject to frequent change. The date after each

watershed listed in item A is the publication date of the applicable table. The water-use classifications for the other listed waters in the Minnesota River basin are as identified in items B to D. See part 7050.0415 for the classifications of waters not listed. Designated use information for water bodies can also be accessed through the agency's Environmental Data Access (http://www.pca.state.mn.us/quick-links/eda-surface-water-data).

[For text of item A, see Minnesota Rules]

B. Lakes (by eight-digit hydrologic unit code):

(1) 07020001 Minnesota River - Headwaters (November 2025);

(2) 07020002 Pomme de Terre River (November 2025);

(3) 07020003 Lac qui Parle River (November 2025);

(4) 07020004 Minnesota River - Yellow Medicine River (November 2025);

(5) 07020005 Chippewa River (November 2025);

(6) 07020006 Redwood River (November 2025);

(7) 07020007 Minnesota River - Mankato (November 2025);

(8) 07020008 Cottonwood River (November 2025);

(9) 07020009 Blue Earth River (November 2025);

(10) 07020010 Watonwan River (November 2025);

(11) 07020011 Le Sueur River (November 2025); and

(12) 07020012 Lower Minnesota River (November 2025).

~~(1) Amber Lake, 46-0034-00, (T.102, R.30): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(2) Bardwell Lake, 46-0023-00, (T.102, R.30): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(3) Budd Lake, 46-0030-00, (T.102, R.30): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(4) Courthouse Lake, 10-0005-00, (T.115, R.23W, S.9): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(5) George Lake, 46-0024-00, (T.102, R.30): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(6) Hall Lake, 46-0031-00, (T.102, R.30): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(7) Mud Lake, 46-0035-00, (T.102, R.30): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(8) One Hundred Acre Slough, Saint James, (T.106, R.31, S.7): 3, 4A, 4B, 5, 6, 7;~~

~~(9) Silver Lake, North, 46-0016-00, (T.101, R.30): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(10) Sisseton Lake, 46-0025-00, (T.102, R.30): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(11) unnamed marsh, Barry, (T.124, R.47, S.8): 3, 4A, 4B, 5, 6, 7;~~

~~(12) unnamed slough, Kensington, (T.127, R.40, S.34): 3, 4A, 4B, 5, 6, 7;~~

~~(13) unnamed slough, Brandon, (T.129, R.39, S.21, 22): 3, 4A, 4B, 5, 6, 7;~~

~~(14) unnamed swamp, Minnesota Lake, (T.104, R.25, S.3, 4): 3, 4A, 4B, 5, 6, 7;~~

~~(15) unnamed swamp (Skauby Lake), 17-0035-00, Storden, (T.107, R.37, S.30): 3, 4A, 4B, 5, 6, 7;~~

~~(16) unnamed swamp, Sunburg, Sunburg Coop Cry., (T.122, R.36, S.30): 3, 4A, 4B, 5, 6, 7;~~

~~(17) unnamed swamp, Lowry, (T.126, R.39, S.35, 36): 3, 4A, 4B, 5, 6, 7;~~ ~~and~~

~~(18) Wilmert Lake, 46-0014-00, (T.101, R.30): 1C, 2Bd, 3, 4A, 4B, 5, 6.~~

[For text of items C and D, see Minnesota Rules]

Subp. 6. **Saint Croix River basin.** The water-use classifications for the stream reaches within each of the major watersheds in the Saint Croix River basin listed in item A are found in tables entitled "Beneficial Use Designations for Stream Reaches" published on the website of the Minnesota Pollution Control Agency at ~~www.pca.state.mn.us/regulations/incorporations-reference~~ https://www.pca.state.mn.us/get-engaged/incorporations-by-reference. The tables are incorporated by reference and are not subject to frequent change. The date after each watershed listed in item A is the publication date of the applicable table. The water-use classifications for the other listed waters in the Saint Croix River basin are as identified in items B to D. See part 7050.0415 for the classifications of waters not listed. Designated use information for water bodies can also be accessed through the agency's Environmental Data Access (http://www.pca.state.mn.us/quick-links/eda-surface-water-data).

[For text of item A, see Minnesota Rules]

B. Lakes (by eight-digit hydrologic unit code):

(1) 07030001 Upper St. Croix River (November 2025);

(2) 07030003 Kettle River (November 2025);

(3) 07030004 Snake River (November 2025); and

(4) 07030005 Lower St. Croix River (November 2025).

~~(1) *Grindstone Lake, 58-0123-00, [3/7/88R] (T.42, R.21): 1B, 2A, 3, 4A, 4B, 5, 6; and~~

~~(2) unnamed swamp, Shafer, (T.34, R.19, S.31, 32): 3, 4A, 4B, 5, 6, 7.~~

[For text of items C and D, see Minnesota Rules]

Subp. 7. **Lower Mississippi River basin (from the confluence with the St. Croix River to the Iowa border).** The water-use classifications for the stream reaches within

each of the major watersheds in the lower Mississippi River basin from the confluence with the Saint Croix River to the Iowa border listed in item A are found in tables entitled "Beneficial Use Designations for Stream Reaches" published on the website of the Minnesota Pollution Control Agency at ~~www.pca.state.mn.us/regulations/incorporations-reference~~ https://www.pca.state.mn.us/get-engaged/incorporations-by-reference. The tables are incorporated by reference and are not subject to frequent change. The date after each watershed listed in item A is the publication date of the applicable table. The water-use classifications for the other listed waters in the lower Mississippi River basin from the confluence with the St. Croix River to the Iowa border are as identified in items B to D. See part 7050.0415 for the classifications of waters not listed. Designated use information for water bodies can also be accessed through the agency's Environmental Data Access (http://www.pca.state.mn.us/quick-links/eda-surface-water-data).

[For text of item A, see Minnesota Rules]

B. Lakes (by eight-digit hydrologic unit code):

(1) 07040001 Mississippi River - Lake Pepin (November 2025);

(2) 07040002 Cannon River (November 2025);

(3) 07040003 Mississippi River - Winona (November 2025);

(4) 07040004 Zumbro River (November 2025);

(5) 07040006 Mississippi River - La Crescent (November 2025);

(6) 07040008 Root River (November 2025);

(7) 07060001 Mississippi River - Reno (November 2025); and

(8) 07060002 Upper Iowa River (November 2025).

~~(1) unnamed marsh, Kilkenny, (T.110, R.23, S.22, 23): 3, 4A, 4B, 5, 6, 7;~~

~~and~~

~~(2) unnamed swamp, Hampton, (T.113, R.18, S.8): 3, 4A, 4B, 5, 6, 7.~~

[For text of items C and D, see Minnesota Rules]

Subp. 8. **Cedar-Des Moines Rivers basin.** The water-use classifications for the stream reaches within each of the major watersheds in the Cedar-Des Moines Rivers basin listed in item A are found in tables entitled "Beneficial Use Designations for Stream Reaches" published on the website of the Minnesota Pollution Control Agency at ~~www.pca.state.mn.us/regulations/incorporations-reference~~ https://www.pca.state.mn.us/get-engaged/incorporations-by-reference. The tables are incorporated by reference and are not subject to frequent change. The date after each watershed listed in item A is the publication date of the applicable table. The water-use classifications for the other listed waters in the Cedar-Des Moines Rivers basin are as identified in items B to D. See part 7050.0415 for the classifications of waters not listed. Designated use information for water bodies can also be accessed through the agency's Environmental Data Access (http://www.pca.state.mn.us/quick-links/eda-surface-water-data).

[For text of item A, see Minnesota Rules]

B. Lakes: ~~none currently listed.~~ (by eight-digit hydrologic unit code):

(1) 07080102 Upper Wapsipinicon River (November 2025);

(2) 07080201 Cedar River (November 2025);

(3) 07080202 Shell Rock River (November 2025);

(4) 07080203 Winnebago River (November 2025);

(5) 07100001 Des Moines River - Headwaters (November 2025);

(6) 07100002 Lower Des Moines River (November 2025); and

(7) 07100003 East Fork Des Moines River (November 2025).

[For text of items C and D, see Minnesota Rules]

Subp. 9. **Missouri River basin.** The water-use classifications for the stream reaches within each of the major watersheds in the Missouri River basin listed in item A are found in tables entitled "Beneficial Use Designations for Stream Reaches" published on the website of the Minnesota Pollution Control Agency at ~~www.pca.state.mn.us/regulations/incorporations-reference~~ https://www.pca.state.mn.us/get-engaged/incorporations-by-reference. The tables are incorporated by reference and are not subject to frequent change. The date after each watershed listed in item A is the publication date of the applicable table. The water-use classifications for the other listed waters in the Missouri River basin are as identified in items B to D. See part 7050.0415 for the classifications of waters not listed. Designated use information for water bodies can also be accessed through the agency's Environmental Data Access (http://www.pca.state.mn.us/quick-links/eda-surface-water-data).

[For text of item A, see Minnesota Rules]

B. Lakes~~: none currently listed.~~ (by eight-digit hydrologic unit code):

(1) 10170202 Upper Big Sioux River (November 2025);

(2) 10170203 Lower Big Sioux River (November 2025);

(3) 10170204 Rock River (November 2025); and

(4) 10230003 Little Sioux River (November 2025).

[For text of items C and D, see Minnesota Rules]

Office of the Revisor of Statutes
Administrative Rules

TITLE: Proposed Permanent Rules Relating to Lake Water Quality

AGENCY: Pollution Control Agency

REVISOR ID: R-4740

MINNESOTA RULES: Chapter 7050

INCORPORATIONS BY REFERENCE:

Part 7050.0222, subparts 2c, 3c, and 4c: Calibration of the Biological Condition Gradient for Streams of Minnesota, Gerritsen et al. (2012); Fish Data Collection Protocols for Lotic Waters in Minnesota, Minnesota Pollution Control Agency (2017); Macroinvertebrate Data Collection Protocols for Lotic Waters in Minnesota, Minnesota Pollution Control Agency (2017); Development of Biological Criteria for Tiered Aquatic Life Uses, Minnesota Pollution Control Agency (2016); Biological Condition Gradient (BCG) Assessment Models for Lake Fish Communities of Minnesota, Gerritsen and Stamp (2014); Manual of Instructions for Lake Survey, Minnesota Department of Natural Resources (2017); Lake Index of Biological Integrity (IBI) Nearshore Sampling Manual, Minnesota Department of Natural Resources (2022); and Development of Fish-Based Indices of Biological Integrity for Minnesota Lakes, Bacigalupi et al. (2021). These documents are incorporated by reference, are not subject to frequent change, and are available at https://www.pca.state.mn.us/get-engaged/incorporations-by-reference.

Part 7050.0470, subparts 1 to 9: "Beneficial Use Designations for Stream Reaches" published on the website of the Minnesota Pollution Control Agency at https://www.pca.state.mn.us/get-engaged/incorporations-by-reference. The tables are incorporated by reference and are not subject to frequent change.

The attached rules are approved for
publication in the State Register

Cindy K. Maxwell

Cindy K. Maxwell
Assistant Deputy Revisor

MINNESOTA POLLUTION CONTROL AGENCY

STATEMENT OF NEED AND REASONABLENESS

Proposed Revisions of Rules Governing Water Quality Standards for Lake Aquatic Life and Recreation, *Minnesota Rules*, Chapter 7050; Revisor's ID Number R-04740, Court of Administrative Hearings docket 23-9003-39503

Minnesota Pollution Control Agency

August 2026

General information

1. **Availability:** Links to the *State Register* notice, this Statement of Need and Reasonableness (SONAR), and the proposed rule will be available during the public comment period on the Agency's Proposed Rules website: https://www.pca.state.mn.us/get-engaged/proposed-rules
2. **Revisor ID Number:** Unique identifier that the Minnesota Office of the Revisor of Statutes assigns to all rulemaking projects. More information about the Revisor is available at https://www.revisor.mn.gov/
3. **Agency contact for information, documents, or alternative formats:** Upon request, this SONAR can be made available in an alternative format, such as large print, braille, or audio. To make a request, contact Rule Coordinator Katie Izzo, Minnesota Pollution Control Agency, 520 Lafayette Rd., St. Paul, MN 55155-4194; telephone 651-757-2595; 1-800-657-3864; email katie.izzo@state.mn.us; or use your preferred telecommunications relay service.
4. How to read a Minnesota Statutes citation: Minn. Stat. § 999.09, subd. 9(f)(1)(ii)(A) is read as Minnesota Statutes, section 999.079, subdivision 9, paragraph (f), clause (1), item (ii), subitem (A).
5. How to read a Minnesota Rules citation: Minn. R. 9999.0909, subp. 9(B)(3)(b)(i) is read as Minnesota Rules, chapter 9999, part 0909, subpart 9, item B, subitem (3), unit (b), subunit (i).

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Acronyms and abbreviations

APA	Administrative Procedures Act
AUID	assessment unit identification code
BCG	biological condition gradient
BMP	best management practice
BOD_5	five-day biochemical oxygen demand
CAH	Court of Administrative Hearings
CDOM	colored dissolved organic matter
CFR	Code of Federal Regulations
chl-*a*	chlorophyll-*a*
CWA	Clean Water Act (33 USC § 1251 et seq.)
DO	dissolved oxygen
DOW	Minnesota Department of Natural Resources Division of Waters number
EPA	United States Environmental Protection Agency
HUC	hydrological unit code
IBI	index of biological (or biotic) integrity
IWM	Intensive Watershed Monitoring
LAT	Lake Trout
LES	lake eutrophication standards
LKW	Lake Whitefish
MNDNR	Minnesota Department of Natural Resources
mg/L	milligrams per liter
Minn. R.	Minnesota Rules
Minn. Stat.	Minnesota Statutes
MMB	Minnesota Management and Budget
MPCA or Agency	Minnesota Pollution Control Agency
MS4	municipal separate storm sewer systems
NLF	Northern Lakes and Forests
NMW	Northern Minnesota Wetlands
NPDES	National Pollutant Discharge Elimination System
RES	river eutrophication standards
RFC	Request for Comments
SDS	State Disposal System
SONAR	Statement of Need and Reasonableness
SRT	stream trout
SSS	site-specific standard
TALU	tiered aquatic life uses
T_{DO3}	oxythermal habitat: temperature where dissolved oxygen equals 3 mg/L
TLC	Cisco

TMDL	total maximum daily load
TP	total phosphorus
TSD	technical support document
µg/L	micrograms per liter
UAA	use attainability analysis
USC	United States Code
WID	water body identification number
WLA	waste load allocation
WQBELs	water quality–based effluent limitations
WQS	water quality standards
WRAPS	watershed restoration and protection strategies

Definitions

The following definitions of terms used in this Statement of Need and Reasonableness (SONAR) are based on standard use and provided for the convenience of the reader. Unless otherwise specified, these definitions are specific to this SONAR.

Antidegradation: The part of state water quality standards (WQS) that protects and maintains existing uses, prevents degradation of high-water quality unless certain conditions are met, and which protects and maintains the quality of outstanding resource waters.

Aquatic Biota: The aquatic community composed of game and nongame fish, minnows and other small fish, mollusks, insects, crustaceans and other invertebrates, submerged or emergent rooted vegetation, suspended or floating algae, substrate-attached algae, microscopic organisms, and other aquatic-dependent organisms that require aquatic systems for food or to fulfill any part of their life cycle, such as amphibians and certain wildlife species. See definition in Minn. R. 7050.0150, subp. 4.

Aquatic Life Use: A designated use that protects aquatic biota including fish, insects, mollusks, crustaceans, plants, microscopic organisms, and all other aquatic-dependent organisms. Attainment of aquatic life uses are measured directly in Minnesota using indices of biological integrity (IBIs) and biological criteria. Chemical and physical standards are also used to protect aquatic life uses.

Aquatic Life Use Goals: A goal for the condition of aquatic biota required by the Clean Water Act (CWA). Minimum aquatic life use goals are established using the CWA interim goal ("…water quality which provides for the protection and propagation of fish, shellfish, and wildlife…"). A tiered aquatic life uses (TALU) framework establishes multiple aquatic life use goals or tiers to protect attainable biological conditions. The objectives for these goals are established in Minnesota Rules using narrative standards, numeric standards, or both. Attainment of these goals is directly measured in Minnesota using IBIs and biological criteria.

Assemblage: A taxonomic subset of a biological community such as fish in a stream community. See definition in Minn. R. 7050.0150, subp. 4.

Assessment Unit Identification (AUID) Code: see "Water Body Identification Number"

Beneficial Use: A designated use described in Minn. R. 7050.0140 and listed in Minn. R. 7050.0400 to Minn. R. 7050.0470 for each surface water or segment thereof, whether or not the use is currently attained. The term "designated use" may be used interchangeably. See also "Existing Use."

Best Management Practice (BMP): An engineered structure, management activity, or combination thereof that eliminates or reduces an adverse environmental effect of a pollutant, pollution, or stressor.

Biological Assessment or bioassessment: An evaluation of the biological condition of a water body using surveys of the structure and function of an assemblage of resident biota. It also includes the interdisciplinary process of determining condition and relating that condition to chemical, physical, and biological factors that are measured along with the biological sampling. Guidance for performing biological assessments in Minnesota is described in https://www.pca.state.mn.us/sites/default/files/wq-iw1-04j.pdf.

Biological Condition Gradient (BCG): A concept describing how aquatic communities change in response to increasing levels of stressors. In application, the BCG is an empirical, descriptive model that rates biological communities on a scale from natural to highly degraded (S-1). See definition in Minn. R. 7050.0150, subp. 4.

Biological Criteria,[1] Narrative or Biocriteria, Narrative: Written statements describing the attributes of the structure and function of aquatic assemblages in a water body necessary to protect the designated aquatic life beneficial use. See definition in Minn. R. 7050.0150, subp. 4.

Biological Criteria,[1] Numeric or Biocriteria, Numeric: Specific quantitative measures of the attributes of the structure and function of aquatic communities in a water body necessary to protect the designated aquatic life beneficial use. See definition in Minn. R. 7050.0150, subp. 4.

Biological Integrity: The condition where the "biota is a balanced, integrated, adaptive system having the full range of elements (genes, species, assemblages) and processes (mutation, demography, biotic interactions, nutrient and energy dynamics, and metapopulation processes) expected in areas with minimal influence from modern human society" (S-2).

Biological Monitoring: The measurement of a biological entity (taxon, species, assemblage) as an indicator of environmental conditions. Ambient biological surveys and toxicity tests are common biological monitoring methods. (The term "biomonitoring" may be used interchangeably.)

Clean Water Act (CWA): An act passed by the U.S. Congress to control water pollution (formally referred to as the Federal Water Pollution Control Act of 1972). 33 U.S.C. § 1251 et seq.

Clean Water Act Interim Goal: CWA Section 101(a)(2) establishes the minimum restoration and protection goals for water quality. It states, "it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved by July 1, 1983."

Clean Water Act Objective: "The objective of this Act is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters" CWA Section 101(a). This is the long-term objective of the CWA and it is consistent with natural or near-natural conditions.

Criteria: Narrative descriptions or numerical values which describe the chemical, physical, or biological conditions in a water body necessary to protect designated uses. See also the definitions for "biological criteria/biocriteria" and "standard" and the discussion in the Background section on defining terms.

Designated Use: See "beneficial use."

Dimictic Lake: Lakes which mix twice a year in the spring and fall and are stratified during the summer and winter. Compared to polymictic lakes, dimictic lakes tend to be deeper with the littoral zone comprising a lower proportion of the total area.

Existing Use: Those uses attained in the surface water on or after November 28, 1975. See definition in existing rule Minn. R. 7050.0255, subp. 15.

[1] The term "biological criteria" can be used interchangeably with "biological standard." Minnesota Rule uses the term "standard" to mean "a number or numbers established for a pollutant or water quality characteristic to protect a specified beneficial use" (Minn. R. 7050.0218, subp. 3(TT)). The EPA's use of the term "criteria" is similar to Minnesota's use of "standard." "Biological criteria" and "biocriteria" are the terms most commonly used in the United States to refer to numerical values which represent the biological condition or health necessary to protect designated uses. Using Minnesota Rule terminology, these values would be called "biological criteria" or "biocriteria" before promulgation and "biological standards" following promulgation in rule. However, to be consistent with the terminology used by federal agencies and by other states and tribes, the terms "biological criteria" and "biocriteria" are used in this document and in rule to refer to both the promulgated and unpromulgated values.

Hydrological Unit Code (HUC): Watersheds in the United States are divided into a series of hierarchical units. Each watershed at each level is designated by a hydrological unit code. At the highest level (Level 1), watersheds are divided into regions and are assigned a two-digit code. For example, the Upper Mississippi watershed is assigned the two-digit code "07" (see Table 1). The region is subdivided into subregions and an additional two digits are added to the code for each of the subregions creating a unique four-digit code for each. Each subsequent level is subdivided and assigned a unique, hierarchical code down to level six. The seventh level is part of the Minnesota Department of Natural Resources (MNDNR) watershed system. The minor watersheds are a further division of the 12-digit HUCs and are similar to 14-digit HUCs. These watersheds are used to organize water quality monitoring, assessment, and management activities.

Table 1. Examples of hydrological unit codes.

Level	Name	Digits	Example code (HUC)	Example name
1	Region	2	07	Upper Mississippi
2	Subregion	4	0701	Mississippi Headwaters
3	Basin	6	070102	Upper Mississippi-Crow-Rum
4	Subbasin	8	07010206	Mississippi River - Twin Cities
5	Watershed	10	0701020606	Minnehaha Creek
6	Subwatershed	12	070102060601	Sixmile Creek
7	Minor watershed	NA	20053	Sixmile Creek

Index of Biological Integrity or Index of Biotic Integrity (IBI): An index developed by measuring attributes of an aquatic community that change in quantifiable and predictable ways in response to human disturbance, representing the health of that community. See definition in Minn. R. 7050.0150, subp. 4.

Natural Condition: As described in Minn. R. 7050.0170: "Natural conditions exist where there is no discernible impact from point or nonpoint source pollutants attributable to human activity or from a physical alteration of wetlands." This includes the multiplicity of factors (e.g., pH, temperature, and species) that determine the physical, chemical, or biological conditions that would exist in a water body in the absence of measurable impacts from human activity or influence.

Oxythermal Layer: A water column layer of a designated thickness where both dissolved oxygen and thermal conditions need to be maintained at levels that support coldwater fish communities during critical periods. Oxythermal layer standards may be defined using different methods including a fixed layer thickness which meet defined temperature and oxygen standards or by determining the water temperature at which a dissolved oxygen threshold is met in a lake profile. The layer thickness method could for example require a 1 m layer where the water temperature is less than 20°C and dissolved oxygen is greater than 3 mg/L. The temperature threshold method can for example be used to require that water temperature be less than 20°C on the lake profile where the dissolved oxygen equals 3 mg/L. The later method (i.e., temperature threshold) is used for setting recommended oxythermal habitat standards for coldwater fishes in Minnesota.

Polymictic Lake: Lakes with frequent mixing of the water column during the ice-free period. In general, these are shallow and are largely consistent with Minnesota's shallow lake definition in Minn. R. 7050.0150, subp. 4.

Reference Water Body: A water body[2] minimally or least impacted by point or nonpoint sources of pollution that is representative of water bodies of a similar surface water-body type and within a geographic region such as an ecoregion or watershed. Reference water bodies are used as the basis for comparing the quality of similar water bodies in the same geographic region. See definition in Minn. R. 7050.0150, subp. 4.

Shallow Lake: Shallow lakes are defined in Minn. R. 7050.0150, subp. 4 as "*an enclosed basin filled or partially filled with standing fresh water with a maximum depth of 15 feet or less or with 80 percent or more of the lake area shallow enough to support emergent and submerged rooted aquatic plants (the littoral zone). It is uncommon for shallow lakes to thermally stratify during the summer.*"

Standard: Regulatory limits on a particular pollutant, or a description of the condition of a water body, presumed to support or protect the beneficial use or uses. Standards may be narrative or numeric and are commonly expressed as a chemical concentration, a physical parameter, or a biological assemblage endpoint. See also the definitions for "biological criteria/biocriteria" and "criteria" and the discussion in the Background section on defining terms.

Stressors: Physical, chemical, and biological factors that can adversely affect aquatic organisms. The effect of stressors is apparent in biological responses because stressor conditions are outside the conditions for which an organism is adapted. This leads to changes in the fitness of organisms and changes in the composition of organisms found in aquatic communities. Under the effect of stressors, the normal functioning of organisms is disturbed (e.g., increased metabolism, interruption of behavior) which results in negative impacts such as decreased fitness, reduced growth, increased disease prevalence, interruption of reproductive behavior, increased emigration, and increased mortality. Examples of stressors in aquatic systems are low levels of dissolved oxygen, suspended sediments, toxic pollutants, habitat alteration, altered hydrology, and reduced connectivity.

Tiered Aquatic Life Use (TALU) Framework: A TALU framework is the structure of designated aquatic life uses that incorporates a hierarchy of use subclasses. The TALUs in a TALU framework are based on representative ecological attributes reflected in the narrative description of each TALU tier and embodied in the measurements that extend to expressions of that narrative through numeric biological criteria and, by extension, to chemical and physical indicators, and standards.

Tiered Aquatic Life Uses (TALUs): Designated uses assigned to water bodies based on their ecological potential and the ability to protect or restore a water body to that attainable level. This means that the assignment of a TALU tier to a specific water body is done based on reasonable restoration or protection expectations and attainability. Knowledge of the current condition of a water body and an accompanying and adequate assessment of stressors affecting that water body are needed to make these assignments.

Total Maximum Daily Load (TMDL): The maximum amount of a pollutant that a body of water can receive while still meeting WQS. Alternatively, a TMDL is an allocation of a water pollutant deemed acceptable to still attain the beneficial use assigned to the water body. See 40 CFR § 130.7.

Use Attainability Analysis (UAA): A structured scientific assessment of the physical, chemical, biological, and economic factors affecting attainment of the uses of water bodies. A UAA is required to remove a designated use specified in section 101(a)(2) of the CWA that is not an existing use. The allowable reasons for removing a designated use are described in 40 CFR § 131.10 (g). See definition in Minn. R. 7050.0150, subp. 4.

[2] The term "water body" is a general term that includes streams, rivers, ditches, lakes, ponds, wetlands, etc. and in this document, it usually refers to an assessment unit (i.e., AUID or WID). This term may refer to a lake, a lake basin, or a segment of a stream.

Water Body Identification Number (WID): Streams and lakes are assigned a WID code (also referred to as an Assessment Unit Identification Code [AUID]), which is used to identify assessment units and track assessment efforts. WIDs are also the framework used to assign and track designated uses. For streams, the code identifies the 8-digit HUC (HUC8) watershed in which the stream segment is located and assigns a unique 3-digit code to the reach. For lakes, the code follows the MNDNR conventions. Numbering follows the format of XX-YYYY-ZZ where XX is a county code (alphabetically assigned), YYYY is a random, unique basin number in that county, and ZZ is the sub-basin or embayment number. The composition of these identification numbers is similar for the MPCA and MNDNR. The only difference is the MPCA includes hyphens between the county code, basin number, and embayment number. For example, the lake identification number used by the MPCA could be "01-0001-00" and for the same lake the MNDNR will use "01000100." In addition, the MNDNR refers to lake identification numbers as Division of Waters numbers or DOWs.

Water Quality Management: A collection of management programs relevant to water resource protection that include problem identification, the need for and placement of BMPs, pollution abatement actions, and measuring the effectiveness of management actions.

Water Quality Standards (WQS): A law or regulation that consists of the beneficial use or uses of a water body, the narrative or numerical WQS that are necessary to protect the use or uses of that water body, and antidegradation. See the Background section on defining terms.

Introduction and Overview

Summary of Proposed Amendments

The Minnesota Pollution Control Agency (MPCA) is proposing amendments to several elements of Class 2 water quality standards (WQS) that apply to lakes and other housekeeping revisions—collectively referred to as the Lakes WQS rulemaking. The major elements of these amendments include revisions to the eutrophication standards for northern lakes, revisions to the WQS for lakes supporting coldwater fishes, the adoption of a tiered aquatic life uses (TALU) framework for lakes, and revisions to use designations for a subset of lakes (Minn. R. 7050.0470). The MPCA routinely reviews WQS to ensure that appropriate and protective standards are applied to Minnesota's waters as defined by the Clean Water Act (CWA) and Minnesota Rules. The MPCA has identified several elements of Minnesota's lake standards that should be revised to improve the management of these important resources. These amendments will refine WQS and assign use designations to ensure that appropriate goals are used to manage lakes through assessment, stressor identification, National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) permitting, and total maximum daily loads (TMDLs). Amending MPCA's water quality rules to appropriately assign WQS will lead to better management outcomes for the protection of aquatic life and recreation.

Adopting the proposed amendments in Minn. R. 7050.0470 **WILL**:

- Result in more refined and appropriate water quality standards to protect aquatic life and recreation uses in lakes;
- Result in more accurate and representative aquatic life use designations;
- Document existing uses to provide protection from "backsliding;"
- Provide protections for high-quality waters and the aquatic life they support;
- Improve the outcomes of water quality management programs, such as watershed restoration and protection strategies (WRAPS); and
- Result in better protection and restoration outcomes for aquatic life and recreation beneficial uses and improved water quality in Minnesota lakes.

Adopting the proposed amendments in Minn. R. 7050.0470 **ARE NOT**:

- A rationale for the *a priori* relaxation of pollution controls or the removal of waters from the impaired waters list;
- A downgrade of the existing beneficial use class for any water body. All existing beneficial uses will continue to be protected and all changes to designated beneficial uses must be made through rulemaking;
- A removal of Class 1B standards or the associated applicable water quality criteria to any waters; and
- A change to any use class other than Class 2.[3]

[3] Class 2A, 2Ag, and 2Ae designations also carry the Class 1B designation (see Minn. R. 7050.0420). As a result, the assignment of a Class 2A, 2Ag, or 2Ae designation results in the addition of the Class 1B designation if it is not already designated. Class 1 designations are not reviewed as part of the scope of this rule and therefore, proposed designations from coldwater habitat (i.e., Class 2A) to cool/warm water

Statement of General Need

The standards and use designations which apply to Minnesota's waters need to be appropriate and protective because they are used to determine the condition of aquatic resources and to make decisions about water quality management activities. When appropriate designated uses and standards are assigned to water bodies, water quality management is more effective and efficient because resources are not used to restore waters beyond what is currently attainable, high-quality waters are not under-protected, and goals are not inconsistent with the natural characteristics of those waters. Through the existing WQS framework, Minnesota has been able to effectively measure the health of lakes in the state; however, an objective of the MPCA is to continually seek improvements to standards that improve how aquatic resources are managed and improve water quality outcomes. To this end, the MPCA is proposing the following revisions to Minnesota's water quality standards.

Northern Lakes

The MPCA adopted lake eutrophication standards (LES) in 2008. In the years since this rule was adopted, it has become apparent that these standards could be refined to better address natural differences between lake types in the Northern Lakes and Forests (NLF) and Northern Minnesota Wetlands (NMW) ecoregions (herein referred to as the North region). Unlike Minnesota's other lake nutrient regions (i.e., Western Corn Belt Plains, Northern Glaciated Plains, and North Central Hardwood Forest ecoregions), there is currently no distinction in rule between standards for lakes with polymictic and dimictic stratification types in the North region. Stratification type naturally affects nutrient concentrations and the relationship between nutrients and productivity measures such as chlorophyll-*a* (chl-*a*) in a lake. Water quality standards should account for these differences because without such refinements, lakes with trophic states at or near natural-background conditions will be listed as not meeting beneficial use goals. We now have sufficient data to demonstrate the natural differences between natural lake types in the North region and to develop protective eutrophication standards for these lake types. The proposed standards (S-3) will assign different LES to polymictic and dimictic lakes in the North region to ensure that appropriate and attainable standards are applied to these lakes.

Coldwater Lakes

Minnesota's LES framework includes separate protections for lakes that support or are managed for trout (Class 2A). These standards are more stringent than the those that apply to warm and cool water lakes (Class 2B and Class 2Bd) due to the sensitivity of these species. However, some Minnesota lakes currently designated for the protection of warm and cool water habitat support other coldwater fish species including Cisco and Lake Whitefish which may not be protected by warm and cool water lake standards. As a result, the MPCA is proposing new LES standards to protect these fish species and an oxythermal habitat standard that will be applicable to lakes supporting Lake Trout, Lake Whitefish, and Cisco (S-4). These new and revised standards provide specific goals to protect these fish species from eutrophication and thermal threats.

TALU Framework for Lakes

In 2017, Minnesota adopted a TALU framework for streams to provide refined biological standards that are tailored to the attainability of different biological goals. This framework allows for recognition and protection of high-quality waters that perform much better than minimum goals. The Minnesota Department of Natural Resources (MNDNR) and MPCA have developed a similar framework for lakes (S-5), which will provide refined

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habitat will retain the Class 1B designation and be designated cool/warm water habitat also protected as a source of drinking water (Class 2Bd, 2Bde, or 2Bdg).

biological goals that will result in protections aligned with the highest-attainable use for lakes and improve management by tailoring goals to these uses.

Designation of Beneficial Use for Lakes

As part of the revisions to the coldwater lake standards and the adoption of a TALU framework, lake use designations will be updated to reflect the appropriate use designation.

1. **Designate TALUs to address the diversity of aquatic resources in Minnesota.** Minnesota's aquatic resources are varied and diverse which make refined biological goals necessary for effective management of these waters. The designation of TALUs result in attainable and appropriate goals for designated aquatic life uses in streams. It is consistent with the concept of protecting existing uses while simultaneously providing higher goals for waters with demonstrated exceptional biological quality and maintaining current goals for General Use waters. To accomplish this, Exceptional Use designations will be assigned to a subset of lakes where adequate data demonstrate the fish communities are near to a natural or undisturbed condition. Other lakes will be assigned the General Use, which is the current default aquatic life use goal, and is equivalent to the CWA interim goal.
2. **Designate coldwater and warm or cool water lakes based on adequate data.** The current inventory of coldwater habitats designated in Minn. R. 7050.0470 needs to be refined to better reflect existing coldwater uses. New data assessed with updated methods can be used to refine these designations to ensure that these designations are appropriate and that actions taken to protect or restore these waters are targeted and effective.
    - **Lake Trout (Class 2A [LAT]):** These are lakes that support natural populations of Lake Trout (*Salvelinus namaycush*) as well as the uses protected by Class 2A.
    - **Lake Whitefish (Class 2A [LKW]):** These are lakes that support natural populations of Lake Whitefish (*Coregonus clupeaformis*) as well as the uses protected by Class 2A.
    - **Cisco (Class 2A [TLC]):** These are lakes that support natural populations of Cisco (*Coregonus artedi*) as well as the uses protected by Class 2A.
    - **Stream trout (Class 2A [SRT]):** These are lakes that support or are managed for stream trout species, such as Brook Trout, Rainbow Trout, and Brown Trout or trout hybrids, such as splake. These lakes also support the uses protected by Class 2A.
    - **Warm or cool water (Class 2B and Class 2Bd):** These lakes permit the propagation and maintenance of a healthy community of warm or cool water aquatic biota and their habitats. These lakes also support the other uses protected by Class 2B and 2Bd. Class 2Bd waters are also protected as a source for drinking water.

Corrections to River Eutrophication Standards

When the river eutrophication standards (RES) were adopted in 2014, incorrect standards were adopted for some Class 2B streams due to a transcription error. This error will be corrected as part of this rule. In addition, the description of the extent of the site-specific standard (SSS) for Mississippi River Pool 1 will be amended to provide more clarity regarding the specific delineation of this reach.

Scope of Proposed Amendments

The proposed amendments affect one chapter of Minnesota Rules: Minn. R. 7050. This chapter establishes the WQS for protection of the Waters of the State as defined in Minn. Stat. § 115.01, subd. 22. This SONAR details the proposed amendments and their scope in the subsection on **Specific Reasonableness**.

Statutory Authority

The authority for the MPCA to adopt the proposed rule amendments is found in both state and federal law. The federal CWA requires states to establish WQS to meet the goals and objective of the CWA and to protect designated beneficial uses for water bodies (33 U.S.C. § 1313 (a)-(c)). The objective of the CWA is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters" (33 U.S.C. § 1313 (a)-(c)). The proposed amendments are specifically directed at restoring and maintaining the biological integrity of Minnesota's waters. The United States Environmental Protection Agency (EPA) must approve a state's WQS, including any revisions, to ensure they meet CWA goals and requirements. Minnesota WQS are established in Minn. R. ch. 7050 and Minn. R. ch. 7052[4].

In addition, the MPCA is authorized by Minn. Stat. § 115.03 to enforce laws relating to pollution of Waters of the State, classify Waters of the State, and to adopt WQS:

> *115.03 POWERS AND DUTIES.*
>
> *Subdivision 1. Generally (a) The commissioner is given and charged with the following powers and duties:*
>
> (1) to administer and enforce all laws relating to the pollution of any of the waters of the state;
>
> (2) to investigate the extent, character, and effect of the pollution of the waters of this state and to gather data and information necessary or desirable in the administration or enforcement of pollution laws, and to make such classification of the waters of the state as it may deem advisable;
>
> *(3) to establish and alter such reasonable pollution standards for any waters of the state in relation to the public use to which they are or may be put as it shall deem necessary for the purposes of this chapter and, with respect to the pollution of waters of the state, chapter 116;*
>
> *****
>
> *(5) to adopt, issue, reissue, modify, deny, revoke, reopen, enter into, or enforce reasonable orders, permits, variances, standards, rules, schedules of compliance, and stipulation agreements, under such conditions as it may prescribe, in order to prevent, control or abate water pollution, or for the installation or operation of disposal systems or parts thereof, or for other equipment and facilities:*

Minn. Stat. § 115.44 provides additional authority for the MPCA to classify Waters of the State and to adopt WQS, specifically including establishing WQS for the protection of biological properties of Waters of the State:

> *115.44 CLASSIFICATION OF WATERS; STANDARDS OF QUALITY AND PURITY.*
>
> *****

[4] Minn. R. ch. 7052 contains provisions for Great Lakes Initiative pollutants which are applicable to waters in the Lake Superior basin and do not pertain to the scope of this rulemaking.

Subd. 2. Classification and standards.

In order to attain the objectives of sections 115.41 to 115.53, the agency after proper study, and after conducting public hearing upon due notice, shall, as soon as practicable, group the designated waters of the state into classes, and adopt classifications and standards of purity and quality therefor. Such classification shall be made in accordance with considerations of best usage in the interest of the public and with regard to the considerations mentioned in subdivision 3 hereof.

Subd. 3. Adoption of classification.

In adopting the classification of waters and the standards of purity and quality above mentioned, the agency shall give consideration to:

(1) the size, depth, surface area covered, volume, direction and rate of flow, stream gradient and temperature of the water;

(2) the character of the district bordering said waters and its peculiar suitability for the particular uses, and with a view to conserving the value of the same and encouraging the most appropriate use of lands bordering said waters, for residential, agricultural, industrial, or recreational purposes;

(3) the uses which have been made, are being made, or may be made of said waters for transportation, domestic and industrial consumption, bathing, fishing and fish culture, fire prevention, the disposal of sewage, industrial wastes and other wastes or other uses within this state, and, at the discretion of the agency, any such uses in another state on interstate waters flowing through or originating in this state;

(4) the extent of present defilement or fouling of said waters which has already occurred or resulted from past discharges therein;

(5) the need for standards for effluent from disposal systems entering waters of the state;

(6) such other considerations as the agency deems proper.

Subd. 4. Standards.

The agency, after proper study, and in accordance with chapter 14, shall adopt and design standards of quality and purity for each classification necessary for the public use or benefit contemplated by the classification. The standards shall prescribe what qualities and properties of water indicate a polluted condition of the waters of the state which is actually or potentially deleterious, harmful, detrimental, or injurious to the public health, safety, or welfare; to terrestrial or aquatic life or to its growth and propagation; or to the use of the waters for domestic, commercial and industrial, agricultural, recreational, or other reasonable purposes, with respect to the various classes established pursuant to subdivision 2. The standards may also contain other provisions that the agency deems proper…

*****

Subd. 5. Factors.

(a) In establishing such standards, consideration should be given to the following factors:…

(5) such other chemical or biological properties necessary for the attainment of the objectives of this chapter and, with respect to pollution of the waters of the state, chapter 116.

Finally, the MPCA is authorized, under Minn. Stat. § 115.03, subd. 5, to perform any and all acts minimally necessary, including the establishment and application of standards and rules, for the MPCA's ongoing participation in the NPDES/SDS permitting program. Ensuring that WQS reflect the best current scientific understanding is necessary for the continued implementation of the NPDES/SDS program and other CWA programs.

Under these federal and state statutory provisions, the MPCA has the authority to adopt the proposed amendments into Minnesota Rules.

Background

Defining Terms

The terms "water quality standards" or "WQS," "standards," and "criteria" can have different definitions depending on the context in which they are used. This discussion is provided to clarify the terminology used in this SONAR. The conditions necessary for protecting surface water and groundwater quality are required to be established in state WQS. This requirement derives initially from Minnesota's first water quality rules adopted in 1963. The 1972 Federal Water Pollution Control Act (Clean Water Act or CWA) and its subsequent amendments also require states to establish WQS as the conditions for protecting surface water quality. According to state and federal requirements, WQS consist of three elements:

1. Classifying waters for designated beneficial uses;
2. Narrative and numeric criteria (standards) to protect those uses; and
3. Antidegradation policies to maintain and protect existing uses, prevent unnecessary degradation of high-quality waters, and maintain and protect the quality of outstanding water resources.

As administrator of the CWA, the EPA provides guidance to states in the form of Ambient Water Quality Criteria, which provide methods and data to develop pollutant-specific numeric criteria for the second element of WQS. The pollutant-specific numeric criteria are the most visible and used part of WQS and therefore are often referred to as "Water Quality Standards" on a standalone basis.

Minnesota's water quality rules use terminology that differs slightly from the terminology used by the EPA and refers to narrative and numeric criteria as "the standards." As defined in Minnesota Rules, pollutant-specific numeric criteria that are adopted through rulemaking are called numeric standards. Minn. R. 7050.0218, subp. 3(TT) defines a "standard" as *"…a number or numbers established for a pollutant or water quality characteristic to protect a specified beneficial use as listed in parts 7050.0221 to 7050.0227…*."

In contrast to the federal usage of the term "criteria," Minn. R. 7050.0218, subp. 3(S) describes a "criterion" as: *"…a number or numbers established for a pollutant derived under this part,… or issued by the USEPA, to protect aquatic life, humans, or wildlife.*" Minnesota's rules distinguish between "standard" and "criteria" primarily to emphasize the fact that the EPA's national criteria lack regulatory applicability until adopted as WQS in state rules. Numeric standards are specifically listed in the water quality rules while criteria are not.

For purposes of this SONAR, the MPCA will use the term "water quality standard" or "WQS" when referring to the three-part conditions for protecting water bodies. The term "standard" will be used to refer to adopted and proposed chemical, physical, and biological numeric or narrative standards that protect a specific beneficial use. However, when referring specifically to biological standards, the term "biological criteria" and "biocriteria" will be used in this document. The terms "biological criteria" and "biocriteria" will refer to both adopted and proposed numeric biological criteria and numeric translators for adopted and proposed narrative biological criteria.

Water Quality Standards

As required by the CWA § 1313 and Minn. Stat. § 115.44, WQS form the fundamental regulatory foundation to preserve and restore the quality of all Waters of the State. WQS consist of three elements: 1) designated beneficial uses, 2) narrative and numeric standards, and 3) antidegradation. Assigning appropriate beneficial uses, and establishing numeric and narrative standards to protect beneficial uses, are responsibilities assigned to the MPCA by Minn. Stat. § 115.03 and Minn. Stat. § 115.44. Designated uses for Minnesota's waters are listed in Minn. R. 7050.0470. All waters not listed in Minn. R. 7050.0470 have a default designation to protect aquatic life and recreation (Class 2B: lakes and streams; Class 2D: wetlands), plus additional designations as Classes 3, 4, 5, and 6 (Minn. R. 7050.0430). The assigned beneficial use, and the accompanying supporting numeric and narrative standards, are fundamental considerations in decisions relating to the establishment of discharge effluent limitations, implementation of antidegradation requirements, water quality assessments, and other water quality management activities. Assigning the appropriate beneficial use is an important first step in the process of assuring that the goals for each water body are attainable and can be protected. Minnesota has designated seven beneficial uses associated with surface waters (Table 2).[5]

Table 2. Minnesota's beneficial uses for surface waters.

Use Class	Beneficial Use
Class 1	Domestic Consumption – drinking water protection (includes subclasses 1A, 1B, and 1C)
Class 2	Aquatic life and recreation (includes subclasses 2A, 2Bd, 2B, and 2D)
Class 3	Industrial consumption
Class 4	Agriculture and wildlife (includes subclasses 4A and 4B)
Class 5	Aesthetics and navigation
Class 6	Other uses
Class 7	Limited resource value waters

Minnesota Rules and the CWA require states to develop WQS to protect or restore beneficial uses such as aquatic life and recreation uses. Most Waters of the State are designated Class 2 for the protection of aquatic life and recreation beneficial use.[6] This beneficial use is protected in aquatic systems which include streams, rivers, drainage ways, lakes, ponds, wetlands and other waters defined in Minn. Stat. § 115.01, subd. 22. The habitats in these systems include permanently or intermittently wetted areas which support aquatic and semiaquatic organisms. The aquatic life beneficial use protects aquatic biota which consists of, but is not limited

[5] The numbers 1 – 7 do not imply a priority ranking.

[6] The only waters not designated for a Class 2 beneficial use are waters that have had a use attainability analysis (UAA) conducted as the basis for a Class 7 designation.

to, fish, mussels, snails, insects, crustaceans, other invertebrates, submerged or emergent rooted vegetation, suspended or floating algae, substrate-attached algae, microscopic organisms, and other aquatic-dependent organisms that require aquatic habitats for food or to fulfill any part of their life cycle. Healthy biological communities in water bodies contain all or most of the species that would be found in a natural or undisturbed water body. As a result, these aquatic habitats maintain the ecosystem functions (e.g., decomposition, export/import of nutrients and sediments) of a natural system. Within Class 2 there are four subclasses:

1. Class 2A is assigned to surface waters to "permit the propagation and maintenance of a healthy community of coldwater aquatic biota, and their habitats… These waters shall be suitable for aquatic recreation of all kinds, including bathing, for which the waters may be usable." (Minn. R. 7050.0222, subp. 2). Class 2A waters are also protected as a source of drinking water.
2. Class 2Bd is assigned to waters to "permit the propagation and maintenance of a healthy community of cool or warm water aquatic biota and their habitats… These waters shall be suitable for aquatic recreation of all kinds, including bathing, for which the waters may be usable." (Minn. R. 7050.0222, subp. 3). Class 2Bd waters are also protected as a source of drinking water.
3. Class 2B is assigned to waters to "permit the propagation and maintenance of a healthy community of cool or warm water aquatic biota, and their habitats… These waters shall be suitable for aquatic recreation of all kinds, including bathing, for which the waters may be usable." (Minn. R. 7050.0222, subp. 4). Class 2B waters are not protected as a source of drinking water. Class 2B is the most commonly assigned Class 2 use classification for surface Waters of the State.
4. Class 2D is assigned to waters to "permit propagation and maintenance of a healthy community of aquatic and terrestrial species indigenous to wetlands, and their habitats… These waters shall be suitable for boating and other forms of aquatic recreation for which the wetland may be usable." (Minn. R. 7050.0222, subp. 6).

Streams[7] designated as Classes 2A, 2Bd, and 2B are further subdivided into the following TALUs:

1. Exceptional Use streams are the highest quality waters with fish and macroinvertebrates at or near natural conditions (2Ae, 2Bde, and 2Be).
2. General Use streams are waters with populations of fish and macroinvertebrates that meet or should meet the interim goal of the CWA (2Ag, 2Bdg, and 2Bg).[8]
3. Modified Use streams are waters with legally altered habitat that prevents fish and macroinvertebrate communities from meeting the CWA interim goal (2Bdm and 2Bm). A Modified Use stream designation is determined through a UAA demonstrating that the General Use is not attainable.

Protection and Restoration of Aquatic Life Beneficial Uses

Water quality standards are an important component of the framework that protects and restores the beneficial uses provided by lakes in Minnesota. The protections provided by WQS are implemented through assessments, antidegradation, NPDES/SDS permitting, TMDLs, and other water quality management activities. Beneficial uses and standards (biological, chemical, and physical) are major components of WQS which impact much of the

[7] Lakes are currently not subdivided into TALUs in rule. These rule amendments would add TALUs to lakes.
[8] Section 101(a)(2) of the CWA: "it is the national goal that wherever attainable, an interim goal of water quality that provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved by July 1, 1983;" This goal is the minimum restoration and protection goal for water quality.

MPCA's[9] water quality management activities. Both beneficial uses and standards are impacted by these rule amendments.

This rule affects a subset of lakes assigned Class 2[10] (aquatic life and recreation) beneficial uses by revising a subset of Class 2 biological, chemical, and physical standards and changing the Class 2 subclass assigned to some lakes. Assigning the appropriate beneficial uses is important because the designated use in part determines how the water body is managed. For example, if the beneficial use assigned to a lake is incorrect, either by assigning the wrong use or not assigning a use, the lake can under protected and beneficial uses can be lost. Standards are linked to the beneficial uses and can vary between beneficial uses depending on the conditions that are needed to protect and maintain those uses. Therefore, to ensure that management activities (e.g., NPDES/SDS, TMDLs) are sufficient and appropriate, the beneficial uses need to be correctly assigned.

Chemical and physical standards are used to establish the conditions that protect aquatic life and set restoration goals. Depending on the use designation of a water body, different chemical and physical standards apply. For example, coldwater lakes (Class 2A) protected for Lake Trout need to meet a chl-*a* threshold of 3 µg/L to protect habitat that will support this fish species. In contrast, the chl-*a* threshold for northern warm or cool water lakes (classes 2B and 2Bdg) is 9 µg/L. The difference in these standards results from the need to protect different types of aquatic communities with varying ecological requirements and sensitivities to pollution. Some standards differ because of different ecological requirements of the biological communities in the waters (as with chl-*a*). Others are the result of differences in standards to protect other uses associated with Class 2 such as human health and fish-eating wildlife. This is because Class 2 includes protections to human health that are related to the water body type and characteristics of the aquatic community (e.g., lipid content of fish). Different Class 2 designations also have indirect effects on other use designations and standards because some Class 2 uses are linked to other classes. For example, Class 2A waters are also designated Class 1B (Minn. R. 7050.0420) which carries with it different standards for the protection of domestic consumption (i.e., drinking water) which impacts calculation of standards to protect human health and fish eating wildlife. As a result, it is important that both the appropriate use designation is assigned to a water body and that the physical and chemical standards for that use are protective.

Biological standards are another type of standard that is important for managing water quality in Minnesota. In lakes, the MNDNR currently surveys fish communities to measure the health of aquatic biota. Fish data are summarized using a tool called an index of biological integrity (IBI) (Minn. R. 7050.0150 subp. 6; S-6). Biologists sample fish from lakes using standard methods and count the number of fish taxa[11] and individuals (S-7, S-8). These counts are converted into an IBI score, which is then compared to IBI scores (i.e., biological criteria) from reference lakes of the same type (S-6). In general, a low IBI score indicates the water body has low biological health, while a high IBI score indicates a healthy water body. The output from IBI models are a continuous gradient of biological condition (S-1) which allows quality or health to be assessed incrementally and against multiple use tiers (i.e., TALUs) and water body categories (e.g., coldwater and warm water lakes). Currently, the

[9] The MPCA is the CWA delegated authority in Minnesota responsible for implementing the CWA.

[10] The Class 2A, 2Ag, and 2Ae designations also carry Class 1B (see Minn. R. 7050.0420). As a result, the addition of a Class 2A, 2Ag, or 2Ae designation results in the addition of Class 1B designation if they are not already designated. Proposed designations from coldwater habitat to warm or cool water habitat will retain the Class 1B designation and be designated warm or cool water habitat also protected as a source of drinking water (Class 2Bd or 2Bdg).

[11] *A taxon (plural taxa) is a unit used in biological classification to group organisms that share characteristics. For example, species, genera, and families are taxonomic groupings. Minnesota's biological monitoring tools identify most fish individuals to species, but some individuals may not be identifiable to species, or some species may be aggregated into higher taxonomic units (e.g., family) for the purpose of calculating biological indices.*

overall methodology for monitoring fish communities in lakes is similar to that used for stream fish. The main difference between stream and lake assessments of biological communities is that the methods and biological criteria are implemented through numeric standards in rule for streams (Minn. R. 7050.0222 subps. 2d, 3d, and 4d) whereas lakes currently use narrative standards (Minn. R. 7050.0150 subps. 3 and 6). The proposed rule amendments will codify the numeric standards thereby providing a detailed framework of the biological standards for lakes in rule. In addition, the biological goals for fish communities in lakes will be refined to allow management of these waters to their highest attainable aquatic life use goal.

Background on Lakes WQS Rule

Revisions to Eutrophication Standards for Northern Lakes

A major threat to Minnesota's lakes is cultural eutrophication[12], which degrades the beneficial uses provided by lakes including recreation (e.g., swimming, boating), aquatic life, and aesthetics. To protect these important resources, the MPCA has been a national leader in lake nutrient standards development. In 2008, eutrophication standards for Minnesota lakes were promulgated into WQS (Minn. R. 7050.0222). Minnesota's abundant lake resources are naturally diverse due to differences in geography, geology, and land cover, which can affect the types of beneficial uses supported in lakes and the specific standards needed to protect those uses. To ensure that appropriate and protective standards are applied to lakes, Minnesota's LES are subdivided by region, lake stratification type, and the most sensitive designated beneficial use (e.g., aquatic recreation, coldwater fisheries, or aquatic life) supported by the lake.

The implementation of Minnesota's LES has been effective for determining lakes' status and driving restoration or protection strategies when needed. However, after over a decade of lake assessments, a subset of relatively unimpacted shallow lakes within the NLF ecoregion have been identified that exceed Class 2B/2Bd (warm or cool water) WQS. Unlike Minnesota's other lake nutrient regions (i.e., Western Corn Belt Plains, Northern Glaciated Plains, and North Central Hardwood Forest ecoregions), current rules have no distinction between WQS for dimictic and polymictic lakes[13] in the North region. A single standard was assigned to all northern, warm or cool water lakes because, during technical development of Minnesota's LES, strong differences were not identified between dimictic and polymictic lakes in the NLF ecoregion. However, this was partly due to a small sample size of polymictic NLF lakes used for the development of the 2008 LES. As a result, the adopted standards are largely based on a dataset of dimictic, NLF lakes. A much larger dataset of both polymictic and dimictic lakes was available so a study of the lakes in the NLF and NMW ecoregions (herein referred to as the "North region" or "northern lakes") was performed (S-3) to determine if dimictic and polymictic lakes in this region should be assigned different eutrophication standards to protect warm or cool water aquatic life and recreation (Class 2B). The models to determine total phosphorus (TP) and Secchi depth standards from chl-a targets were also updated in this analysis to ensure protective standards are applied and to minimize false positive errors. This study demonstrated that different eutrophication standards are needed for dimictic and polymictic lakes to protect beneficial uses. Using thresholds for the most sensitive indicators, protective LES were determined for each lake type (Table 3). The current LES for chl-*a* (9 µg/L) was determined to be too stringent for polymictic lakes but was appropriate for dimictic lakes. However, updated TP and Secchi depth models indicated that changes to standards for these parameters is appropriate for both dimictic and polymictic

[12] The increase of nutrients in lakes caused by human activities.

[13] In Minnesota's current rules (Minn. R. 7050.0222), polymictic lakes are referred to as "shallow lakes" and dimictic lakes are referred to as "lakes."

lakes (Table 3). In addition, Secchi depth may be considered an inappropriate indicator of impairment due to naturally high colored dissolved organic matter (CDOM). To address this, color and absorptivity at 440 nm (a_{440}) thresholds were provided to identify when Secchi depth is not a reliable indicator of chl-*a* in northern lakes. The draft eutrophication standards for northern polymictic and dimictic lakes are based on a robust dataset of polymictic and dimictic lakes, which will protect applicable beneficial uses in these habitats.

Table 3. Current and proposed lake eutrophication standards for northern lakes.

Current standards	**Total phosphorus (µg/L)**	**Chlorophyll-a (µg/L)**	**Secchi depth (m)***
Northern lakes	30	9	2.0
Recommended standards	**Total phosphorus (µg/L)**	**Chlorophyll-a (µg/L)**	**Secchi depth (m)***
Northern polymictic lakes	32	18	0.9
Northern dimictic lakes	20	9	1.8

***Lakes with color >73 platinum-cobalt units (PCU) or a440 >4 m-1 should not be assessed using Secchi depth and lakes with color >25 PCU or a440 >1.4 m-1 should be reviewed to determine the effect of CDOM on water transparency.**

Based on the results of the northern LES study (S-3), the fact that a subset of undisturbed, polymictic lakes do not meet the current standards, and that the 2008 northern LES were based on limited data, separate standards are needed for polymictic and dimictic lakes in the North region. It is important that appropriate WQS are assigned to lakes in the North region of Minnesota because if standards do not account for natural differences in trophic state, assessment and management errors are possible which has negative water quality and economic consequences. The refinement of the current eutrophication standards for northern lakes means that Minnesota's resources can be allocated appropriately to lakes in need of water quality restoration and protection.

Revisions and New Coldwater Lake Standards

Coldwater lakes are an important resource in Minnesota because they provide many beneficial uses. Minnesota has adopted WQS that protect coldwater lake habitats (Class 2A), but it is necessary for water quality programs to review and revise existing standards as needed when new information is available or gaps in these standards are identified. One of the gaps identified for Minnesota's current coldwater lake standards is that they are focused only on lakes which support or are managed for trout species (e.g., Lake Trout, Brook Trout, Rainbow Trout, Brown Trout, and trout hybrids). Minnesota's Class 2A standards do not include protections for other coldwater fishes which occur in the state including Lake Whitefish and Cisco.

A major difference in the ecological requirements of coldwater species compared to warm or cool water species is the need for habitat with cooler temperatures and higher oxygen levels. As a result, standards for dissolved oxygen, temperature, and lake productivity (i.e., chl-*a*) can be important for protecting these species. One additional consideration is that the coldwater species in Minnesota have different ecological requirements and need different WQS for their protection. Thresholds for eutrophication and an oxythermal habitat measure (T_{DO3}; water temperature at which dissolved oxygen equals 3 mg/L in the water column) were analyzed for Lake Trout, Lake Whitefish, and Cisco.[14] These analyses verified that in many lakes, the warm or cool water habitat (Class 2B/2Bd) standards are not sufficient to protect these coldwater fish species. A suite of standards,

[14] Thresholds for protecting stream trout taxa were not assessed because these taxa are heavily managed through stocking and include a range of fishery types, including "put-and-take" fisheries, which complicates the use of field-based analyses. As a result, the chl-a standard for the protection of stream trout habitat will not be changed from current standards.

including both oxythermal and eutrophication measures were developed to protect these sensitive fish species (Table 4). The draft oxythermal standards are a new standard and will provide a direct measure of habitat suitability for coldwater fishes.

Table 4. Draft oxythermal habitat (TDO3), total phosphorus, chlorophyll-a, and Secchi depth thresholds for Lake Trout (LAT), Lake Whitefish (LKW), Cisco (TLC), and stream trout (SRT) coldwater (Class 2A) habitats.[15]

Species	T_{DO3} (°C)	Total phosphorus (µg/L)	Chlorophyll-*a* (µg/L)	Secchi depth (m)
Coldwater: Lake Trout (LAT)	8.8	7	3*	3.5
Coldwater: Lake Whitefish (LKW)	17.2	12	5	2.8
Coldwater: Cisco (TLC)	21.2	25	12	1.3
Coldwater: stream trout (SRT)	-	15	6*	2.5

***Indicates a threshold which is unchanged from the current standard.**

The draft WQS for coldwater habitats will provide appropriate protections for these sensitive fishes. The assignment of different standards for different coldwater fish species provides refined goals that are tailored to the requirements of these species. These improved standards for protecting coldwater lakes are coupled with an extensive review of coldwater lakes in Minnesota to determine which species should be protected in each coldwater lake. This provides clarity regarding the specific goals that are needed to support these fish species. Using these well-delineated goals, the MPCA, MNDNR, other agencies, organizations, or groups responsible for the protection of Minnesota's aquatic resources can implement protection and restoration programs to maximize effectiveness and efficiency. Given the threats that coldwater fishes and their habitats face, the responsible and effective use of available resources will be vital to ensuring that these habitats and the benefits they provide persist.

Adoption of a TALU Framework for Lakes

In 2017, the MPCA adopted rules that changed Class 2 use designations for streams from a "one-size-fits-all" or "pass/fail" classification system to a TALU framework that more accurately reflects the ecological diversity of Minnesota's waters. It is important that when adequate data are available, these designated uses are reviewed to ensure that the highest attainable goal is assigned and that the assigned goal is achievable as defined under the CWA. The CWA and Minnesota Rules support the use of biological assessments to protect designated beneficial uses (Minn. R. 7050.0150). Minnesota, along with most states, currently use biological assessments to support CWA § 303(d) impaired waters listings and the CWA § 305(b) report. The TALU framework classifies lakes based on the biological condition that is or can be attained. The specific classification of a lake is based on available and adequate monitoring and other relevant data including biological condition and habitat quality. The TALU framework is predicated on the development and implementation of an adequate biological monitoring and assessment program (S-9). A biological monitoring and assessment program must produce sufficient data to support a use attainability process, which is essential to implementing TALUs. The MNDNR and MPCA biological monitoring program has been reviewed using an EPA-supported process, termed the Critical

[15] Assessment of the proposed LES standards (TP, chl-a, and Secchi depth) follows the current assessment guidance where an exceedance of both the causative parameter (TP) and a response parameter (chl-a or Secchi depth) is required for a determination of impairment. At least 2 years of data are required to assess LES. T_{DO3} is assessed independently and requires at least 3 years of data for assessment. See S-4 additional details regarding implementation of these standards.

Technical Elements Evaluation[16], that measures the technical rigor of a state's biological monitoring and assessment program. This review demonstrated that Minnesota's lake bioassessment program can support a TALU framework (S-9). The Minnesota's biological monitoring program has the technical capabilities to determine the biological condition of lakes and to perform UAAs.

The designation of aquatic life beneficial uses based on their attainability and coupled with the use of biological goals to assess attainment of those designated uses leads to more effective water quality management choices and outcomes by tailoring water quality protection and restoration activities to attainable goals. As a result, the MPCA and MNDNR have developed revisions to Minnesota water quality rules to identify lake condition using fish communities and improve protection for biological communities and their habitats in Minnesota lakes (S-5). These revisions will implement a TALU framework for classifying lakes based on the aquatic life, which is present or attainable within a lake, similar to the framework used to assess streams. Currently, General Use[17] biocriteria are used as numeric translators for narrative standards to determine biological impairments for lakes based on their fish communities. This amendment would add an Exceptional Use tier with associated biocriteria for lakes with diverse and unique fish communities, as indicated by a high fish IBI score. Numerous lakes in Minnesota currently support exceptional fish communities and would benefit from a TALU framework. Adding Exceptional Use biocriteria will limit the amount of degradation that can occur in high-quality lakes before restoration is needed. In addition, the TALU framework is needed to identify lakes with degraded fish communities that do not meet CWA minimum goals (i.e., do not meet General Use goals) and to guide restoration and protection activities for lakes that do not support exceptional fish communities.

Adoption of a TALU framework for lakes in Minnesota will meet the following needs:

1. Incorporate subcategories or tiers in the aquatic life beneficial use (Class 2) classification to address the diversity of lake resources in Minnesota. Minnesota's aquatic resources are varied and diverse and the existing "one-size-fits-all" approach fails to recognize critical differences, which can result in less effective management of these waters. The TALU framework results in attainable and appropriate goals for aquatic life beneficial uses in lakes. It is consistent with the concept of protecting existing uses while simultaneously providing higher goals for waters with demonstrated exceptional biological quality and maintaining current goals for General Use waters. To accomplish this, Class 2 aquatic life beneficial uses will be refined for lakes by the addition of Exceptional and General TALU tiers to the base Class 2 designation. These tiers can be described as follows:
    a. Exceptional Use: Exceptional Use lakes are those that are close to natural or undisturbed conditions. There is a need to protect and maintain high-quality lakes in Minnesota. Establishing an Exceptional Use tier will help ensure that existing water quality rules, such as antidegradation, can adequately protect high quality lakes.

[16] The Critical Technical Elements Evaluation results in a percent score on a scale of 0-100 which translates to one of four levels of rigor with Level 4 being the highest and desired for supporting a TALU-based framework. Level 2 programs are capable of pass/fail assessments and can perform only general causal assessments. Level 3 programs are more refined, producing incremental assessments of biological condition, can perform first order causal assessments, and may also use a single assemblage in assessments. A Level 4 program has robust and complete assessments that have good accuracy and certainty which can measure the severity and extent of impairments. A Level 4 program also has the ability to perform more complex and robust causal assessments.

[17] Although not currently defined as "General Use" in Minnesota rule, the current protections for aquatic life in lakes under Class 2 are equivalent to the recommended General Use.

b. General Use: The General Use maintains the current default aquatic life use goal (Class 2B). These waters support good biological communities consistent with the CWA's interim goal (i.e., "…water quality which provides for the protection and propagation of fish, shellfish, and wildlife…").

2. Improve standards by incorporating numeric biological criteria directly into rule. Standards can be either narrative or numeric. Narrative standards describe water quality conditions that are not allowed because the conditions negatively affect beneficial uses (e.g., "the species composition shall not be altered materially" Minn. R. 7050.0150, subp. 3). Numeric standards establish numeric thresholds for pollutants that, when violated, indicate a polluted condition (e.g., a minimum of 5 mg/L of dissolved oxygen). For biological assessments of lakes, the MPCA currently uses biological criteria to quantitatively translate the narrative biological standards in Minn. R. 7050.0150, subp. 3. The TALU framework brings biological criteria directly into rule as a clear numeric standard. Numeric biological criteria stratified by lake type and TALU tier are recommended to be added to Minn. R. 7050.0222 to better clarify the biological expectations for Minnesota's lakes. Such added clarity about biological expectations provides greater certainty to stakeholders and regulated parties. TALU biological criteria for Minnesota lakes consist of General Use biological criteria for four lake types and Exceptional Use biological criteria for two lake types.

3. Create more clarity in rule by documenting the methods used to measure biological condition and develop biological criteria. For clarity, consistency in application, and transparency, the TALU framework amendments will include descriptions of each tiered aquatic life use (i.e., Exceptional and General). These revisions will also provide an explanation of the scientific methods used to measure biological condition and derive the biological criteria. This includes documentation of the development of Minnesota's fish IBI (S-6) and the biological condition gradient (BCG) (S-1), which together support biological condition determinations and biological criteria.

4. Improve targeting of water management resources. Biological assessments are used to make decisions about water quality management activities. Greater assessment accuracy leads to increased water quality management efficiency because resources are not used to restore waters beyond what is currently attainable nor are high quality waters under-protected. The TALU framework refines Minnesota's aquatic life use classification framework and improves the management of lakes by assigning appropriate and attainable beneficial use classifications. The TALU framework thereby recognizes the diversity of attainable conditions in Minnesota lakes so that management of these waters can be tailored to these conditions. This results in better use of protection and restoration resources with a goal of maintaining and improving conditions.

Use Designations

Coldwater lakes

In addition to determining protective thresholds for coldwater fish species, a list of lakes which support or supported coldwater fish populations on or after November 28, 1975 was developed. These lakes are part of a list of lakes that will be proposed to be confirmed or newly designated as Class 2A for the protection of coldwater habitat. The current aquatic life use designations for Class 2A lakes are based on the presence or management of either Lake Trout or stream trout. Revisions to the list of coldwater habitats include confirming use designations for Lake Trout or stream trout and will add Cisco and Lake Whitefish protections to lakes where appropriate. Although the current coldwater lake standards are based on protections for Lake Trout or stream trout, these species-specific designations are not codified in Minn. R. 7050.0470. As a result, Minn. R. 7050.0470 will be revised to document and codify the coldwater fish species protected in each lake. The review of coldwater habitats in this document includes confirmations or changes to use designations for a total of 730 lakes (see Appendix C). This includes 410 new coldwater habitat designations, 295 lakes where the current designated use class was confirmed, and 25 lakes where Class 2Bd was determined to be appropriate (Table 5).

For the 295 lakes where the current designated use will be retained, 88 of these lakes have draft modifications to the fish species protected. The draft designations included 111 Lake Trout lakes, 87 Lake Whitefish lakes, 464 Cisco lakes, and 170 stream trout lakes (Table 6).

Table 5. Summary of draft beneficial use designations for coldwater lakes. Abbreviations: LAT = Lake Trout (Salvelinus namaycush); LKW = Lake Whitefish (Coregonus clupeaformis); TLC = Cisco (Coregonus artedi); SRT = stream trout.

Current use1F[18]	Draft use	# of lakes	Type
2B/2Bd	2A[LAT/LKW/TLC/SRT]	410	2A designation
$2A^{LAT/SRT}$	2A[LAT/SRT]	207	Species confirmation
$2A^{LAT/SRT}$	2A[LAT/LKW/TLC/SRT]	88	Species modification
$2A^{LAT/SRT}$	2Bd	25	2Bd designation

Table 6. Number of lakes protected for each coldwater fish species based on draft designations.

Coldwater species	# of lakes
Lake Trout	111
Lake Whitefish	87
Cisco	464
Stream trout	170

TALUs

Thirty-six Exceptional Use lakes monitored as part of the MPCA's Intensive Watershed Monitoring (IWM) framework will be reclassified where adequate existing monitoring data has demonstrated that these lakes meet or met the Exceptional Use goals for fish on or after November 28, 1975. Determination of the proposed designated TALUs were made through a review to determine the attainable aquatic life use goal for each lake. This process is detailed in the "Development of a tiered aquatic life use framework for Minnesota lakes" (S-5). Adoption of the TALU framework for streams in 2017 included the designation of 141 stream reaches as Exceptional Use or Modified Use. These designations were part of the 2012-13 IWM efforts, and represented the start of the implementation of TALU reviews statewide. Since that first rulemaking, two additional rulemakings to designate TALUs for streams have been adopted. As was intended with the initial TALU rule, new TALUs are reviewed and adopted through rule making when new monitoring data are available and use reviews are needed to support water quality management activities. A similar process will be followed for lakes with TALUs reviewed when new data are available and regular use designations performed to implement the recommended use designations. These future rule changes will follow the Minnesota Administrative Procedures Act (APA). The TALUs adopted as part of this rule serve to document the process and the information that will be provided in future rulemakings to designated TALUs for lakes.

Listing use designations in Minn. R. 7050.0470 through incorporations by reference

As part of this rule, beneficial uses for lakes will be listed in tables incorporated by reference. This will match the framework used for documenting use designations in streams. These tables are incorporated by reference in Minn. R. 7050.0470, but the specific use designations are not listed in rule. Specific use designations are documented in tables that can be found at https://www.pca.state.mn.us/get-engaged/incorporations-by-reference. Changes to these tables require rule making. The tables with these proposed use designations can be

[18] The type of coldwater habitat (i.e., the species of fish protected by the Class 2A designation) is currently not codified in Minn. R. 7050.0470. The current coldwater habitat type has been determined through a review of existing documentation. As part of this rule revision, fish species protected in each lake will be codified for clarity.

found in Exhibit S-10 and the revisions to Minn. R. 7050.0470 are in the Revisor's certified draft of the proposed rule. This approach to documenting use designations facilitates updates to beneficial use tables and permits a more comprehensive documentation of beneficial uses for lakes.

Corrections to the River Eutrophication Standards

When the RES were adopted in 2014, a transcription error occurred and incorrect standards for chl-*a*, dissolved oxygen (DO) flux, and five-day biochemical oxygen demand (BOD_5) were adopted[19] for Class 2B streams. The error occurred because an earlier draft of the rule language was not updated after revisions were made to the standards following stakeholder meetings. The fact that the incorrect values were adopted for Class 2B streams is supported by the documentation of the correct values in the revised technical support document (TSD) (S-11), the correct values in the SONAR (S-12), and the adoption of the correct values for Class 2Bd streams (Minn. R. 7050.0222, subp. 3). In addition, the description of the extent of the SSS for Mississippi River Pool 1 will be amended to provide clarification regarding the specific beginning and end of this reach.

Public participation and stakeholder involvement

The MPCA conducted several outreach activities while developing these rule amendments—in part to comply with the requirements of Minnesota's rule making process, but also to notify, engage, and inform potentially interested parties about this rulemaking and solicit their input on the MPCA's proposed concepts for amending the rules. These outreach activities, which began in winter 2020, provided a useful exchange of information between MPCA staff and other parties with an interest in, and knowledge of water quality issues and the application of WQS. The remainder of this section describes the MPCA's public outreach efforts and the steps it took to develop and solicit input on the rule amendments.

Webpages

The MPCA maintains the following webpages that are publicly accessible and relevant to this rulemaking:

- Lake aquatic life and recreation rule webpage (https://www.pca.state.mn.us/get-engaged/lake-aquatic-life-and-recreation) was created to provide rulemaking information on this effort. The MPCA created this rule-specific webpage in October 2022, to provide the public with background and other information relevant to this rulemaking, including information about the water quality standards revisions, use designations, supporting technical documents, draft rule amendments, and a target schedule for rule adoption. The webpage has been updated routinely to inform the public of developments related to this rulemaking, including posted notice of the Request for Comments (RFC) for this rulemaking on September 18, 2023, the same day the notice was published in the *State Register* (Volume 48, Number 12). The RFC specifically requested comment on the draft revisions and asked for comment on the peer-review charge questions. The MPCA will continue to update the rule webpage to include information about the proposed amendments and rulemaking documents, including the proposed rule language, a final version of this SONAR, and other supporting rulemaking documents. This will ensure that potentially interested parties can continue to participate in the rulemaking process after the MPCA publishes its Notice of Intent to Adopt Rules in the *State Register*.

[19] Chlorophyll-a: 40 µg/L was adopted, 35 µg/L is the correct value; DO flux: 5.0 mg/L was adopted, 4.5 mg/L is the correct value; BOD_5: 3.5 mg/L was adopted, 3.0 mg/L is the correct value.

- The MPCA's rulemaking webpage (https://www.pca.state.mn.us/get-engaged/proposed-rules) provides the public with centralized information about current rule projects and the rulemaking process. It also explains how the public can receive notifications about rule changes. The MPCA's "Public Rulemaking Docket," updated monthly, is located on this webpage, and includes information about current rulemaking projects such as the rule webpage, contact person, and timeline. The MPCA also posted the RFC for these rule revisions on this webpage on September 18, 2023, when the RFC was published in the *State Register* (Volume 48, Number 12).

GovDelivery

The MPCA uses a self-subscription service called GovDelivery to provide updates and public notices electronically (via email) to interested and affected parties on a wide range of topics, including administrative rulemakings. Any person may visit the GovDelivery subscription page (http://public.govdelivery.com/accounts/MNPCA/subscriber/new) to subscribe and choose the notifications they want to receive. The MPCA uses GovDelivery to send new rule project alerts to anyone who has signed up to receive notice for all rulemakings, and bulletins about specific rulemaking projects to those who have signed up to receive only notifications about those specific topics. Notification by U.S. Mail is also available, although no one is currently signed up for it.

- On August 24, 2023, the MPCA sent a "New rulemaking project" bulletin notifying 3,848 subscribers of the New Rulemaking Announcements list that the Lakes WQS rulemaking project now had a dedicated webpage and encouraging sign-up to its new GovDelivery topic listing.
- On September 18, 2023, the MPCA sent a notification of the RFC publication in the *State Register*, including links to the *State Register* edition in which the RFC was published, the MPCA rule-specific webpage, and the eComments page for the Lakes WQS RFC, to 1,319 subscribers of the Rulemaking: Lakes Water Quality Standards list.

The MPCA will continue to send GovDelivery bulletins regarding public notices and other relevant information for this rulemaking as discussed in the Notice Plan section.

Meetings

Before the RFC (September 18, 2023), the MPCA posted the technical documentation for the rule on its dedicated webpage[20], which included technical documentation supporting the revisions to the rules. In addition to requesting comments, the MPCA encouraged stakeholders to contact MPCA staff to request additional meetings if needed. No interested person requested meetings following the RFC, although some stakeholders reached out with questions. In addition to this effort, the MPCA presented on the draft rules and the technical research supporting the revisions at numerous forums to get feedback on the science and to make stakeholders aware of these rules. These meetings included:

- Minnesota Tribal Environmental Committee (May 12, 2021);
- EPA Region 5 Nutrient Criteria Quarterly Call (September 14, 2021);
- North American Lake Management Society (November 18, 2021);
- Midwest Fish and Wildlife Conference (February 2, 2021);
- Midwest Glacial Lakes Partnership's Lake Conservation Webinar (April 20, 2021);

[20] https://www.pca.state.mn.us/get-engaged/lake-aquatic-life-and-recreation

- American Fisheries Society Meeting (November 8, 2021);
- Joint Aquatic Sciences Meeting (May 17, 20, 2022); and
- National Monitoring Conference (April 26, 2023).

A presentation was also part of the Minnesota Outdoor Skills and Stewardship Series on the Minnesota DNR YouTube channel (April 10, 2024; Episode 159), and an article was published in the Northern Wilds Magazine (August 2024). Meetings have also been held with the Leech Lake Nation and White Earth Nation regarding the draft standards. The United States Forest Service and National Park Service have also been updated on these standards. In addition, numerous presentations were given at internal MPCA and MNDNR meetings to get feedback on these rule revisions from staff and leadership with expertise on these topics and who work in different programs that could be affected by these rules.

Pre-proposal comments received

The MPCA received comments from interested parties in public meetings and during the comment period for the RFC published in the *State Register* on September 18, 2023 and as part of the 2020-2021 Triennial Standards Review (Table 7). The MPCA considered all comments received that were within the scope of the draft amendments.

Table 7. Stakeholder comments on the draft rule received during meetings and the Request for Comments.

Date	Stakeholder (Affiliation)	Summary
April 7, 2021	Brandy Toft (Leech Lake Band of Ojibwe)	**Comment:** "The Band also supports the MPCA's proposals for the review of protections for cold water fish species, the review and designation of cold-water lakes, and the adoption of a TALU framework for lakes. Cold-water fish species and their habitats are under an increasing threat due to the effects of human induced climate change, eutrophication, and hydrologic alterations and must be promptly provided with adequate protections for their continued survival. The review of protections for cold water fish, and the review and designation of cold-water lakes will help MPCA protect cold water fish and their habitats, and the adoption of a TALU framework for lakes will not only aid in the protection of cold-water fishes but will also protect warm water and cold-water species across the board." [Comment submitted during the 2020-2021 Triennial Standards Review; similar comments made by Eric Krumm during Triennial Standards Review public meeting on March 9. 2021.]
April 9, 2021	Corey Hanson (Red Lake Watershed District)	**Comment:** "I would like to voice support for the MPCA's effort to add a lake eutrophication water quality standard for shallow lakes in the Northern Lakes and Forests (NLF) ecoregion. Some of the shallow NLF lakes that were found to be impaired during the first round of IWM/WRAPS/TMDL have a relatively minimal watershed disturbance and exceed the current NLF standards by a relatively small amount (classified as "nearly restored"). These shallow, "nearly restored" or "barely impaired" lakes with minimal watershed disturbance indicate that there is a need for a shallow lakes standard for the NLF ecoregion." [Comment submitted during the 2020-2021 Triennial Standards Review]
November 3, 2023	Samantha Berger (City of Apple Valley)	**Comment:** The commenter posed several questions: • Provide a webinar or information session on how these changes could affect metro area lakes and municipalities. Including a webinar like those creates as part of municipal separate storm sewer system (MS4) and CSW permitting would be useful. • Who would complete assessments on metro lakes for TALU and pay for these assessments? Will local government units be expected to complete this

Date	Stakeholder (Affiliation)	Summary
		monitoring? • If a lake becomes impaired under the TALU framework, what is the process for being removed from the impaired waters list? • Will this assessment be similar to the TMDL process? Can we expect to report on progress towards impairments as part of MS4 annual report? • The TALU discusses shoreline habitat as a focus. Many lands surrounding urban lakes are under private ownership. How do you envision implementing potential projects on private lands? • The TALU framework fails to mention aquatic vegetation. Would richness of species for aquatic vegetation be a factor in these assessments and be subject to impairments? [Comment submitted during the RFC]
November 3, 2023	Ann Messerschmidt (City of Lakeville)	**Comment:** The commenter expressed concerns about the reliability of the IBI tool and its use for making assessment decisions (i.e., which waters will be assigned to the impaired waters list). As a result of this concern, the commenter stated that the IBI should not be used for making impairment decisions. In addition, the commenter posed several questions: 1. Will there be/have there been any presentations about the rules and how it will impact water bodies? 2. What is the plan for how assessments would be conducted? 3. What would the process be before a potential impairment is made? a. Would it include working with water quality practitioners who manage the water body before an impairment is listed? b. How much data would be collected before a potential impairment is made? 4. What actions would be required for City's with listed impairments? 5. Would there be an annual reporting requirement for impairments? [Comment submitted during the RFC]

Reasonableness of the amendments

In addition to the discussion of reasonableness provided in this section, the proposed rule changes to lake standards and use designations are discussed in detail in the Background section of this SONAR, which provides additional support for the general reasonableness of the proposed amendments.

General reasonableness

The proposed rule amendments establish standards and beneficial uses that are important for the protection and restoration of aquatic life in Waters of the State. These amendments are reasonable because they address the following issues that arise from maintaining the status quo:

- Retaining the existing LES applicable to polymictic (shallow) lakes in the North region will result in assessment errors and result in costs to manage these waters without a high likelihood of water quality improvements.

- Retaining the existing LES framework for coldwater lake habitats will result in a lack of protection for sensitive and important fish species in Minnesota.
- Continuing to use biocriteria as a numeric translator for narrative rules results in less clarity regarding aquatic life use goals.
- Retaining the default General Use (Class 2Ag, 2Bg, or 2Bdg) designation for high-quality waters puts them at risk of being degraded in quality down to the minimum Class 2 WQS. Many Minnesota lakes support exceptional fish communities, and these lakes are at risk of degradation without adoption of use designations that recognize these special lakes.
- Retaining the warm or cool water use (Class 2B, 2Bg, or 2Bdg) designation for waters with a demonstrated existing coldwater habitat could result in inappropriate management actions and puts these waters at risk of losing this beneficial use. Retaining the coldwater use designation (Class 2A or 2Ag) for waters without a demonstrated existing coldwater habitat will result in goals that may not be attainable which will result in inappropriate water quality management actions.
- Updating the tables in Minn. R. 7050.0470 and incorporating the use designation tables into rule by reference is reasonable because it will permit documentation of a larger number of the lakes in Minnesota and save time for Minnesota employees managing these lists.
- The revisions to rule language in Minn. R. 7050.0150 are reasonable to support other revisions in this rule and to provide additional information and clarity regarding these rules.
- Correcting the error in the RES is reasonable because it will provide clarity regarding the actual protective and applicable standards for Class 2B streams.

Revised eutrophication standards for northern lakes

The proposed eutrophication standards for polymictic (shallow) and dimictic northern lakes are based on protections for the most sensitive beneficial use endpoint and protect both aquatic life and recreation beneficial uses. These standards and the supporting analyses demonstrate that most lakes in the North region have good water quality compared to other Minnesota ecoregions. As in other regions, the draft standards for polymictic lakes are less stringent compared to dimictic lakes. The existing LES for chl-*a* applied to all northern lakes (9 µg/L) is sufficient to protect dimictic lakes, but new analyses and revised models indicate TP and Secchi depth standards should be adjusted for dimictic lakes and that all three eutrophication parameters should be revised for polymictic lakes. Overall, polymictic lakes have naturally higher trophic condition and support different beneficial uses which should be reflected in applicable standards. Assessment of Secchi depth standards also require additional scrutiny due to the prevalence of lakes with high CDOM in northern Minnesota ecoregions. In lakes with high CDOM or where CDOM levels are unknown, Secchi depth should not be used as a primary endpoint for assessment and assessments should rely on TP and chl-*a*.

The methods used to determine northern LES were specifically selected to identify chl-*a* thresholds which, if attained, will result in a high probability of beneficial use protection. In addition, TP and Secchi depth standards were selected to reduce assessment errors and to ensure a high probability that lakes will attain chl-*a* targets. This approach to setting protective standards is important because establishing baseline standards that are protective can prevent the loss of beneficial uses in lakes. Managing aquatic resources is more efficient and cost effective when protection strategies are implemented as opposed to reactive measures to restore degraded water bodies (S-13).

Minnesota's diverse aquatic resources require refined standards to ensure the application of appropriate and protective goals for the maintenance of beneficial uses. Natural differences in water quality and the beneficial uses supported in northern dimictic and polymictic lakes demonstrate that different standards are appropriate to manage these habitats for aquatic life and recreation. It is important that standards account for natural

differences between aquatic resources such that they accurately reflect goals for the protection of beneficial uses. The proposed revisions to LES along with modifications to assessment procedures will improve assessment outcomes and reduce assessment errors. This is critical because much of the management of these aquatic resources stems from these standards including permitting, TMDLs, and WRAPS. Refining LES for northern lakes will improve Minnesota's ability to protect and restore these important resources through application of more appropriate goals and by improving management outcomes.

Coldwater lakes

The proposed oxythermal habitat and eutrophication standards for coldwater lakes establish a framework of minimum conditions required to protect coldwater lake habitats in Minnesota (S-4). Increased lake productivity decreases oxygen levels in the deep portions of lakes (i.e., hypolimnion) during the summer whereas increasing temperatures warm the upper layer (i.e., epilimnion; S-4). Coldwater fish require cool, well oxygenated water but higher productivity or warming temperatures reduce the volume of suitable habitat in a lake. When this habitat is completely absent, it causes fish kills and eventually the extirpation of these sensitive fish species. The proposed standards consist of an oxythermal habitat measure (i.e., T_{DO3}) and a set of eutrophication parameters including TP, chl-*a*, and Secchi depth. T_{DO3} measures the condition of coldwater habitat and is affected by temperature and lake productivity whereas the eutrophication standards are largely reflective of lake productivity. Together these standards can be used in conjunction to reduce missed impairments and to improve assessment accuracy. These standards are based on protections for three coldwater fish species (i.e., Lake Trout, Lake Whitefish, and Cisco) and a group of stream trout species and hybrids which are managed in a subset of Minnesota's lakes. Minnesota's existing standards for eutrophication include protections for Lake Trout and stream trout and changes to these standards include the inclusion of T_{DO3} standards for Lake Trout and revisions to the TP and Secchi depth standards for both Lake Trout and stream trout lakes. The currently adopted chl-*a* standards would be unchanged for Lake Trout and stream trout lakes. Protections for other Minnesota salmonids, including Cisco and Lake Whitefish, were identified as a gap in WQS which these proposed standards will address. It was determined that like other salmonids, Cisco and Lake Whitefish are sensitive to increasing temperatures and declining dissolved oxygen. As a result, T_{DO3} and chl-*a* standards will also be assigned to lakes which protect these sensitive fish species. As part of eutrophication water quality standards for Cisco and Lake Whitefish lakes, TP and Secchi depth standards are also included. The development of coldwater standards also resulted in the identification of a small subset of lakes which are atypical and should have SSS for oxythermal habitat, eutrophication, or both. These include lakes with summer refugia (e.g., ground water sources) and lakes with good coldwater fish populations despite water quality conditions that exceed the draft standards.

The proposed coldwater lake standards can be implemented through or used to enhance existing programs such as the MPCA's IWM framework and WRAPS and the MNDNR's Cisco Refuge Lakes, Lakes of Biological Significance, and Lakes of Phosphorus Sensitivity programs. In most cases this will require lakeshed protections to limit or reduce TP loading to these lakes through best management practices and maintaining natural landscapes. Unfortunately, warming temperatures are likely to significantly increase water temperatures in Minnesota in the coming decades which alone will result in the loss of many coldwater habitats and the extirpation of coldwater fish species from some lakes. Cultural eutrophication of coldwater lakes also threatens these species which will require long-term planning to limit or reduce nutrient loading to these lakes. The interactive effects of rising temperatures and lake productivity will also exacerbate these challenges. However, coldwater fishes are important and valuable components of many Minnesota lakes and their loss will degrade Minnesota's natural and cultural ecosystems. These fish and their habitats are worth protecting and the draft coldwater lake standards along with other protection strategies provide a framework for preserving these resources.

TALU framework for lakes

Incorporating numeric biological criteria directly into rule

The objective of the CWA is to "*restore and maintain the chemical, physical, and biological integrity of the Nation's waters"* (33 U.S.C. § 1251 (a)). This has been described as an aquatic ecosystem that possesses chemical, physical, and biological integrity and the condition where the "*biota is a balanced, integrated, adaptive system having the full range of elements (genes, species, assemblages) and processes (mutation, demography, biotic interactions, nutrient and energy dynamics, and metapopulation processes) expected in areas with minimal influence from modern human society*" (S-2). Water bodies that support and maintain such an aquatic ecosystem achieve the objective of the CWA.

In addition to the CWA objective, the CWA provides an interim goal for the Nations waters:

> *"wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water" (U.S. Code title 33 USC § 1251 [a] [2])*

These descriptions are used to develop water quality standards to protect aquatic life uses (Class 2). Minnesota protects all Class 2 waters for aquatic life beneficial uses; and nearly all waters in Minnesota are classified as Class 2 making it one of the most important beneficial uses. Class 2 is defined in Minnesota rule as:

> *"Aquatic life and recreation includes all waters of the state that support or may support aquatic biota, bathing, boating, or other recreational purposes and for which quality control is or may be necessary to protect aquatic or terrestrial life or their habitats or the public health, safety, or welfare." (Minn. R. 7050.0140, subp. 3)*

Minnesota's narrative standards for the protection of aquatic life beneficial uses in Class 2 waters are:

> *"For all class 2 waters, the aquatic habitat, which includes the waters of the state and stream bed, shall not be degraded in any material manner, there shall be no material increase in undesirable slime growths or aquatic plants, including algae, nor shall there be any significant increase in harmful pesticide or other residues in the waters, sediments, and aquatic flora and fauna; the normal aquatic biota and the use thereof shall not be seriously impaired or endangered, the species composition shall not be altered materially, and the propagation or migration of aquatic biota normally present shall not be prevented or hindered by the discharge of any sewage, industrial waste, or other wastes to the waters." (Minn. R. 7050.0150, subp. 3)*

To achieve protection of Class 2 aquatic life beneficial uses, Minnesota uses narrative or numeric chemical, physical, and biological standards.[21] Numeric chemical standards are historically the most heavily relied upon. For example, warm or cool water (Class 2Bd/2B) lakes must not exceed the condition of 40 µg/L of ammonia (un-ionized as nitrogen), which is a numeric chemical standard. This standard is based on scientific evidence that aquatic biota will no longer meet the goals for aquatic life at concentrations above 40 µg/L of ammonia. Another effective water quality management tool for aquatic life protection is the use of biological goals which directly measure whether aquatic communities are healthy and therefore meet beneficial use goals. Minnesota currently has biological standards adopted into rule for lakes, but these standards are narrative. For example,

[21] Biological standards are referred to as biological criteria (biocriteria) in this document.

the narrative biological standard that applies to Class 2A coldwater lakes requires that they be protected to "*permit the propagation and maintenance of a healthy community of cool or warm water aquatic biota, and their habitats..."* (Minn. R. 7050.0222, subp. 2). To assess biological condition in lakes, the MPCA and MNDNR currently apply narrative biological standards using numeric biological criteria translators. The proposed amendments reasonably incorporate numeric biocriteria directly into the WQS and eliminate the need for translators in the assessment for many lakes.

To measure if aquatic life uses are protected in lakes, the MPCA uses measures of the health of the fish assemblage. Biological assemblages are taxonomic subsets of biological communities in ecosystems (e.g., fish in a lake community). The MPCA relies on the use of biological assemblages, such as fish (lakes and streams) and macroinvertebrates (streams), to measure the biological integrity of aquatic ecosystems since it is not possible to sample and measure the condition of all aquatic biota communities. However, by measuring the condition of important aquatic assemblages, the MPCA can use the advantageous attributes of these organisms to assess aquatic life goal attainment. These assemblages assimilate multiple stressors, which occur at both local and watershed-level scales. For example, aquatic communities respond to and are negatively impacted by stressors such as toxic pollutants, eutrophication (i.e., changes in ecosystem productivity), altered hydrology, habitat, and habitat connectivity. The measured response of aquatic biota to stressors provides an integrated view of water quality conditions by directly measuring the condition of biological assemblages. Therefore, the MPCA can more accurately define the assemblage that is the "product" of these stressors. This accuracy is driven by two major attributes of biological assemblages:

1. Biological assemblages, such as fish, are relatively long lived, so stressors in the environment, even if they are intermittent and/or short lived, are often reflected in the condition of biological assemblages.
2. Biological assemblages integrate the effects of multiple stressors over time, so impacts that might be missed because the relevant chemical or physical parameter was not measured will be identified by changes in the condition of these assemblages.

Biological assemblages are effectively used to detect long- and short-lived stressors, cumulative impacts, and physical stressors. The use of biological assemblages in assessments also has the advantage of translating the condition of a water body into more widely understandable terms such as biological health. In addition, the USEPA's policy directs states to incorporate biological assessments into their WQS programs. Biological criteria, along with chemical standards, are integral to a state's CWA program.

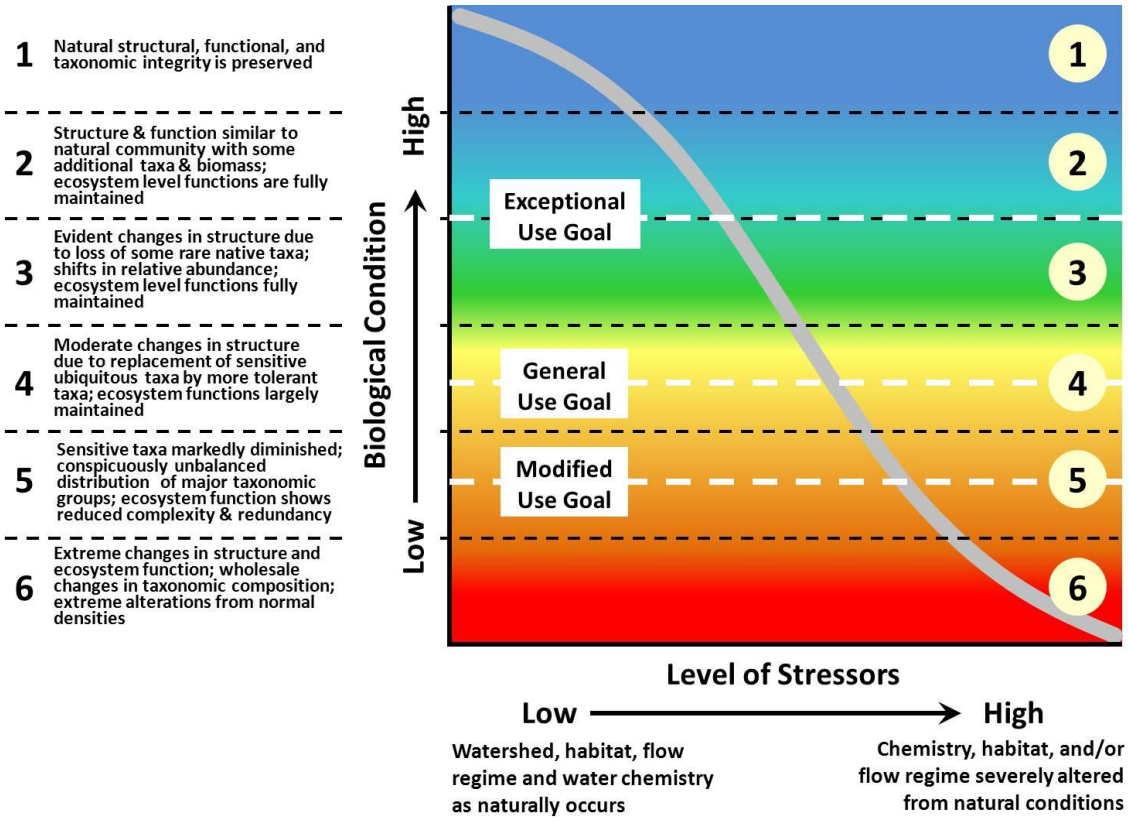
The MNDNR routinely monitors fish communities in lakes using standardized methods for the purpose of biological assessment. To translate biological data into a form that can be used to determine attainment of aquatic life use goals, the MNDNR uses indices of biological integrity or IBIs to measure biological condition. IBIs are the most common analytical tools in the United States used to measure the condition of aquatic assemblages. The MNDNR developed lake-specific IBIs (S-6) to specifically support aquatic life assessments and to implement a TALU framework. Parallel to the development of lake IBIs, BCG models for fish communities in lakes were also developed (S-1). Using the new tools and data, biocriteria were developed for Minnesota's current aquatic life use goal (equivalent to the proposed General Use) and an additional aquatic life use tier (i.e., Exceptional Use). The BCG was integral to this process as was a traditional reference condition approach (S-6). Minnesota and other states have used the BCG or similar concepts to develop biocriteria (e.g., S-14). The results of this approach were biocriteria for two tiers of aquatic life use protection that can be linked to narratives of biological condition (Figure 1) and which provide uniform goals across lake types and regions. By linking the biocriteria to the BCG, Minnesota can provide narrative descriptors to the biological criteria developed for Minnesota lakes. These are as follows:

- Exceptional Use: "Evident changes in structure due to loss of some rare native taxa; shifts in relative abundance; ecosystem level functions fully maintained."

- General Use: "Overall balanced distribution of all expected major groups; ecosystem functions largely maintained through redundant attributes."

The Exceptional Use goal can also be considered consistent with the CWA objective to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." (33 U.S.C. § 1313 (a)-(c)). The General Use goal is equivalent to the CWA interim goal which is described as: "…water quality that provides for the protection and propagation of fish, shellfish, and wildlife" (33 USC § 1251 [a] [2]). Detailed descriptions of the IBIs and biological criteria can be found in S-6.

Figure 1. Biological Condition Gradient (BCG) illustrating the location of draft biocriteria for protection of Minnesota's tiered aquatic life use goals.



At present, the MPCA implements biological criteria through a narrative translator (Minn. R. 7050.0150, subp. 6). Adopting numeric biological criteria into rule is reasonable to formalize the existing narrative biological criteria (Minn. R. 7050.0150, subp. 6). In addition, adopting numeric biological criteria will better clarify goals for fish assemblages in lakes. The adoption of the TALU framework does not change the fundamental process the MPCA uses for assessing and measuring the attainment of aquatic life beneficial uses but rather is a refinement of current aquatic life goals. The current narrative translator results from a long history of using biological criteria in Minnesota. Minnesota incorporated the use of measures of biological integrity and the concept of biological criteria into rule in 1994. In 2003, the language regarding the use of biology in assessments was further refined to specifically address the factors that would be considered when evaluating a water body using biology. Thes rules adopted language that included fish, macroinvertebrate, and plant-based IBI's as tools for measuring the attainment of narrative standards (Minn. R. 7050.0150, subp. 3) and in 2017, the MPCA adopted a TALU framework for streams (Minn. R. 7050.0222, subps. 2c, 2d, 3c, 3d, 4c, 4d). The adoption of a TALU framework for lakes is a logical next step in this process. The MPCA also has a long history of using biological criteria to determine if waters are impaired for aquatic life use goals (i.e., CWA § 303(d) list waters). Currently,

about half of Minnesota's aquatic life use impairments are the result of a biological assessment. The use of biological assessments to measure attainment of aquatic life goals has been a valuable tool that has been largely accepted by stakeholders involved with water quality management. Nearly all U.S. states have used biological information to assess attainment of aquatic life uses and to put waters on the impaired waters list (CWA § 303(d)).

Protecting high-quality lakes

Minnesota is fortunate to possess some of the highest quality waters in the United States and it is to the benefit of the state and its residents to protect these high-quality waters. Minnesota's antidegradation rules (Minn. R. 7050.0250 through 7050.0335) provide a process for protecting waters from degradation. Antidegradation does not allow the MPCA to approve any activity, no matter how necessary and important, that causes degradation to the point that the existing beneficial use is lost. By adding a new beneficial use subcategory of Exceptional Use to lakes, the TALU amendments provide an additional protection for high-quality waters that is not currently provided through the antidegradation review process. By establishing an Exceptional Use subcategory of Class 2 waters, TALU will establish a new, higher limit, below which water quality cannot be degraded without a loss of its Exceptional Use. This means that activities that will degrade Exceptional Use waters may be approved through antidegradation review if they are demonstrated to be necessary and important, but no activity can be approved if the extent of the degradation will cause a loss of its Exceptional Use classification. The TALU framework protects high-quality waters by recognizing exceptional waters, setting accurate aquatic life goals for them, thereby providing a higher threshold of protection for them through the antidegradation process.

In addition, Exceptional Use designations will provide protections to lakes beyond antidegradation in some situations. Antidegradation only affects activities for which a control document or permit exists. As a result, under antidegradation unregulated activities could result in the degradation of high-quality water bodies down to the General Use goal without violating WQS. By establishing the Exceptional Use, high-quality waters can be identified, and protection strategies developed to maintain their biological condition. The TALU framework does not create new regulations for managing these high-quality water bodies, but it does create a process for implementing existing water quality management tools to prevent their degradation.

Establishing an Exceptional Use tier complies with CWA requirements which allow for the establishment of subcategories of the major uses (e.g., aquatic life and recreation) when existing uses are protected. All waters that are designated as Exceptional Use would be designated based on the fact that they have demonstrated attainment of Exceptional Use goals (i.e., biological criteria) on or after November 28, 1975 (i.e., is it an existing use (40 CFR § 131.3(e); S-5). Once designated through rulemaking, these waters will be protected to maintain the Exceptional Use condition of the aquatic life. In addition to the fundamental reasonableness of providing protection for high-quality waters, protection of these waters has the additional advantage of being less costly than restoration of a water body after it is degraded (S-13).

Designating accurate beneficial uses for lakes

Beneficial use designations

In addition to revising standards to protect coldwater fish species and the adoption of a TALU framework for lakes, this rulemaking also includes another important element of WQS: beneficial use designations. The discussion of the general reasonableness of these use designations is divided into two parts based on the two major revision elements in these rule amendments: coldwater lake designations and Exceptional Use designations.

- **Coldwater lake designations:** All available data were reviewed to determine which lakes support or are managed for coldwater fish species (Lake Trout, Lake Whitefish, Cisco, and stream trout species). Use designations for 730 coldwater lakes will be confirmed or modified as part of this review including the

addition of 410 Class 2A lakes and removal of 25 Class 2A lakes. The remaining use designations confirm or alter the species of fish protected by the designated use. The result is a comprehensive list of lakes with coldwater habitat for which coldwater lake standards should apply. This includes a determination of the fish species that are supported or should be supported in these lakes. In doing so, standards can be precisely applied to these lakes such that standards specific to the taxa found in the lake can be protected. The evidence supporting the draft coldwater use designations are described in Appendix C of S-4.

- **Exceptional Use Lakes:** The proposed amendments include beneficial use designations (Minn. R. 7050.0470) for 36 lakes. These lakes were identified as part of the IWM sampling for assessment years 2022, 2023, and 2024. In the future, most TALU designations will follow the IWM schedule and the MPCA intends that these use designation rulemakings will continue to occur periodically until an entire IWM cycle has passed (i.e., 10 years). The process for determining these use designations is largely based on available data and an assessment of several factors (e.g., biological condition, habitat, restoration potential; S-5) as part of a use designation review. The process of interpreting the data and making the beneficial use determination involves several quantitative thresholds and other evidence to reasonably determine the appropriate ALU. For the designation of Exceptional Uses, the proposed use designations are based primarily on biological performance. The proposed designations are based on reasonable interpretations of the data and consistent application of a use designation review process.
- Although the adoption of the TALU framework is not entirely tied to the use classification changes, it is reasonable to proceed with both changes in this rulemaking. The MPCA believes that the TALU framework is needed and reasonable and consequently, that it is reasonable to act as soon as possible to implement that framework in Minnesota. Likewise, it is reasonable to accurately classify lakes when there is adequate data to support the change. The MPCA and MNDNR have the expertise and data necessary to support the use review process, and therefore, is proposing these changes concurrent with the adoption of the TALU framework for lakes. Adopting the proposed use classification changes provides the additional benefit of demonstrating how the MPCA will document these types of changes in future rulemakings and the type of data necessary to support future proposals.

The lake use designations will be incorporated into Minn. R. 7050.0470 through these amendments. The lake use designations will be automatically incorporated by reference when the MPCA updates the use designation tables (https://www.pca.state.mn.us/get-engaged/incorporations-by-reference) referenced in Minn. R. 7050.0470.

Updating the structure of Minn. R. 7050.0470

The proposed amendments also change the water body classification reference lists to make them easier to understand, use, and update. Minn. R. 7050.0470 contains an extensive list of lakes, categorized by major basin. It does not include information other than the use class and special designations. The formatting also makes amendments difficult and expensive. It is reasonable to improve management of waters by upgrading the current process of documenting uses. The MPCA proposes to remove the listings for all lakes previously identified in Minn. R. 7050.0470 (retaining the lists of wetlands, calcareous fens, and scientific and natural areas) and in their place incorporate, by reference, documents with lake use designations for each watershed. The revised documents will include lakes, including those previously listed in Minn. R. 7050.0470, by 8-digit hydrological unit code (HUC) watershed, to reflect the framework of Minnesota's IWM strategy. This strategy intensively monitors six to ten of Minnesota's 80 HUC-8 watersheds each year to achieve statewide coverage in ten years. The MPCA expects to update the information in each watershed table at least once every ten years or as available data demonstrate use designations are needed. Use designation changes will require formal rulemaking. Restructuring the listed information to provide more complete and accessible information at the

reach level, including water body identification (WID) numbers, a description of the lake locations, and information on whether the aquatic life use has been reviewed and confirmed.

In addition to providing more extensive information in a more accessible format, the incorporation by reference of restructured and expanded lists of waters is reasonable because it will allow the MPCA to amend the rules more conveniently when required to make use class changes. This restructuring will also make the updating of these tables logistically easier and better link them to user access portals such as MPCA's data access portals (e.g., https://www.pca.state.mn.us/about-mpca/science-and-data). This will allow these tables and associated tools to be updated more quickly and efficiently.

Revising Minn. R. 7050.0150

The proposed amendments include several changes to Minn. R. 7050.0150, which are reasonable clarifications to make this subpart consistent with the proposed revisions to lake standards. The changes include the addition of new definitions, modifications to existing definitions, and the addition of oxythermal habitat as a type of information that can be used to determine impairments.

Corrections to the river eutrophication standards

When the RES were adopted in 2014, the incorrect standards for chl-*a*, DO flux, and BOD_5 were adopted for Class 2B streams because an earlier draft of the rule language was not updated after revisions were made to the standards following stakeholder meetings. It is reasonable to correct this error because there is clear evidence supporting the fact that incorrect values were adopted for Class 2B streams. This evidence includes documentation of the correct values in the final TSD, the correct values in the SONAR, and the adoption of the correct values for Class 2Bd streams (7050.0222, subp. 3). In addition, the description of the extent of the SSS for Mississippi River Pool 1 will be amended. When the SSS for this reach was adopted 2014, the reach from River Miles 854.1 to 847.7 was described as "from Fridley to Ford Dam in St. Paul." It should have been described as "from Lower St. Anthony Falls to Ford Dam in St. Paul." This does not change the SSS or its application, since the river miles are correct in rule, but it provides clarity and reduces any potential confusion.

Making minor formatting changes

The proposed amendments will result in renumbering or changes to the lettering of several items and subitems in Minn. R. ch. 7050. Formatting changes are made through the authority of the Office of the Revisor of Statutes, and the MPCA is not required to provide a statement of reasonableness for those changes.

Specific reasonableness

The Agency's proposed rules include minor revisions that reflect best practices and recommendations from the Office of the Revisor, including:

- Updating the term "shall" to "must" throughout the entire chapter;
- Breaking rule-text structured as paragraphs into "outline" structure, with subpart, item, and subitem entries, as the rules might require;
- Updating URLs to its incorporations-by-reference webpage throughout the entire chapter to reflect a recent Agency-wide site update; and
- Replacing passive voice with active.

All other proposed changes are identified below and followed by a justification (Table 8).

Table 8. Proposed changes and specific reasonableness.

Rule part	Description of proposed change	Specific reasonableness

Rule part	Description of proposed change	Specific reasonableness
7050.0150, subp. 4	Definitions for “dimictic lake,” “geometry ratio,” “lentic water,” “oxythermal habitat,” and “polymictic lake” will be added.	These definitions are needed to support to the proposed revisions to WQS.
7050.0150, subp. 6	Add oxythermal habitat as a type of information that can be used to determine that the biological community or aquatic habitat are impaired.	Adding this language will clarify that this type of information can be used for a finding of impairment.
7050.0222, subp. 2	Add lake eutrophication standards (total phosphorus, chlorophyll-*a*, and Secchi depth) for two new coldwater (Class 2A) lake types: Lake Whitefish and Cisco lakes. The eutrophication standards for total phosphorus and Secchi depth are also proposed to be updated for Lake Trout and stream trout lakes.	The MPCA has determined that these sensitive fish species are not sufficiently protected by warm or cool water lake standards. The addition of these new lake types and associated standards will provide species-specific standards for their protection.
7050.0222, subp. 2	Add existing lake eutrophication standards (total phosphorus, chlorophyll-*a*, and Secchi depth) to protect aquatic recreation in coldwater (Class 2A) lakes.	To maintain protections for aquatic recreation in coldwater lakes, the existing aquatic recreation standards will be assigned to these lakes. Total phosphorus for northern lakes will be updated based on the revised models in this rule.
7050.0222, subp. 2	Add oxythermal habitat (T_{DO3}) standards for Lake Trout, Lake Whitefish, and Cisco lakes.	The MPCA has determined that oxythermal habitat is a relevant and effective measure of coldwater habitat for these fish species. Adopting standards for this parameter will provide protective goals for these fish species.
7050.0222, subps. 2-4	Minor edits including: 1) Updating the descriptions for Lake Trout and stream trout lakes to be consistent with the new Lake Whitefish and Cisco designations; and 2) Changing lake terminology from “lake” and “shallow lake” to “dimictic lake” and “polymictic lake.”	These edits add information regarding the applicability of coldwater lake standards to ensure clarity regarding to which lakes these standards apply.
7050.0222, subps. 3-4	The proposed amendments add new warm or cool water (Class 2B/2Bd) lake types called polymictic and dimictic lakes along with new lake eutrophication standards (total phosphorus, chlorophyll-a, and Secchi depth) for these lake types in the North region. In addition, the Northern Minnesota Wetland ecoregion is proposed to be added to the lakes in the North region.	The MPCA has determined that trophic state is naturally different and that it is appropriate to assign different lake eutrophication standards to recognize these differences. These revisions are needed to ensure that appropriate and attainable standards are assigned to these lakes. Detailed descriptions of these findings can be found in S-3.
7050.0222, subps. 2c, 3c, and 4c	The proposed amendments to these subparts will incorporate lakes into the existing narratives for each TALU tier under Classes 2A,	The proposed narrative language for the TALU tiers reasonably describes the expectations for each TALU and provides the

Rule part	Description of proposed change	Specific reasonableness
	2Bd, and 2B. In addition, lake-specific references are proposed to be added to detail how aquatic assemblage condition is measured and how the biological criteria were developed.	documentation necessary to justify each use.
7050.0222, subps. 2d, 3d, and 4d	The proposed amendments to these subparts will add biological criteria for Classes 2A, 2Bd, and 2B, as well as for each lake type and TALU.	The proposed addition of the biological criteria provides transparency and consistency regarding the MPCA's process of assessing aquatic life use goals for lakes.
7050.0222, subp. 4	The standards for three river eutrophication parameters (chlorophyll-*a*, diel dissolved oxygen flux, biochemical oxygen demand) which apply to Class 2B streams are proposed to be corrected. The description of the SSS for Mississippi River Pool 1 will also be amended to provide a more specific delineation of the extent of this reach.	Due to a transcription error, the incorrect standards were adopted. These revisions correct this error and provides the correct standards. Without this correction, there is the potential for confusion regarding the appropriate standards for protection of Class 2B rivers and streams. Amending the description of the delineation for Mississippi River Pool 1 will provide clarity regarding where this SSS applies.
7050.0460, subp. 3	Addition of abbreviations for use designations listed in Minn. R. 7040.0470. These include Lake Trout [LAT], Lake Whitefish [LKW], Cisco [TLC], and stream trout [SRT].	This information is reasonable because it provides clarity by describing the abbreviations included in the use designation tables.
7050.0460, subp. 3	Removal of language specifying the location of some abbreviation codes.	It is reasonable to remove this information because it does not apply to all use designation listings. Specifically, the location of this information is found in different locations in the text of Minn. R. 7040.0470 and the tables incorporated by reference.
7050.0470, subps. 1-9	The proposed rules organize the beneficial uses for lakes reaches by major watersheds (8-digit HUCs). These beneficial use tables will be incorporated by reference.	Incorporating the beneficial uses by reference will simplify the process of amending these lists and provide additional information in a more understandable form. This does not change the process by which beneficial uses are changed; formal rulemaking through Minnesota's administrative process will still be required.
7050.0470, subps. 1-9	730 coldwater (Class 2A) and warm water (Class 2B/2Bd) lakes are proposed to have their use designations confirmed or modified. This includes confirming the coldwater fish species protected in each lake. The changes include: 1) 410 lakes currently designated as Class 2B/2Bd will be designated Class 2A. The new Class 2A lakes will also be designated for the protection of one or more coldwater fish species (LAT, LKW, TLC, SRT);	The MNDNR and MPCA reviewed the aquatic life use designations for these lakes. These reviews confirmed or did not confirm the presence of an existing coldwater use (Class 2A) and which coldwater fish species should be protected. S-4 provides the justification and supporting information for each beneficial use change. Listing the specific coldwater fishes protected by the Class 2A designation is needed because these designations determine the applicable

Rule part	Description of proposed change	Specific reasonableness
	2) 207 Class 2A lakes will be confirmed as Class 2A lakes as well as the coldwater fish species these lakes support (LAT and SRT); 3) 88 Class 2A lakes will be confirmed as Class 2A lakes but the coldwater fish species these lakes support will be modified (LAT, LKW, TLC, SRT); 4) 25 Class 2A lakes designated for the protection of LAT or SRT will be designated Class 2Bd.	standards. The inclusion of this information in rule provides transparency regarding the goals for these lakes.
7050.0470, subps. 1-9	36 lakes are proposed to be designated Exceptional Use. The changes include: 1) warm or cool water aquatic life and habitats (Class 2B) to Exceptional Use warm or cool water aquatic life and habitats (Class 2Be); and 2) coldwater aquatic life and habitats (Class 2A) to Exceptional Use coldwater aquatic life and habitats (Class 2Ae).	The MNDNR and MPCA reviewed the aquatic life use designations for these lakes. These reviews indicated that a use different than the default General Use were appropriate. For these proposed Exceptional Use waters, the biological assemblages demonstrated the ability to meet a higher use tier. S-5 provides the justification for each beneficial use change.

Regulatory analysis

Minn. Stat. § 14.131 sets out eight factors for a regulatory analysis that must be included in the SONAR. The sections below quote these factors and provide the MPCA's response.

Classes affected

A description of the classes of persons who probably will be affected by the proposed rule, including classes that will bear the costs of the proposed rule and classes that will benefit from the proposed rule.

All residents of Minnesota could be affected by and will benefit from these proposed rule revisions. These standards revisions, beneficial use designations, and other minor revisions ensure that water quality management activities and watershed planning, are accurate and protective.

Although difficult to quantify, the rule amendments will also provide a social benefit to the classes of persons whose quality of life is either maintained or improved by engaging in numerous recreational activities (e.g., fishing, swimming, boating, camping, etc.) in or near Minnesota's aquatic resources. Persons who appreciate the aesthetic value these aquatic resources provide across Minnesota, and who derive benefit from knowing that high-quality and sensitive waters will be appropriately protected into the foreseeable future, will derive a similar social benefit.

Further, monetary benefits to certain classes of persons will include the maintenance and improvement of Minnesota's water-oriented tourism and recreational industry. Counties, cities, and other local governments could benefit from the proposed rule through increased property and sales tax revenues, increased tourism dollars, added jobs, lower water treatment costs, and other benefits related to improved water quality. In

addition, property owners on and near waters could see a benefit in increased property value because of water quality protections and improvements.

The proposed standards and beneficial use designations will also result in benefits to nonprofit organizations and taxpayer-supported entities who work to protect and restore Minnesota's waters, by reducing expenditures and improving the effectiveness of expenditures. These types of organizations will not waste effort and money to restore waters to goals that cannot be practically achieved given their natural condition (e.g., polymictic lakes). As a result, cities, counties, watershed districts and others will realize savings as implementation strategies resulting from WRAPS (e.g., wastewater treatment plant upgrades and best management practices [BMPs]) will be better targeted and more likely to result in attainment of beneficial uses.

As more comprehensively explained in the Consideration of Economic Factors section of this SONAR, these proposed amendments are not expected to result in specific widespread, major costs to permitted entities. A subset of the proposed standards and beneficial use designations could result in some costs due to an increased need for wastewater treatment or BMPs to protect these lakes and there could be some additional costs associated with the administration of these new requirements. However, these impacts would be made on a case-by-case basis, and it is not possible to determine which permits, if any, would be impacted by these rule revisions. Overall, very few parties will incur additional costs because of the proposed use designations.

Department/agency costs

The probable costs to the Agency and to any other agency of the implementation and enforcement of the proposed rule, and any anticipated effect on state revenues.

Some lakes will be subject to new standards specifically developed for polymictic lakes in northern Minnesota. These new standards will subject them to less restrictive eutrophication standards. In addition, some lakes that are not naturally coldwater habitats, but are currently held to coldwater goals will be appropriately managed as warm or cool water habitats. As a result, the proposed amendments will reduce the effort required for the MPCA to list, identify stressors, and develop restoration plans for waters that are unlikely to meet existing northern lake eutrophication or coldwater habitat goals due to natural conditions. This equates to a reduction in cost to the Agency for these waters.

Cost to the Agency associated with the development of WRAPS and TMDLs could increase as a result of new impairments associated with these proposed standards. However, this is expected to only be a small increase in the number of impaired lakes and additional costs should be small. Costs to the Agency could also be greater for processing and reviewing NPDES/SDS permit applications especially for new or expanded dischargers to some Exceptional Use, coldwater, and northern dimictic lakes. While the Agency is unaware of any new or expanding facilities, and thinks such scenarios are uncommon, it is possible this may occur in the future. These types of applications would also require an antidegradation review to evaluate alternatives to avoid or minimize adverse impacts to water quality. The typical cost to the MPCA to conduct antidegradation reviews is $3,106, although only a small portion of this cost, if any, would be attributed to revised Exceptional Use, coldwater, or northern dimictic lake standards or use designations.[22]

The MPCA expects to be able to redistribute workloads to accommodate any increased needs. The implementation and enforcement of the proposed rule is not anticipated to require extensive efforts from any

[22] This estimate is based on data provided in the MPCA's Statement of Need and Reasonableness (wq-rule3-60d) that supported the adoption of the amendments to the state's antidegradation rules.

state agency other than the MPCA. There could be some increases in workload for the MNDNR since this agency is responsible for collecting data used to support assessments and use designations associated with the TALU framework and coldwater habitat. However, most of these efforts are part of the MNDNR's existing work and is not expected to be a sizeable increase in workloads. Further, the proposed rule is not anticipated to have any state revenue costs.

Less costly or intrusive methods

A determination of whether there are less costly methods or less intrusive methods for achieving the purpose of the proposed rule.

The purpose of the proposed rule amendments is to assign appropriate and protective standards and to designate accurate aquatic life uses. The MPCA, when researching and developing the proposed rule, considered whether any less costly methods or less intrusive methods to the proposed amendments are available for achieving this purpose. Considering the specific scope of the proposed rule, and as further elaborated in the hypothetical analyses provided below, the MPCA concludes there are no alternative options available that would be less costly or intrusive for achieving this purpose.

Alternative methods

A description of any alternative methods for achieving the purpose of the proposed rule that were seriously considered by the Agency and the reasons why they were rejected in favor of the proposed rule.

The proposed rule amendments will allow the MPCA to better manage Minnesota's aquatic resources. It establishes reasonable standards, and attainable aquatic life uses for lakes so that water quality management activities can be appropriately tailored to different aquatic habitats. The MPCA did not seriously consider any alternative methods that will achieve the purpose of the proposed rule.

Costs to comply

The probable costs of complying with the proposed rule, including the portion of the total costs that will be borne by identifiable categories of affected persons, such as separate classes of governmental units, businesses, or individuals.

The analyses of the probable costs of complying with the proposed standards and use designations are discussed in the Consideration of Economic Factors section of this SONAR.

Costs of non-adoption

The probable costs or consequences of not adopting the proposed rule, including those costs or consequences borne by identifiable categories of affected persons, such as separate classes of government units, businesses, or individuals.

The consequence of not adopting the proposed amendments would be to continue the status quo of the MPCA's monitoring, restoration, and protection activities for the water bodies affected by this rule. This will result in inefficiencies caused by the listing of some water bodies as impaired due to natural conditions. For example, northern, polymictic lakes that are unable to meet the existing northern LES would continue to be given unattainable goals. This means that money and effort could be expended by the MPCA or local governments in attempting to restore these waters beyond what is currently achievable. In addition, there would be costs associated with the loss of high-quality habitats and sensitive species if lakes with exceptional or

coldwater fish communities were to remain designated as General Use or warm or cool water habitats. These costs would be associated with the potential degradation of these waters and the loss of their existing condition. By degrading these waters, benefits (e.g., nutrient processing, fishing, and aesthetics) could be lost or reduced. Ultimately it will be less costly for the MPCA and local governments to maintain the condition of these waters and their associated benefits than it is to restore them. The costs and benefits of adopting the proposed use designations and the consequences to different classes that may be affected are discussed further in the Consideration of Economic Factors section of this SONAR.

Differences from federal regulations

An assessment of any differences between the proposed rule and existing federal regulations, and a specific analysis of the need for and reasonableness of each difference.

The proposed designated uses are fully compliant with all existing federal regulations. The CWA requires states to promulgate WQS based on EPA regulations and guidance. The CWA also requires periodic review (i.e., "triennial review") of WQS and requires states to modify standards based on regional, state, or local data or other scientifically defensible data. The proposed rule meets the federal requirement that states review and revise WQS as needed using scientifically defensible data. The adoption of the proposed standards and use designations into Minn. R. ch. 7050 will not cause state rules to be either more or less stringent than federal regulations, as the proposed WQS simply reflect the federal intent for state-specific implementation of the CWA. These standards and use designations follow EPA guidance but are necessarily tailored to Minnesota's aquatic resources. The EPA recognizes that each state must develop a WQS framework that is tailored to the aquatic resources in the state. Federal WQS regulations support the setting of more appropriate designated aquatic life uses including § 131.10 (designation of uses), § 131.12 (protect high quality waters), and § 130.23 (support attainment decisions and diagnose causes).

Cumulative effect

An assessment of the cumulative effect of the rule with other federal and state regulations related to the specific purpose of the rule.

Minn. Stat. § 14.131 defines "cumulative effect" as "the impact that results from incremental impact of the proposed rule in addition to other rules, regardless of what state or federal agency has adopted the other rules. Cumulative effects can result from individually minor but collectively significant rules adopted over a period of time."

The MPCA considers the cumulative effects of the proposed use designations in relation to other state or federal regulations to be a positive one. Overall, these designations will result in the application of more appropriate water quality goals and allow for more efficient use of resources to protect and restore waters for the benefit of aquatic life and Minnesota residents. The Consideration of Economic Factors section of this SONAR provides the economic analysis that supports this conclusion.

There could be a minor cumulative effect of these standards and use designations with Minnesota's antidegradation rule (which is required by and consistent with federal regulations). In this scenario, antidegradation procedures which prohibit the loss of an existing use must require that a designated use not be degraded such that this existing use is lost. However, the interaction between these two rules is likely to be rare because it requires that a use be threatened by an activity that is subject to antidegradation requirements (i.e., those activities subject to CWA control document such as NPDES/SDS permits). First, this rule has the greatest impacts on waters in northern Minnesota where there is less human activity and therefore a lower likelihood that a water body will be impacted by a permitted discharge. This is demonstrated by the fact that these rule

amendments (see Consideration of Economic Factors section) did not identify any permits that will certainly incur additional major costs as a result of an Exceptional Use or coldwater habitat designation. Second, only new or expanding permits would be impacted by Exceptional Use designation because the Exceptional Use is identified by the attainment of the biological goals. This means that current permits are sufficient to protect the Exceptional Use. Finally, a cumulative effect between use designations and antidegradation would only occur if the activity would have been allowable upstream of the less protective use. In other words, allowable degradation (see antidegradation provisions under Minn. R. 7050.0265 and 7050.0270) resulting from the discharge would need to result in the loss of an Exceptional Use, but not a General Use or the loss of a coldwater use and not a warm or cool water use. In many cases, antidegradation provisions will be sufficient to protect General Uses, Exceptional Uses, coldwater habitats, and warm or cool water habitats. For these reasons, cumulative impacts are expected to be minimal.

Other than a possible interaction with antidegradation, the proposed amendments will not add new requirements beyond those in the federal CWA, nor will they extend the impact of the law. As discussed in the Differences from Federal Regulations analysis above, establishing WQS is required by the CWA; however, there is no direct federal counterpart to the State WQS.

Similarly, the proposed amendments will not add, or extend the impact of, requirements already in existing state regulations. No other state rule establishes WQS or lists of specific waters according to their highest attainable beneficial use. The MPCA is the only state agency in Minnesota that establishes WQS under the CWA. However, it should be noted that some Minnesota waters are variously classified according to different state agency programs and protections. For example, the MDNR identifies certain waters according to specific uses, such as trout waters in Minn. R. 6264.0050. In most cases, the MDNR classification is aligned to the MPCA's and the regulations between these agencies are complimentary. However, the MPCA's designations do not obligate the MDNR to adopt similar designations nor does it directly modify the MNDR's management of these waters. TALUs do not have an equivalency in other state agencies and therefore do not impose regulatory impacts.

Performance-based rules

Minn. Stat. § 14.002, requires state agencies, whenever feasible, to develop rules that are not overly prescriptive and inflexible, and rules that emphasize achievement of the Agency's regulatory objectives while allowing maximum flexibility to regulated parties and to the Agency in meeting those objectives. These standards and beneficial use designations represent the implementation of performance-based goals. Biological criteria, LES, and oxythermal habitat provide proximate measures of the attainment of Minnesota's aquatic life use goals. This results in monitoring water bodies, assessing them, and establishing TMDLs that are focused on the achievement of these goals rather than focusing on prescriptive administrative measures. The MPCA recognizes the need for flexibility in the tools and approaches used to restore or protect aquatic resources. The adoption of designated uses tailored to a water body's potential provides more flexibility in the application of TMDLs and antidegradation reviews and extends that flexibility to how protection and restoration goals may be achieved.

Consideration of MPCA-specific statutory requirements

The law also requires state agencies to analyze several other factors as part of their rulemaking process. This section addresses the other statutory requirements beyond those outlined in the APA, specific to the MPCA.

Comparison to federal and other state standards

Minn. Stat. § 116.07 subd. 2 requires that for proposed rules adopting air quality, solid waste, hazardous waste, or water quality standards, the SONAR must include an assessment of any differences between the proposed rule and existing federal standards adopted under the Clean Air Act, title 42, section 7412(b)(2); Clean Water Act, United States Code, title 33, sections 1312(a) and 1313(c)(4); and the Resource Conservation and Recovery Act, United States Code, title 42, section 6921(b)(1); similar standards in states bordering Minnesota; and similar standards in states within EPA Region 5; and a specific analysis of the need and reasonableness of each difference.

Additional discussion of the difference between the proposed amendments and the federal WQS is provided in the Differences From Federal Regulations section above.

Regarding lake standards for eutrophication, only Wisconsin has similar standards. This is due to similarities in the aquatic resources between Minnesota and Wisconsin as both states are lake rich. Wisconsin has both LES for warm or cool water lakes and for lakes supporting coldwater fish species. Although the lake typology and the specific standards differ, the objective of both sets of standards are similar and these standards are complementary (S-3, S-4).

All neighboring states[23] and all EPA Region V states[24] use biological monitoring tools (e.g., IBIs) and biological criteria to assess attainment of aquatic life uses. The cooperative federalism structure of the CWA requires states to establish WQS, including beneficial uses. As a result, the beneficial use framework is different for each state and is tailored to aquatic resources and biological monitoring and assessment programs in each state. As part of WQS programs all neighboring states and Region V states review and revise designated uses as needed to ensure that assigned designated uses are appropriate. The technical details regarding use designations differs between these states, but the need and reasonableness is similar. The greatest difference between Minnesota and most other states is the fact that only Minnesota and Ohio have adopted and implemented a TALU framework. However, differences in the biological assessment and use designation frameworks are reasonably different between states to account for differences in aquatic resources managed by each state.

External peer review of water quality standards

Minn. Stat. § 115.035(a) requires that:

> *"Every new or revised numeric water quality standard must be supported by a technical support document that provides the scientific basis for the proposed standard and that has undergone external, scientific peer review."*

The MPCA conducted an independent scientific peer review of the draft TSDs for the proposed amendments to a subset of standards applicable to lakes in the winter of 2023-24. The purpose of the peer review was to ensure that the TSDs were technically sound through review by experts who had not contributed to its development. The MPCA chose a letter review process to evaluate technical questions associated with these standards

[23] North Dakota, South Dakota, Iowa, and Wisconsin.
[24] Wisconsin, Illinois, Indiana, Ohio, and Michigan

revisions because the MPCA was revising existing standards. In a letter review, the agency seeks individual written peer review comments from independent experts, typically in the form of correspondence to the agency from each peer reviewer. Each reviewer evaluates the draft TSDs independently, without consulting other reviewers.

MPCA's process for conducting the letter review included the following steps:

1. Developing the peer reviewer charge and charge questions.
2. Soliciting comment on charge questions and request for additional charge questions from the public.
3. Searching for and selecting reviewers.
4. Conducting peer review process.
5. Documenting peer review comments and revising the draft standards and TSDs as needed.

MPCA technical staff developed a charge for reviewers and identified the expertise needed for the letter review process. The MPCA sought reviewers with expertise in the following areas:

- Eutrophication and its impact on aquatic life.
- Biological monitoring.
- Biological criteria development.
- Development and implementation of water quality standards.

The MPCA shared plans for the peer review as part of the September 18, 2023, RFC on the recommended rule revisions, and requested comments on the proposed charge questions and solicited additional questions. The MPCA did not receive any specific comments about the charge questions.

The following experts served as peer reviewers of the draft TSDs:

- Robert Miltner, Ohio Environmental Protection Agency,
- Michael Suplee, Montana Department of Environmental Quality,
- Steven Heiskary, Minnesota Pollution Control Agency, retired.

Once the reviewers were selected, the MPCA sent each reviewer instructions, the charge for reviewers (see charge letter [Exhibit S-15]), MPCA's draft TSDs (S-3, S-4, S-5), and a Conflict-of-Interest Memorandum. The reviewers were asked to review all major rule revision topics. The peer review charge provided background and contained the 13 technical and scientific questions on which the MPCA wanted feedback. The reviewer comments and the response by the MPCA and MNDNR to these comments are described in Exhibit S-15.

Consideration of economic factors

In exercising its powers, the MPCA is required by identical provisions in Minn. Stat. § 116.07, subd. 6, and Minn. Stat. § 115.43, subd. 1 to give due consideration to:

> *…the establishment, maintenance, operation and expansion of business, commerce, trade, industry, traffic, and other economic factors and other material matters affecting the feasibility and practicability of any proposed action, including, but not limited to, the burden on a municipality of any tax which may result therefrom, and shall take or provide for such action as may be reasonable, feasible, and practical under the circumstances…*

The proposed standards revisions and use designations will benefit Minnesota residents through the identification and protection of exceptional quality waters and coldwater habitats as well as assigning

appropriate standards and designated uses for lakes. Only a small portion of the permitted dischargers discharge upstream of lakes where standards are proposed to be more restrictive. The remainder of this section summarizes the economic factors associated with the proposed amendments. The MPCA considered and explains why the proposed standards and use designations are not anticipated to result in widespread and greatly increased costs to water management entities or for MPCA permitted dischargers into the foreseeable future.

- **More accurate and protective water quality standards benefit watershed managers.** The proposed standards and use designations will result in more accurate water quality assessments. Local, regional, and state water and watershed managers use water quality assessments in water planning and management activities. More refined standards and accurate use designations result in more effective and efficient targeting of water planning and management activities.
- **Identification of lakes with exceptional water quality benefits all Minnesota residents.** The proposed use designations identify some lakes as having exceptional biological communities. An Exceptional Use designation will lead to protection of the characteristics that make these lakes exceptional. The protection of lakes with exceptional characteristics benefits Minnesota residents by preserving the aesthetic, recreational, and economic values of high-quality resources. Protecting exceptional lakes will benefit downstream waters, reducing future impairments and the need for water treatment.
- **Identification of coldwater habitats benefits all Minnesota residents.** The proposed use designations identify some waters as having existing coldwater habitat uses. The coldwater habitat use designation will result in the assignment of appropriate goals that can be used to protect or restore the natural characteristics and important aquatic biota supported by these habitats. These sensitive coldwater fish species are some of the healthiest fish to eat and are often prized by anglers. Protecting coldwater habitats benefits Minnesota residents by preserving the aesthetic, recreational, and economic values of these resources.
- **Protect ecosystem services.** The proposed standards and use designations protect existing ecosystem services. Ecosystem services are natural processes that directly or indirectly benefit humans. Economic analyses of ecosystem services evaluate total annual value of these services to humans. Current economic value estimates of ecosystem services in Minnesota are unable to provide detailed representation of the benefits from the proposed use designations, although they can provide some context. For example, a study in 2015 estimated that the natural land cover in the St. Louis River watershed provides $5 to $13 billion dollars in benefits annually (S-16). In addition, recreational fishing in Driftless Area streams was estimated to have an economic impact of $703,676,675 and supported 6,597 jobs in the region in 2015 (S-17). However, even if a similar approach were taken to estimate the value of the entire state, we would be unable to identify how the annual value would change after implementation of these standards and use designations. The lack of the data and the high level of uncertainty of the anticipated improvements in water quality do not allow us to make such an estimate. However, without these standards and use designations, we stand to lose a portion of the annual value if high-water quality resources and coldwater habitats are not held to their highest attainable use. Ecosystem services lose value as the quality of the water degrades. For example, there is a positive relationship between recreation demand for fishing in lakes in Minnesota and water clarity, which means that fishing trips to Minnesota lakes increase with water clarity or decrease with a reduction in water clarity (S-16). These use designations can preserve the economic benefits, including economic value from fishing and recreation, but also numerous other benefits, which Minnesota residents derive from the ecosystem services of aquatic habitats.

A discussion of economic factors is provided below for each proposed standard or use designation category and for three groups potentially affected by these revisions: Minnesota residents, permitted dischargers, and non-

point sources of pollution). The consideration of economic factors includes an assessment to identify permittees that will potentially be impacted by the proposed rule revisions. This analysis was carried out in several steps to identify these permits. These steps were as follows:

1. Identify lakes that will receive more stringent standards because of these rule revisions.
2. Identify all permits that discharge to these waters or to waters upstream of these lakes.
3. Review water quality data from these lakes to determine if any have pollutant concentrations that exceeded standards for parameters that would become more stringent because of this rule. Water quality data from the most recent 10 years (2015-2024) was queried from the MPCA's database for parameters that will be more restrictive due to the proposed revisions. For this analysis, the maximum value was used for toxic parameters and average values were used for oxythermal habitat, TP, and chl-*a*. No minimum dataset was required for toxic parameters, but a minimum of 2 years with at least 4 measurements per year was required for chl-*a* and 3 years of data for oxythermal habitat. These criteria follow the guidance for the minimum datasets required for assessment. The parameters reviewed were different for the separate elements of this rule.
    a. **A Tiered Aquatic Life Use Framework for Lakes and Exceptional Uses:** No analysis of chemical or physical standards we performed because this element of the rule does not affect these standards.
    b. **Revised Eutrophication Standards for Northern Lakes:** The Class 2B and 2Bd eutrophication standards were assessed with a focus on TP and chl-*a*. Only lakes that exceeded both TP and chl-*a* were considered in this analysis. For polymictic lakes, the proposed standards are less stringent, so no analysis was performed for these lakes. Dimitic lakes are proposed to have a more stringent TP standard (30 → 20 µg/L), but the chl-*a* standard (9 µg/L) will not change. Lakes that exceed a TP of 30 µg/L and a chl-*a* of 9 µg/L were not considered in this analysis because they would be impaired under the current LES. Therefore, this analysis focused on lakes with TP between 20 and 30 µg/L and chl-*a* > 9 µg/L because these lakes would not be determined to be impaired under the existing LES but would under the proposed LES revisions.
    c. **Coldwater Aquatic Life and Habitat Standards and Designations:** This rule element affects several chemical and physical standards through assignment of Class 2A, assignment of Class 1B, revisions to the LES, and adoption of an oxythermal habitat standard. The toxic parameters associated with the Class 2A designation included: aluminum, antimony, arsenic, cobalt, silver, and thallium. The toxic parameters associated with the Class 1B designation included: aluminum, barium, beryllium, cadmium, chromium, copper, fluoride, iron, nitrate + nitrite, sulfate, total dissolved solids, and zinc. The Class 2A eutrophication standards that were assessed included T_{DO3}, TP, and chl-*a*.
    d. **Warm and Cool Water Aquatic Life and Habitat Designations:** No analysis for these designations was performed because this element of the rule does not increase the stringency of standards.
    e. **Corrections to River Eutrophication Standards:** No analysis for these revisions was performed because these revisions are a correction and are not expected to have an economic impact.

The permitted discharges identified by this analysis were categorized based on the likelihood (unlikely, possibly, or definitely) that the revised standards could result in more restrictive effluent limits[25]. There are several

[25] Note: These determinations are specifically based on the effects of the proposed rule. It is possible that existing WQS or rule revisions in a separate rule could result in a need to revise these or other permits.

factors that influence the likelihood that a permit revision will be needed. In the analyses below, the permittees determined to be unlikely to need more restrictive effluent limits are enumerated but not considered further. These permits are not likely to be affected because the facility does not discharge levels of the parameter of concern which exceeds the standard or an initial review indicates that a SSS is probably appropriate for the lake (i.e., unlikely to be impaired). Lakes with upstream permittees that were determined to be possibly affected by the proposed standards and use designations are discussed in more detail in their respective sections. No permitted dischargers were determined to definitely require revised effluent limits.

There are several reasons that no definitive impacts to specific permittees were identified. First, this rule largely impacts waters in northern Minnesota and there are fewer permitted facilities in this region. Second, these are revisions to existing standards and the effects make existing standards more stringent for a subset of waters rather than the adoption of standards for new pollutants. Third, the determination of impairments, required load reductions, and the partition of any necessary load reductions is complex and require detailed analysis to ensure appropriate outcomes. Such analyses and studies are not feasible as part of this SONAR. There are many additional factors that would need to be considered before costs could be calculated including:

1. These lakes are part of complex watersheds that include other lakes and streams with their own standards. Efforts to manage other waterbodies upstream or downstream of permitted discharges can impact water quality–based effluent limitations (WQBELs). For example, some permitted discharges are already upstream of a coldwater lake (classes 2A and 1B) which may or may not be impaired. As a result, these permits would already be held to requirements to protect coldwater lakes and the designation of another downstream coldwater lake may not have an impact on the permit. In addition, some permits are upstream of ORVW lakes which already require stringent effluent limits through antidegradation. In addition, there are lakes in the Lake Superior watershed which include additional protections and requirements for permits (Minn. R. 7052). As a result, additional loading reductions may not be required for the protection of many of these lakes because stringent requirements are already in place. If this could be determined, such permittees were categorized as unlikely to be impacted by these rule revisions.
2. The need to reduce loading of a pollutant is dependent in part on the determination that the discharge of a pollutant from a permitted facility can cause or contribute to the impairment of a receiving or downstream water. This requires a review of the ambient conditions within a lake based on environmental data or modelling to determine if protective conditions are exceeded by the discharge of pollutants. The modeling required for these determinations were not feasible for the lakes in this analysis.
3. Although we have identified wastewater permits that are upstream of lakes that will receive more stringent standards, some of these permits may not discharge directly to a surface water or the discharge may not include pollutants that are determined to cause or contribute to an impairment. If this could be determined, such permittees were categorized as unlikely to be impacted by these rule revisions.
4. In some lakes, SSS will be needed. As part of the coldwater lake standards report, several lakes were identified where SSS are appropriate (S-6) which provides examples for these situations. As additional data are collected and reviewed, it is likely that SSS will be needed for additional lakes. The reasons for the adoption of SSS can include: 1) determination that a lake does not have the typical TP-chl-*a* relationship as determined from the statewide dataset (e.g., grows more or less algae than predicted based on TP concentrations) or 2) a demonstration that a healthy population of coldwater fish is supported at concentrations above standards (e.g., due to groundwater input or other lake-specific conditions). The adoption of SSS is likely to affect the outcome of assessments and WQBELs and subsequently the need or amount of pollutant load reductions.
5. Finally, determination of possible costs is complicated by multiple downstream lakes, multiple upstream permits, protection of downstream waters, and the contributions from nonpoint sources. To determine

pollutant contributions, complex models of the lake, its watershed, and pollutant sources need to be developed. Accounting for these factors requires extensive study (e.g., TMDL) and data which were not feasible for this SONAR.

Although it was not possible at this time to determine specific costs to permits, if any, this analysis was able to determine the scope and extent of the impact of this rule to permittees in general. The results of these analyses are provided below for each element of this rule revision.

A TALU framework for lakes and exceptional uses

Exceptional Use lakes can be interpreted to be equivalent to the CWA objective for biological integrity. These lakes either currently support exceptional populations of fish or have demonstrated that they supported exceptional populations of fish in the past (i.e., on or after November 28, 1975). Attaining and maintaining Exceptional Use aquatic life goals and protecting the Exceptional Use water preserves multiple benefits. These include CWA use values – such as tourism and recreation (e.g., swimming, boating, and fishing) – and non-CWA use values – such as the intrinsic value of the existence of high-quality lakes in Minnesota.

Minnesota residents

The Exceptional Use designations will translate to improved protections and water quality in lakes. Maintaining and improving lake quality benefits Minnesota residents who fish, swim, boat, and enjoy the aesthetic quality of these aquatic resources. Benefits of improved water quality also extend to Minnesota's water-oriented tourism and recreation industry, resulting in added jobs and related economic benefits. Tourism-related expenditures also create a multiplier effect within the local economy, which means that the economy gains more than a dollar for every additional dollar spent in the community. The multiplier effect occurs when a portion of the revenues are invested locally through additional consumption in other local industries by those employed in tourism and recreation industries. Minnesota residents also reap a benefit from the intrinsic value of protecting threatened or endangered species that depend on exceptional aquatic resources.

Residents may see the following benefits:

- Maintained and improved opportunities for outdoor recreation;
- Increased property values;
- Jobs and income from tourism;
- Increased tax revenue to cities and counties for reinvestment in the community;
- Ecosystem services benefits (e.g., nutrient processing, fishing, and aesthetics); and
- Reduced mitigation/restoration costs in the future or for downstream users (e.g., reduced costs for treating waters or mitigating negative water quality impacts).

Permitted dischargers

As explained below, the MPCA determined that the proposed Exceptional Use lake designations are unlikely to affect existing NPDES/SDS permittees. This is because: 1) most Exceptional Use waters are in areas of the state where there are few permitted facilities discharging to waters of the state and 2) the existing pollution controls required by the NPDES/SDS permits are already sufficient to protect the Exceptional Use designation as demonstrated by the attainment of the lake as an Exceptional Use.

The MPCA evaluated its regulatory water permit information to estimate how many current permittees might be affected by the proposed Exceptional Use designations. There were determined to be three NPDES/SDS permittees that discharge directly to or upstream of a lake that is proposed to be designated Exceptional Use under this rulemaking. The NPDES/SDS permittees are grouped into the following five categories and potential

impacts to these permittees are discussed below: municipal separate storm sewer system (MS4), sand and gravel mining, metallic mining, wastewater, and industrial stormwater.

MS4 permits: There are no MS4 NPDES/SDS permittees located within one mile of any of the proposed Exceptional Use lakes. There is one MS4 NPDES/SDS permittee >1 mi upstream of a proposed Exceptional Use lake. However, given that current conditions are resulting in the attainment of the Exceptional Use, this permit is not expected to incur additional costs as a result of the Exceptional Use designations in this rulemaking.

Sand and gravel mining: There are no sand and gravel mining facilities covered by the Nonmetallic Mining/Associated Activities General Permit upstream of any of the proposed Exceptional Use lakes.

Metallic mining: There are no metallic mining facilities upstream of any of the proposed Exceptional Use lakes.

Wastewater: There are no NPDES/SDS-permitted facilities that discharge treated wastewater to or <1 mile upstream of proposed Exceptional Use lakes. There are three NPDES/SDS facilities that discharge treated wastewater >1 mile upstream of proposed Exceptional Use lakes. For these facilities, the existing wastewater treatment is sufficient to protect the Exceptional Use since this use is currently attained. As a result, the MPCA does not expect these permits to be impacted by the Exceptional Use designation and no additional costs will be incurred. However, permit expansions or new permits upstream of Exceptional Use lakes could incur costs if increased pollutant loading threatened attainment of the Exceptional Use in these lakes.

Industrial Stormwater: The MPCA identified three industrial stormwater facilities that are adjacent to or <1 mile upstream of proposed Exceptional Use lakes. These facilities are covered by the Industrial Stormwater Multi-sector General Permit. There are an additional 18 permits that are >1 mi upstream of proposed Exceptional Use lakes. The three permits within one mile of the proposed coldwater habitat designation could be required to adopt additional BMPs if they are necessary to protect the Exceptional Use habitat. If additional BMPs are needed to protect these lakes, there could be costs to the permittee. However, given that required BMPs are currently resulting in the attainment of the Exceptional Use, these facilities are unlikely to need to implement changes or incur additional costs as a result of this rulemaking.

In addition to the permit types above, NPDES/SDS Construction Stormwater General Permits would not be impacted by this rulemaking because Exceptional Use waters are not “special waters” as defined in the general permit. The only impact the MPCA anticipates may occur to construction stormwater permittees as a result of these designations would be if an Exceptional Use water body, which meets the current aquatic life use goals and is not already classified as a special water (e.g., 2Ag), becomes degraded and listed in the future as impaired under section CWA § 303(d) for phosphorus (nutrient eutrophication biological indicators), turbidity, dissolved oxygen, or aquatic biota. This circumstance would be rare, but if it occurs, and dependent upon the type of construction activities and proximity to the water body, a permittee may be required to implement additional BMPs.

The result of this analysis indicates that no existing MPCA-permitted dischargers are anticipated to require additional treatment, or incur additional costs, to protect the lakes that are proposed to be designated as Exceptional Use through this rulemaking. Additional designations of Exceptional Use lakes are also not likely to incur additional costs in the near future although there is a possibility that additional costs could be incurred. The highest likelihood of costs to permittees in the future could occur if a facility is new or expanding and pollutants in the discharge could result in the loss of an existing Exceptional Use. However, any estimates of costs that result from the TALU framework and Exceptional Use designations in the future would be speculation.

Non-permitted sources of pollution

The proposed Exceptional Use designations do not expand the MPCA’s regulatory authority over non-point pollution sources and therefore are unlikely to have impacts. For the small number of Exceptional Use lakes that may become impaired as a result of the proposed standards, there could be a cost to entities responsible for

non-point discharges to these lakes. This could involve the implementation of BMPs, but the small number of lakes that will become impaired due to this portion of the rule revisions demonstrates that such impacts will not be large or widespread.

Revised eutrophication standards for northern lakes

The proposed revisions to the eutrophication standards for polymictic (shallow) lakes in the North region (NLF and NMW ecoregions) of Minnesota refines the existing standards for these lakes. The revised standards consider the natural trophic status of these lakes and assigns appropriate goals to protect aquatic life and recreation. As a result, the proposed northern polymictic eutrophication standards are not expected to incur costs and may instead result in cost savings by applying appropriate goals that will drive better water quality management actions. Although the chl-*a* standard is not changing for dimictic lakes, the TP standard will be more stringent which will result in an impairment determination for a small number of lakes that are meeting the existing TP standard. As a result, the analysis below is focused on the possible effects of an impairment determinations for these northern, dimictic lakes.

Minnesota residents

Through payment of taxes, Minnesota residents support public water management efforts at the local, county, and state levels. This portion of the rule will result in more or less stringent standards depending on the lake and has the potential to increase or decrease costs to Minnesota residents. For example, a small number of lakes have the potential to now be listed as impaired due to the proposed rule revisions. These impairments may have costs for residents through the implementation of BMPs to reduce nutrient loading. Conversely, some northern polymictic lakes that would have been listed as impaired under the existing LES, will meet the proposed standards. This results in cost savings because resources will not be unnecessarily used attempting to restore waters beyond their natural condition. Overall, water management authorities can prioritize their efforts better with more precise standards based on the natural conditions of these lakes. Establishing realistic goals for water bodies that reflect natural conditions and existing uses allows water management entities to effectively direct resources among all waters under their authority. This results in greater economic and environmental returns.

Permitted dischargers

The revised eutrophication standard for northern polymictic lakes may result in savings to some dischargers if a lake downstream of the discharge would be impaired under the current standards but not under the proposed standards. This could impact assessments and other management activities such as TMDLs and permitting. For example, if the water body is not listed as impaired because of these revisions, a discharger will not be subject to the conditions of a TMDL study that would have been required for a downstream lake listed as impaired.

Revisions to the northern LES will also revise the TP standard for dimictic lakes. The scope of the effect of this revision will be small because the chl-*a* standard is not changing for these lakes, and a determination of impairment requires both an exceedance of TP and chl-*a* or Secchi depth. However, there is a small fraction of the total number of dimictic northern lakes that will now be assessed as impaired because of the lowering of the TP standard. To assess these possible effects, northern dimictic lakes that would be assessed as impaired under the proposed standards, but not under the existing standard, were identified. A total of 7 lakes which met these criteria were identified which included 12 permits (sand and gravel mining, wastewater, and industrial stormwater) which discharge upstream or to these lakes. These permits are unlikely to be impacted by this rule revision for several reasons including 1) most of these permits do not have effluents with concentrations of phosphorus that exceed the proposed standard, 2) most of these lakes are close to meeting standards, 3) several lakes will probably require SSS, and 4) if reductions are required, it will need to be determined if those reductions are achieved through permitting or BMPs. Although these mitigating factors do not eliminate the possibility that some nutrient reductions will be needed through permitting, any reductions are not expected to be large or widespread.

Non-point sources of pollution

The revised eutrophication standards for northern lakes do not increase the MPCA's regulatory authority over non-point pollution sources. Therefore, there are no direct impacts or costs to entities responsible for non-point discharges to these lakes. However, there may be some cost savings compared to the current lake eutrophication framework. Currently these waters are held to LES which may be unattainable because of the natural trophic state of these lakes. In some circumstances, the application of inappropriate goals and standards could lead to recommendations for additional BMPs that will not be effective in protecting polymictic lakes. By assigning eutrophication standards for northern polymictic lakes, attainable goals will be established so that BMPs can be implemented in a manner that provides for improved water quality. The result of this is better outcomes for protection and restoration of water quality in these waters and better deployment of limited water quality management resources. For the small number of dimictic lakes that may become impaired as a result of the proposed standards, there could be a cost to entities responsible for non-point discharges to these lakes. This could involve the implementation of BMPs, but the small number of lakes that will become impaired due to this portion of the rule revisions demonstrates that such impacts will not be large or widespread.

Coldwater aquatic life and habitat standards and designations

Coldwater designations (Classes 2Ae and 2Ag) permit the propagation and maintenance of a healthy community of coldwater aquatic biota and their habitats. These lakes either currently support these habitats or have demonstrated that they supported these habitats in the past (i.e., on or after November 28, 1975). The Class 2Ag or 2Ae designation of a water body carries with it some changes to the chemical and physical standards applied to these lakes. A subset of chemical and physical standards are more stringent with these designations including eutrophication, ammonia, nitrate, total suspended solids, and some metals. To protect or restore the aquatic life in these water bodies, additional controls may be needed for these parameters which has the potential to incur costs but also serves to protect the value and benefits of these water bodies. Class 2A designated water bodies are also designated Class 1B for the protection of drinking water (Minn. R. 7050.0420). However, some lakes that are not currently designated Class 2A are already designated for the protection of drinking water (Class 2Bd). These water bodies include lakes used as drinking water sources and those within the Boundary Waters Canoe Area and Voyageurs National Park (Minn. R. 7050.0415). The Class 1B designation includes standards for some chemicals that are not included in Class 2A and some parameters with standards in Class 2A which are more stringent in Class 1B (e.g., nitrate, sulfate, and total dissolved solids). The potential effects of these more stringent standards are assessed in the following analyses.

Minnesota residents

The coldwater habitat designations will translate to appropriate goals and protections for these lakes and the sensitive and important fish species in these habitats. Maintaining and improving lake quality benefits Minnesota residents who fish, swim, boat, and enjoy the aesthetic quality of these aquatic resources. Benefits of improved water quality also extend to Minnesota's water-oriented tourism and recreation industry, resulting in added jobs and related economic benefits. Tourism-related expenditures also create a multiplier effect within the local economy, which means that the economy gains more than a dollar for every additional dollar spent in the community. The multiplier effect occurs when a portion of the revenues are invested locally through additional consumption in other local industries by those employed in tourism and recreation industries. Minnesota residents also reap a benefit from the intrinsic value of protecting threatened or endangered species that depend on high-quality aquatic resources.

Residents may see the following benefits:

- Maintained and improved opportunities for outdoor recreation;
- Increased property values;

- Jobs and income from tourism;
- Increased tax revenue to cities and counties for reinvestment in the community;
- Ecosystem services benefits (e.g., nutrient processing, fishing, and aesthetics); and
- Reduced mitigation/restoration costs in the future or for downstream users (e.g., reduced costs for treating waters or mitigating negative water quality impacts).

To protect or restore coldwater lakes, there may be costs for residents through the implementation of BMPs to reduce nutrient loading. Such costs in part may be paid through payment of taxes which support public water management efforts at the local, county, and state levels.

Permitted dischargers

To assess the potential economic impacts of the proposed Class 2A designations on NPDES/SDS permitted dischargers, an analysis was performed to identify permits that have the potential to be impacted by the revised coldwater lake standards and designations. There are several aspects to these revisions that need to be considered including: 1) the addition of new or more stringent standards associated with the assignment of the Class 2A designation, 2) the addition of new or more stringent standards associated with assigning the Class 1B designation, and 3) the adoption of more stringent eutrophication and new oxythermal habitat standards. For this analysis, the NPDES/SDS permittees are grouped into the following categories and discussed in detail below: MS4, sand and gravel mining, metallic mining, wastewater, and industrial stormwater.

MS4 permits: There are two MS4 permits upstream or adjacent to lakes that could become impaired as a result of these rule revisions. In all of the downstream lakes, TP and chl-*a* or T_{DO3} are elevated above the proposed standard. An impairment determination followed by a USEPA-approved TMDL could assign a wasteload allocation (WLA) to the MS4 permittee. In the event of a completed TMDL study, MS4 permittees must document the WLA in their future NPDES/SDS permit application and provide an outline of the BMPs to be implemented that address needed reductions (e.g., implementation of infiltration practices, disconnection of impervious surfaces). Although required through the MS4 permit, the actions needed to restore these coldwater habitats, would be similar to those without an MS4 permit. MS4 permittees are also required to develop, implement, and enforce a regulatory mechanism (e.g., city ordinance) which construction activities must follow. These controls must be as stringent as the Construction Stormwater General Permit for erosion, sediment, and waste controls. For waters that are not impaired, existing water quality protections implemented through the MS4 permit should be sufficient to maintain the existing use in these waters. Mechanisms to implement protections would not be through the current MS4 program but would be through WRAPS and other voluntary programs. Therefore, there may be a cost for the protection of these waters, but these actions will be specific to the parameters that may pose a risk to each of these water bodies. In other words, there are no prescribed requirements for water quality protection for these lakes and protections, if necessary, will be tailored to each water body.

Sand and gravel mining: Through the Nonmetallic Mining/Associated Activities General Permit, sand and gravel mining facilities are allowed to discharge uncontaminated stormwater or to dewater groundwater/stormwater to surface waters. These permits are required to meet applicable standards. Facilities within one mile of the proposed coldwater habitat designation could be required to adopt additional BMPs if they are necessary to protect the coldwater habitat. If additional BMPs are needed to protect these lakes, there could be costs to the permittee. However, the likelihood of these increased BMPs or their associated costs are low. For waters that are not impaired, existing water quality protections implemented through the general nonmetallic mining permit should be sufficient to maintain the coldwater habitat use in these waters. These activities are also not likely to discharge large concentrations of TP and therefore would be unlikely to be impacted.

There is one sand and gravel mining permit covered by the Nonmetallic Mining/Associated Activities General Permit upstream of a lake that could become impaired as a result of these rule revisions. The lake downstream

of this permitted facility potentially exceeds the proposed T_{DO3} standard which may require reductions of TP to restore these waters. However, this lake appears be a good candidate for a SSS, which reduces the likelihood that this lake will be listed as impaired. If this lake was listed as impaired, it is also unlikely to impact the permit as sand and gravel mining operations generally do not contribute large amounts of nutrients to receiving waters.

Metallic mining: The designation of coldwater lakes downstream of metallic mining NPDES/SDS permits has a potential to increase costs to the permittees due to standards for toxic parameters associated with Class 2A and Class 1B designations. Specifically, the Class 1B designation will add water quality standards for pollutants including sulfate, total dissolved solids, fluoride, nitrate and nitrite, and several metals. In addition, water quality standards for some pollutants will be more stringent due to the Class 1B or Class 2A designations (e.g., aluminum, cobalt, silver). Other parameters such as TP, chl-*a*, and oxythermal habitat will be new or more stringent for lakes under the proposed rule; however, metallic mining facilities do not discharge large quantities of these parameters in lakes and are of less concern. Regardless, there are no metallic mining permits located upstream or adjacent to lakes with data that indicate these lakes will become impaired as a result of these rule revisions. Therefore, a review of available data did not identify any permits upstream of a proposed Class 2A lake with concentrations of pollutants which exceeded the proposed standards. Based on the available data, the need for additional treatment is not likely.

Wastewater: Wastewater facilities in Minnesota are permitted through the NPDES/SDS to discharge pollutants at levels that will not cause or have the potential to cause or contribute to the loss of downstream beneficial uses. The proposed revisions to standards and use designations will result in more stringent standards for some lakes and some of these changes may be relevant to upstream wastewater permits. This includes more stringent LES standards (TP and chl-*a*) and new or more stringent toxic standards including sulfate, total dissolved solids, fluoride, nitrate and nitrite, aluminum, cobalt, silver, and other metals. A determination that an upstream permit will have reasonable potential to cause or contribute to nonattainment of a standard may result in revisions to the permit to protect the downstream water. As such, it is relevant to identify the potentially impaired downstream waters and assess if there is a potential for impact to upstream permits.

There are 15 wastewater permits located upstream or adjacent to lakes that could become impaired as a result of these rule revisions. Most of these permits are unlikely to be impacted by the revised standards for several reasons, including: 1) several lakes are candidates for SSS, which could result in a determination of attainment or lower the needed TP load reductions; 2) many of these permits do not discharge concentrations of pollutants exceeding the standards that will become more stringent under these revisions; and 3) many of these lakes are near the proposed standards, and therefore only small pollutant load reductions may be needed. The three lakes that could possibly be affected by these revisions are discussed in detail below.

Lake Bemidji (04-0130-02): The proposed designation for Lake Bemidji is Class 2A [LKW, TLC] which has a TP standard of 12 µg/L, a chl-*a* standard of 5 µg/L, and a T_{DO3} standard of 17.2°C. The most recent 10 years of data for this lake exceed the TP and chl-*a* standards. There are two wastewater NPDES/SDS permits upstream of this lake which could be impacted if this lake is listed as impaired for elevated nutrients. One of these permits does not discharge high amounts of nutrients and is therefore unlikely to be impacted. The second permit does discharge TP and is more likely to be impacted. This determination is not certain because there are factors that may mitigate the need for an impairment listing. Cisco are present and have been observed in every DNR survey since 1966, including a high catch rate in 2017. Lake Whitefish were present in most DNR surveys in Lake Bemidji from 1973 through 1998 but have not been observed since this time. TP and chl-*a* concentrations have been improving in this lake since 2015, and additional surveys are needed to determine if Lake Whitefish will recover in the lake as a result of improving nutrient conditions. These results indicate there may be a case for a SSS for Lake Bemidji, but additional data are needed. In addition, Lake Bemidji has met the proposed standards for chl-*a* (5 µg/L) since 2021 indicating that it may currently be in attainment of these revised standards. As a result of the possible SSS and improving

conditions, this lake may not be listed as impaired even if current conditions are maintained. If these scenarios do not occur and the lake was listed as impaired there are other considerations before more restrictive phosphorus limits would be required. For example, a TMDL will need to determine the amount of loading that is required and then partition reductions among point and nonpoint pollutant sources. As a result, even if this lake was listed as impaired for nutrients, it is not possible to determine possible impacts without a detailed TMDL study. The results of this analysis indicate there is a possibility that additional load reductions will be needed, but it is uncertain if they would need to be from upstream permitted discharges.

Big Swan Lake (77-0023-00): The proposed designation for Big Swan Lake is Class 2A [TLC] which has a TP standard of 25 µg/L, a chl-*a* standard of 12 µg/L, and a T_{DO3} standard of 21.2°C. The most recent 10 years of data for this lake exceed these standards. There is one wastewater NPDES/SDS permit upstream of this lake which could be impacted if this lake is listed as impaired for elevated nutrients. However, the effluent from this facility flows through two other lakes before reaching Big Swan Lake. One of these lakes is also designated Class 2A [TLC] and it meets both TP and chl-*a* standards. This indicates that there are other sources of nutrients for this lake and that changes to this specific permit are probably not required.

Lake Osakis (77-0215-00): The proposed designation for Lake Osakis is Class 2A [TLC] which has a TP standard of 25 µg/L, a chl-*a* standard of 12 µg/L, and a T_{DO3} standard of 21.2°C. The most recent 10 years of data for this lake exceed these standards. There is one wastewater NPDES/SDS permit upstream of this lake which could be impacted if this lake is listed as impaired for elevated nutrients. However, there are several factors that could affect the need for reductions in nutrient loading from this facility. First the need for a SSS should be reviewed. Chl-*a* has been declining in this lake since the late 1990s, and Cisco have persisted in the lake through this period. The presence of Cisco in this lake despite chl-*a* concentrations higher than the standard may indicate that this lake can support healthy populations of this species at higher nutrient levels. Additional sampling targeted toward a study of coldwater fish in this lake is needed to determine if a SSS is appropriate. If the current conditions are protective, then no reductions may be needed from the upstream wastewater facility. This lake may also be in attainment of the proposed standards. In 2023 and 2024, chl-*a* was below the proposed standard. Zebra mussels have become established in Lake Osakis which is likely to be partly responsible for the decline in chl-*a* and complicates determination of TP concentrations necessary to meet chl-*a* targets. However, these conditions indicate that SSS for chl-*a* or TP may be appropriate for this lake. Finally, the upstream watershed for Lake Osakis is relatively large with nonpoint sources of nutrients. If needed, a TMDL study will determine the require load reductions and the sources of these reductions. As a result, the reduction in loading, if any, that are needed from the upstream wastewater facility cannot be determined without a detailed study. However, there is a possibly that a change to the permit with reductions in TP may be needed to protect the beneficial uses in Lake Osakis.

Based on available data, the need for additional treatment to meet the proposed coldwater lake standards is possible for a small number of facilities, but such impacts are not expected to be large or widespread.

Industrial stormwater: Industrial Stormwater facilities are covered by the Industrial Stormwater Multi-sector General Permit. The MPCA has determined that facilities with a discharge that do not flow to or are more than one mile from a proposed coldwater habitat will not be impacted by these rule revisions. Some permits within one mile of the proposed coldwater habitat designation could be required to adopt additional BMPs if they are necessary to protect the coldwater habitat. If additional BMPs are needed to protect these lakes, there could be costs to the permittee. However, the need for such BMPs or their associated costs is speculative.

There are 58 industrial stormwater permits located upstream or adjacent to lakes that could become impaired as a result of these rule revisions. Five of these permits are potentially within one mile of these lakes and would be more likely to be impacted by these revisions than the other 53 permits. However, the downstream lakes that are potentially impaired all exceed LES or oxythermal habitat standards which is unlikely to impact these

industrial stormwater permits. Overall, the revised standards for coldwater lakes are not likely to have impacts on industrial stormwater permits.

This analysis did not identify any existing MPCA-permitted dischargers that will definitely be required to implement additional treatment or incur additional costs. There are a small number of facilities that could incur costs due to these revisions, but additional data and detailed analyses are needed to determine if there will be costs and the extent of those costs. In addition, the construction of new facilities requiring permits, the expansion of existing facilities, or additional monitoring could result in costs to permittees due to these rule revisions. However, at this point, such determinations would be speculative. Overall, there are unlikely to be many permittees that will be impacted, especially in the near term as a result of the coldwater lake designations or revisions to the coldwater lake standards in this rulemaking. However, it is possible that some reductions will be required to protect or restore some lakes once additional data are collected, full assessments are implemented, and TMDLs are developed.

Non-point sources of pollution

The proposed use designations could expand the MPCA's regulatory authority over a small number of non-point pollution sources. For example, activities that require a NPDES/SDS Construction Stormwater General Permit could be impacted by this rulemaking because coldwater habitats are "special waters" as defined in the general permit. Dependent upon the type of construction activities and proximity to the water body, the permittee may be required to implement additional BMPs.

Warm or cool water aquatic life and habitat designations

Warm or cool water habitats (Classes 2Bd, 2Bde, 2Bdg, 2B, 2Be, 2Bg) support the propagation and maintenance of a healthy community of warm or cool water aquatic biota and their habitats. The proposed warm or cool water habitat designations are based on a demonstration that this designation is the existing use. The designation of a warm or cool water habitat to lakes currently designated coldwater (Class 2A) carries with it some changes in the standards applied to these waters. A small subset of chemical and physical standards are less stringent in warm or cool water lakes compared to coldwater lakes including ammonia, eutrophication, nitrate, and some metals. As a result, the proposed warm or cool water designations are not expected to incur costs and may instead result in cost savings by applying appropriate goals and water quality management actions.

Minnesota residents

Through payment of taxes, Minnesota residents support public water management efforts at the local, county, and state levels. Water management authorities can prioritize their efforts better with more precise lake classifications. The warm or cool water habitat designation recognizes the natural habitat type which can support the natural aquatic biota adapted to water bodies with thermal regimes largely driven by surface water and shallow subsurface water. When appropriate, these designations set attainable goals that reflect the natural condition of these systems. Establishing appropriate and realistic goals for water bodies that reflect natural conditions and existing uses allows water management entities to most effectively direct resources among all waters under their authority. This results in greater economic and environmental returns.

Permitted dischargers

Dischargers to waters designated as warm or cool water habitat are held to goals that are consistent with CWA goals. Many of the same biological, physical, and chemical standards that apply to coldwater habitats apply to warm or cool water habitats. All discharges will be required to meet Class 2B and 2Bd chemical and physical standards and will incur the costs that are associated with meeting those standards. Since no chemical and physical standards are more stringent for Classes 2B and 2Bd compared to Class 2A, no permits that discharge to

or upstream of a proposed warm or cool water habitat will incur costs as a result of their receiving water being designated as warm or cool water habitat.

However, designation of a lake as a warm or cool habitat may result in savings to some dischargers if the water body was previously designated as a coldwater habitat as some chemical/physical standards are less stringent for warm or cool habitats. For example, a more accurate designation of a water body as warm or cool habitat may mean it is not listed as impaired. If the water body is not listed as impaired, a discharger will not be subject to the conditions of a TMDL study that would have been required for a lake listed as impaired. Dischargers would benefit by not incurring costs associated with their involvement in reviews to determine if their discharge is causing or contributing to the impairment.

Non-point sources of pollution

The assignment of the warm or cool habitat designation to lakes currently designated coldwater does not increase the MPCA's regulatory authority over non-point pollution sources. Therefore, there are no direct impacts or costs to entities responsible for non-point discharges to warm or cool water lakes. However, there may be some cost savings compared to the current designation. Currently these waters are held to coldwater goals which were determined to result in unattainable targets for these water bodies. In addition, some chemical and physical standards would be less stringent. In some circumstances, the application of inappropriate goals and standards could lead to recommendations for additional BMPs that will not be effective in creating coldwater habitats in these water bodies. By designating these lakes as warm or cool water habitats, attainable biological goals will be established so that BMPs can be implemented in a manner that provides for improved water quality. The result of this is better outcomes for protection and restoration of water quality in these waters and better deployment of limited water quality management resources.

Corrections to river eutrophication standards

The proposed revisions to the RES applicable to southern Class 2B streams correct an error in the standards for these water bodies and for Mississippi River Pool 1. The corrections to these standards are needed to ensure that appropriate and protective RES are applied. The proposed corrections to the southern stream RES are not expected to incur costs because these revisions are simply clarifying the RES that were adopted in 2014. This revision may actually represent a cost savings because it will reduce the likelihood of assessment and water quality management errors.

Consultation with MMB on local government impact

As required by Minn. Stat. § 14.131, the MPCA will consult with Minnesota Management and Budget (MMB) by sending MMB copies of the documents that Agency staff sends to the Governor's office for review and approval, before publishing the Notice of Intent to Adopt. The documents will include the Governor's Office Proposed Rule and SONAR Form, the proposed rules, and the SONAR. The MPCA will submit a copy of the cover correspondence and any response received from MMB to the Court of Administrative Hearings (CAH) at the hearing or with the documents it submits for Administrative Law Judge review.

Impact on local government ordinances and rules

As required by Minn. Stat. § 14.128, subdivision 1, the Agency has considered whether these proposed rules will require a local government to adopt or amend any ordinance or other regulation in order to comply with these rules. The MPCA has determined that the designation of coldwater habitats and Exceptional Use may result in the requirement that MS4 permittees develop, implement, and enforce a regulatory mechanism (e.g., city ordinance) that construction activities must follow.

Costs of complying for small business or city

Agency determination of cost

As required by Minn. Stat. § 14.127, the Agency has considered whether the cost of complying with the proposed rules in the first year after the rules take effect will exceed $25,000 for any small business or small city. The Agency has determined that the proposed amendments will not cause any small business or small city to incur an expense of more than $25,000 in the first year after the rules take effect. Lakes changing from coldwater to warm or cool water habitat and lakes changing from the current northern lake LES category to the northern polymictic lake LES category will have chemical and physical standards which are the same or less stringent than the currently applicable standards. Therefore, no expenses will be incurred within by permittees that discharge to or near waters that would be assigned the standards applicable to these habitat types. No specific expenses due to these amendments could be determined for permitted facilities that discharge to or near proposed Exceptional Use or coldwater lakes (see the Consideration of Economic Factors section of this SONAR). There is the possibility that additional wasteload reductions and BMPs will be required to protect these waters, but this is unlikely and cannot be determined with certainty at this time. Regardless, any potential future costs would take years to incur due to the time necessary to perform a full evaluation of lake status (e.g., assessment, TMDL, WRAPS, etc.), to revise permits, and to implement waste load reductions.

Environmental justice policy

Every Minnesotan—regardless of income, race, ethnicity, color, or national origin—has the right to healthy air, sustainable lands, clean water, and a better climate. Unfortunately, too many people, especially low-income communities, communities of color, and Indigenous people, bear the disproportionate impact of pollution and climate change. The MPCA focuses on developing strategies to reduce pollution and health disparities in communities most at risk.

The MPCA is committed to environmental justice (EJ), the fair treatment and meaningful involvement of all people—regardless of race, color, national origin, or income—concerning the development, implementation, and enforcement of environmental laws, regulations, and policies. The Agency is committed to making decisions that do not place disproportionate pollution burdens on these communities.

When undertaking rulemaking, the MPCA considers how the effects of a proposed rule are distributed across Minnesota and works to actively engage all Minnesotans in rule development and provides a review of the impact and meaningful involvement in this section of the SONAR. These analyses are not required under the APA (Minn. Stat. § 14) but are included here for ease of review with the rest of the Regulatory Analysis.

Equity analysis

To implement the “fair treatment” aspect of the Agency’s EJ policy, the MPCA analyzed how the proposed rule affects lower-income Minnesotans, people of color, and tribal communities.

MPCA staff evaluated whether the designations of certain lakes under this rulemaking have the potential to impact areas that have populations that are predominantly low-income, people of color, or both. The MPCA has established screening criteria based on population characteristics, to determine if an area is one that may be experiencing disproportionate pollution impacts and with a higher concentration of people who may be the most vulnerable to that pollution. If a rule (or other Agency action) is likely to have an impact on areas that meet the screening criteria, the action has a higher likelihood of causing or exacerbating disproportionate impacts and should be further reviewed. The screening criteria are based on census tracts and include those census tracts

where the population is 40% or more people of color or 35% or more of the population has a household income less than 200% of the federal poverty level.

The MPCA evaluated lakes that through this rulemaking will have more or less stringent standards assigned as a result of changes to use designations or revisions to the LES. The MPCA then determined whether any of these lakes are in or within one mile of census tracts that meet the screening criteria described above. Based on the review, the MPCA identified 783 lakes in census tracts that meet the screening criteria. Of those, 668 (85%) are proposed to be assigned more stringent standards and 115 (15%) less stringent standards. These totals are approximately 24% (more stringent) and 9% (less stringent) of the total number of lakes which would have different standards following adoption of this rule. Therefore, these revisions are not expected to have a disproportionate impact to low-income populations or communities that have a high proportion of people of color due to risks from increased pollution. Most lakes meeting the EJ screening criteria will have more stringent standards which will support protection of beneficial uses for these waters and thereby benefit populations in these areas. There is the possibility for increased costs due to the need to protect these waters; however, as described in the **Consideration of Economic Factors** section, the costs to implement these standards are not expected to be high or widespread. In general, these amendments will improve how the MPCA protects Minnesota's water quality and the beneficial uses that these waters provide to the people living near or using these waters.

Meaningful involvement

To meet the directive to strive for meaningful involvement, the MPCA works to seek and facilitate the involvement of those potentially affected by the proposed rule, particularly populations that historically have not been as engaged in the public process.

As described in the Public Participation and Stakeholder Involvement section, the rulemaking process provided many opportunities for stakeholder involvement throughout the development of the proposed rule amendments. We continue to work to develop tools and methods to effectively reach out to new stakeholders—particularly low-income populations and communities of color. While there was no specific plan developed to reach out to low-income populations and communities of color for this rulemaking project, we believe our stakeholder outreach was sufficient to notify all impacted or interested parties.

Tribal policy

This section discusses how the Agency's policies regarding tribal engagement and consultation were considered in this rulemaking. This analysis is not required under the APA (Minn. Stat. § 14) but is included here for ease of review with the rest of the Regulatory Analysis.

The MPCA does specific outreach to Minnesota's tribal communities for rulemaking. In this case, the MPCA contacted Minnesota's tribal communities to engage them in discussions during the development of these rule amendments, and to notify them of opportunities to provide comment. In addition to providing notice to the tribal contacts who have registered to receive GovDelivery rulemaking notices, the MPCA has provided specific notice throughout the rulemaking process to contacts identified by the tribes as liaisons for water quality issues. Additional details of meetings, presentations and other consultations with tribal representatives are listed in the Public Participation and Stakeholder Involvement section.

Climate action

Climate change is no longer a far-off possibility. Minnesotans across the state are suffering its devastating effects right now—and it will get worse. Addressing climate change and working to mitigate its effects presents

us with an opportunity to strengthen our economy, improve our health, and create a more equitable Minnesota for everyone in response to the coming challenges. To guide this work, the State of Minnesota has developed a Climate Action Framework that sets a vision for how our state will address and prepare for climate change. It identifies immediate actions we must take to achieve our long-term goal of a carbon-neutral, resilient, and equitable future for Minnesota.

The MPCA does not anticipate that this rulemaking will directly address climate change, although it is consistent with that overall goal. Many coldwater habitats will be lost as a result of warming temperatures in Minnesota and this rule will help to document which lakes are at risk. This documentation along with coldwater lake standards will provide tools to develop strategies for the protection of these lakes when possible.

Notice plan

Minn. Stat. § 14.131, requires that an agency include in its SONAR a description of its efforts to provide additional notification to people or classes of person who may be affected by the proposed rule or must explain why these efforts were not made.

The MPCA uses GovDelivery, a self-subscription service for interested and affected parties to register to receive rule-related notices and other information. Request for notification by U.S. Mail is also available, although the Agency has no current subscribers requesting paper copies in this way. The MPCA lists its rule projects on its Public Rulemaking Docket; once projects are active, a self-subscription GovDelivery list for that specific rule is established and an electronic notice sent to all subscribers of the MPCA's New Rulemaking list, encouraging everyone interested in the topic of the new project to subscribe to its list. The webpage for each rulemaking project also includes a link to subscribe to its GovDelivery list.

In addition, the Agency purchases email lists from the Association of Minnesota Counties and the League of Minnesota Cities to reach out to new government officials who may not be familiar with the MPCA's GovDelivery service—these officials include Commissioners, County Board Chairs, Planning and Zoning Administrators, Solid Waste Officers, City Managers, Administrators, Assistant Administrators, Clerks, Deputy Clerks, and other chief appointed city officials. The MPCA periodically sends an email inviting these individuals to subscribe to topics that interest them; at the time of this SONAR's writing, the most recent copy of this message went to the listed government officials on June 3, 2025.

Required notice

Request for comments

For rulemaking, the first notice (required by Minn. Stat. § 14.101) is the RFC. The MPCA published the RFC on Possible Amendments to Rules Governing Water Quality Standards for Lake Aquatic Life and Recreation, Minnesota Rules Chapter 7050, in the *State Register* on September 18, 2023. To inform the public of the RFC, the MPCA notified interested parties subscribed to the "Rulemaking: Lakes Water Quality Standards" GovDelivery list on the same day. The GovDelivery notice was sent to 1,319 subscribers to this list.

In addition, the MPCA:

- Posted the RFC the same day it was published in the *State Register*, on the MPCA's Public Notices webpage at https://www.pca.state.mn.us/public-notices. (NOTE: The MPCA site has been reconfigured in the time since that RFC publication, so rulemaking notices are now posted to the Proposed Rules section of our Get Engaged page at https://www.pca.state.mn.us/get-engaged/proposed-rules; the original Public Notices webpage URL now redirects here.)

- Posted information about these amendments and TSDs the same day the RFC was published in the *State Register*, on the MPCA's dedicated rule-specific webpage at https://www.pca.state.mn.us/get-engaged/lake-aquatic-life-and-recreation.

Notice of intent to adopt and other required notifications

On August 24, 2026, the MPCA is publishing a Notice of Intent to Adopt Rules With a Hearing requesting comments on planned rule amendments to Minn. R. ch. 7050 in the *State Register*. The same day, the Notice and SONAR will be posted with the proposed rule text on the MPCA's rule-specific webpage at https://www.pca.state.mn.us/get-engaged/lake-aquatic-life-and-recreation; the MPCA will also update its Proposed Rules page at https://www.pca.state.mn.us/get-engaged/proposed-rules to include a link to the CAH's eComments listing for this rule.

The Agency is required under Minn. Stat. § 14 to identify and send notice to several groups. The steps the MPCA has taken or will take to meet those statutory requirements are laid out in detail below.

1. The MPCA intends to send an electronic notice with a hyperlink to electronic copies of the Notice, SONAR and the proposed rule amendments to all parties who have registered with the MPCA for the purpose of receiving notice of rule proceedings regarding this project, as required by Minn. Stat. § 14.14, subd. 1a, on the date the Notice is published in the *State Register*. Any within this group that have requested non-electronic notice will receive copies of the Notice and the proposed rule amendments in hard copy via U.S. Mail at least 33 days before the end of the comment period.
2. The MPCA intends to send a cover letter with electronic copies of the Notice, SONAR and the proposed rule amendments to the chairs and ranking minority party members of the legislative policy and budget committees with jurisdiction over the subject matter of the proposed rule amendments, and to the Legislative Coordinating Commission, as required by Minn. Stat. § 14.116 (or paper copies of the same documents if a legislator prefers to receive them that way) on the same day the Notice is published. This statute also states that if the mailing of the notice is within two years of the effective date of the law granting the Agency authority to adopt the proposed rules, the Agency must make reasonable efforts to send a copy of the Notice and SONAR to all sitting legislators who were chief House and Senate authors of the bill granting the rulemaking authority; this requirement does not apply here because the MPCA is using its general rulemaking authority for classifying Waters of the State and adopting WQS, and no bill within the past two years granted the Agency special authority for this rulemaking.
3. Consistent with Minn. Stat. § 14.131, the Agency will send a copy of the SONAR to the Legislative Reference Library on the same day the Notice is published.
4. Minn. Stat. § 14.111 requires the Agency to provide the Commissioner of Agriculture with a copy of the proposed rule changes no later than 30 days before publication of the proposed rule in the *State Register*, if the rule will affect farming operations. The MPCA does not believe the proposed amendments will directly affect agricultural land or farming operations. However, because the proposed amendments include standard revisions and designated uses in areas with agricultural activity, the MPCA has sent a courtesy copy of the proposed rule amendments to the Commissioner of the Department of Agriculture at least 30 days in advance of publishing the proposed amendments in the *State Register*.
5. Minn. Stat. § 115.44, subd. 7 requires the MPCA to send notice to the governing body of each municipality touching the waters for which standards (authorized under Minn. Stat. § 115.44) are sought to be adopted. The proposed rule amendments are being conducted under authority of Minn. Stat. § 115.44. Therefore, the MPCA will send the Notice to every municipality in Minnesota on the same day the Notice is published. To do so, the MPCA will obtain mailing lists of municipal officials through the League of Minnesota Cities and the Association of Minnesota Counties plus directors of all districts through the Minnesota Association of

Townships, and send them notice either electronically or by U.S. Mail that includes a hyperlink to the webpage where the Notice, proposed rule amendments, and SONAR can be viewed. These contacts cover approximately 1,775 townships, over 850 cities, and 87 counties.

6. Minn. Stat. § 116.07, subd. 7(j) requires the MPCA to send notice to the members of legislative policy and finance committees with jurisdiction over agriculture and the environment before final adoption of any new rules or amendments authorized under Minn. Stat. § 116.07, subd. 7, applying to feedlots. The proposed amendments do not involve new rules or amendments authorized under Minn. Stat. § 116.07, subd. 7, so this requirement does not apply.

Additional notice plan

Pursuant to Minn. Stat. § 14.14, subd. 1a, the Agency believes its regular means of notice plus the additional efforts detailed in this section will adequately provide required notice of this rulemaking to persons interested in or regulated by these rules. In addition to the required notice, the Agency will make the Notice of Intent to Adopt Rules, SONAR, and proposed rule text available on the MPCA webpages listed above. Links to the Notice, proposed rule text, and SONAR will also be posted on the CAH's eComments page for this rulemaking.

The MPCA's plan to reach additional parties includes the following:

1. Provide an extended comment period. The MPCA will provide a 45-day comment period on the proposed rule amendments. Extending the comment period beyond the 30-day minimum provides additional opportunity for potentially interested parties to learn about the proposed rule amendments and submit comments or hearing requests.
2. Provide specific notice to tribal authorities. The MPCA maintains a list of contacts for the 11 federally recognized tribes in Minnesota and edits the list quarterly. The MPCA will send specific electronic notice to the designated tribal water contacts on or near the day the proposed rule amendments are published in the *State Register*, with a hyperlink to the webpage where electronic copies of the Notice, proposed rule amendments, and SONAR can be viewed. Note: some tribal contacts may already subscribe to GovDelivery and will receive notices about this rulemaking through that service.
3. Provide specific notice to permittees that are adjacent to or upstream of a proposed use designation change to a more stringent classification (Class 2A and Exceptional Use waters). The notice will be sent to the permittees on or near the day the proposed rule amendments are published in the *State Register*. The MPCA will send notice either electronically or by U.S. Mail to each permittee that includes a hyperlink to the webpage where the Notice, proposed rule amendments, and SONAR can be viewed.
4. Provide specific notice to associations and environmental groups. The notice will be sent electronically to the following organizations on or near the day the proposed rule amendments are published in the *State Register*, with a hyperlink to the webpage where electronic copies of the Notice, proposed rule amendments, and SONAR can be viewed. Note: some members of these entities may already subscribe to GovDelivery and will receive notices about this rulemaking through that service.
    - Association of Metropolitan Municipalities
    - Association of Minnesota Counties
    - Association of Minnesota Townships
    - Clean Water Legacy
    - Clean Water Minnesota
    - Izaak Walton League—Minnesota
    - Coalition of Greater Minnesota Cities
    - League of Minnesota Cities
    - Metropolitan Council
    - Minnesota Association of Small Cities

- Minnesota Association of Soil and Water Conservation Districts
- Minnesota Association of Watershed Districts
- Minnesota Chamber of Commerce
- Minnesota City/County Management Association
- Minnesota Environmental Science and Economic Review Board
- Minnesota Center for Environmental Advocacy
- Minnesota Environmental Partnership
- National Trout Center—Minnesota
- Sierra Club North Star Chapter
- Trout Unlimited—Minnesota

5. Provide notice in electronic newsletters. The MPCA uses electronic newsletters to provide updates and information about rulemakings, as explained in the Public Participation and Stakeholder Involvement section. The MPCA will provide notice in its Waterfront Bulletin newsletter with information on where electronic copies of the Notice, proposed rule amendments, and SONAR can be viewed. Although it is not possible to assure that the Waterfront Bulletin newsletter will be published exactly at the start of the public comment period, the MPCA will provide the maximum possible notice by either publishing notice of the comment period in the Waterfront Bulletin edition that is published closest to the public comment period or providing a special bulletin notice to all subscribers to Waterfront Bulletin when the rules are proposed.
6. Continue to update the rulemaking-specific webpage at https://www.pca.state.mn.us/get-engaged/lake-aquatic-life-and-recreation with schedules for hearings and any other public meetings, new documents including timely responses to comments received during this Notice's public comment period, and other relevant documents and information.

On August 17, 2026, the Agency received confirmation from the CAH that these steps meet the notice requirements for persons or classes who may be affected by the proposed amendments to these rules under *Minn. Stat.* § 14.14, subd. 1a.

Authors, witnesses, and exhibits

Author

The lead scientist and primary author of this SONAR is R. William Bouchard, Jr., Ph.D., Research Scientist, MPCA.

Witnesses

The MPCA anticipates that the following people will be available to testify at the hearing as witnesses in support of the need for and reasonableness of the rules.

1. Lead Scientist, R. William Bouchard, Jr., Ph.D., Research Scientist, MPCA. Dr. Bouchard is the primary author of the SONAR and lead scientist in the rule amendment development. Dr. Bouchard will testify on the rule amendments and SONAR.
2. Legal Counsel, Michelle Janson, MPCA. Ms. Janson is Legal Counsel to the MPCA for this rule. She will introduce the required jurisdictional documents into the record.
3. Rule Coordinator, Katie Izzo, MPCA. Ms. Izzo is a contributing author of the SONAR and the project coordinator. She will testify on any Minnesota APA process-related questions.

Exhibits

In support of the need for and reasonableness of the proposed rules, the Agency anticipates that it will enter the following exhibits into the hearing record and post them on the rulemaking webpage:

S-1. Gerritsen, J. and J. Stamp (2014) Biological condition gradient (BCG) assessment models for lake fish communities in Minnesota. Prepared by Tetra Tech, Inc. for Minnesota Pollution Control Agency and Minnesota Department of Natural Resources.

S-2. Karr, J.R. and D.R. Dudley (1981) Ecological perspective on water quality goals. Environmental Management, 5(1): 55-68.

S-3. MPCA (2025) Development of eutrophication standards for northern lakes in Minnesota. Minnesota Pollution Control Agency: St. Paul, MN.

S-4. MPCA (2025) Development of water quality standards to protect coldwater lake habitats in Minnesota. Minnesota Pollution Control Agency and Minnesota Department of Natural Resources: St. Paul, MN.

S-5. MNDNR (2025) Development of a tiered aquatic life use framework for Minnesota lakes. Minnesota Department of Natural Resources and Minnesota Pollution Control Agency: St. Paul, MN.

S-6. Bacigalupi, J., D.F. Staples, M.T. Treml, and D.L. Bahr (2021) Development of fish-based indices of biological integrity for Minnesota lakes. Ecological Indicators, 125: 107512.

S-7. MNDNR (2017) Manual of Instructions for Lake Survey. Fish and Wildlife Division Section of Fisheries Special Publication, Minnesota Department of Natural Resources: St. Paul, MN.

S-8. MNDNR (2022) Lake Index of Biological Integrity (IBI) Nearshore Sampling Manual. Minnesota Department of Natural Resources: Brainerd, MN.

S-9. Midwest Biodiversity Institute (2025) Refining State Water Quality Monitoring Programs and Aquatic Life Uses: Evaluation of the Minnesota Lakes Bioassessment Program, in MBI Technical Memorandum. Midwest Biodiversity Institute: Columbus, OH.

S-10. MPCA (2025) Proposed Beneficial Use Designation Tables for Lakes, Minnesota Pollution Control Agency: St. Paul, MN.

S-11. MPCA (2013) Minnesota Nutrient Criteria Development for Rivers [excerpt - pp. 91-95]. Environmental Analysis and Outcomes, MPCA: Saint Paul, Minnesota. p. 91-95.

S-12. State of Minnesota (2013) Minnesota Pollution Control Agency Environmental Analysis and Outcomes Division Statement of need and reasonableness: In the Matter of Proposed Revisions of Minn. R. Ch. 7050, Relating to the Classification and Standards for Waters of the State; and 7053 Relating to Effluent Limits and Treatment Requirements for Discharges to Waters of the State. [excerpt - pp. 59-65].

S-13. Radomski, P. and K. Carlson (2018) Prioritizing lakes for conservation in lake-rich areas. Lake and Reservoir Management, 34(4): 401-416.

S-14. Bouchard, R.W., Jr., S. Niemela, J.A. Genet, C.O. Yoder, J. Sandberg, J.W. Chirhart, M. Feist, B. Lundeen, and D. Helwig (2016) A novel approach for the development of tiered use biological criteria for rivers and streams in an ecologically diverse landscape. Environmental Monitoring and Assessment, 188(3): 1-26.

S-15. MPCA (2025) Summary of scientific peer review on Minnesota's draft lake standards revisions. Minnesota Pollution Control Agency: St. Paul, MN.

S-16. Fletcher, A. and Z. Christin (2015) The value of nature's benefits in the St. Louis River watershed. Earth Economics: Tacoma, WA.

S-17. Anderson, D. (2016) Economic impact of recreational trout angling in the Driftless Area. Trout Unlimited Driftless Area Restoration Effort.

Conclusion

In this SONAR, the MPCA has established the need for and the reasonableness of each of the proposed amendments to *Minnesota Rules*, ch. 7050. The Agency has provided the necessary notifications and documented its compliance with all applicable administrative rulemaking requirements of Minnesota statutes and rules.

Based on the foregoing, the proposed amendments are both needed and reasonable.

Katrina Kessler

Katrina Kessler, Commissioner
Minnesota Pollution Control Agency

August 18, 2026
Date

SONAR Exhibits

For file-size considerations, these documents are linked here rather than included in the main file.

S-1. Gerritsen, J. and J. Stamp (2014) Biological condition gradient (BCG) assessment models for lake fish communities in Minnesota. Prepared by Tetra Tech, Inc. for Minnesota Pollution Control Agency and Minnesota Department of Natural Resources.

S-2. Karr, J.R. and D.R. Dudley (1981) Ecological perspective on water quality goals. Environmental Management, 5(1): 55-68.

S-3. MPCA (2025) Development of eutrophication standards for northern lakes in Minnesota. Minnesota Pollution Control Agency: St. Paul, MN.

S-4. MPCA (2025) Development of water quality standards to protect coldwater lake habitats in Minnesota. Minnesota Pollution Control Agency and Minnesota Department of Natural Resources: St. Paul, MN.

S-5. MNDNR (2025) Development of a tiered aquatic life use framework for Minnesota lakes. Minnesota Department of Natural Resources and Minnesota Pollution Control Agency: St. Paul, MN.

S-6. Bacigalupi, J., D.F. Staples, M.T. Treml, and D.L. Bahr (2021) Development of fish-based indices of biological integrity for Minnesota lakes. Ecological Indicators, 125: 107512.

S-7. MNDNR (2017) Manual of Instructions for Lake Survey. Fish and Wildlife Division Section of Fisheries Special Publication. Minnesota Department of Natural Resources: St. Paul, MN.

S-8. MNDNR (2022) Lake Index of Biological Integrity (IBI) Nearshore Sampling Manual. Minnesota Department of Natural Resources: Brainerd, MN.

S-9. Midwest Biodiversity Institute (2025) Refining State Water Quality Monitoring Programs and Aquatic Life Uses: Evaluation of the Minnesota Lakes Bioassessment Program, in MBI Technical Memorandum. Midwest Biodiversity Institute: Columbus, OH.

S-10. MPCA (2025) Proposed Beneficial Use Designation Tables for Lakes. Minnesota Pollution Control Agency: St. Paul, MN.

S-11. MPCA (2013) Minnesota Nutrient Criteria Development for Rivers [excerpt - pp. 91-95]. Environmental Analysis and Outcomes, MPCA: Saint Paul, Minnesota. p. 91-95.

S-12. State of Minnesota (2013) Minnesota Pollution Control Agency Environmental Analysis and Outcomes Division Statement of need and reasonableness: In the Matter of Proposed Revisions of Minn. R. Ch. 7050, Relating to the Classification and Standards for Waters of the State; and 7053 Relating to Effluent Limits and Treatment Requirements for Discharges to Waters of the State. [excerpt - pp. 59-65].

S-13. Radomski, P. and K. Carlson (2018) Prioritizing lakes for conservation in lake-rich areas. Lake and Reservoir Management, 34(4): 401-416.

S-14. Bouchard, R.W., Jr., S. Niemela, J.A. Genet, C.O. Yoder, J. Sandberg, J.W. Chirhart, M. Feist, B. Lundeen, and D. Helwig (2016) A novel approach for the development of tiered use biological criteria for rivers and streams in an ecologically diverse landscape. Environmental Monitoring and Assessment, 188(3): 1-26.

S-15. MPCA (2025) Summary of scientific peer review on Minnesota's draft lake standards revisions. Minnesota Pollution Control Agency: St. Paul, MN.

S-16. Fletcher, A. and Z. Christin (2015) The value of nature's benefits in the St. Louis River watershed. Earth Economics: Tacoma, WA.

S-17. Anderson, D. (2016) Economic impact of recreational trout angling in the Driftless Area. Trout Unlimited Driftless Area Restoration Effort.

From: Izzo, Katie (She/Her/Hers) (MPCA)
To: sonars@lrl.leg.mn
Subject: SONAR for MPCA"s Lakes WQS rule (R04740)
Date: Thursday, August 20, 2026 12:00:00 PM
Attachments: R04740 - SONAR.pdf
image001.png
R04740 Lakes WQS Letter to LRL.docx

Good afternoon! Please find attached the cover letter and SONAR for the MPCA's Lakes Water Quality Standards (WQS) rulemaking (R04740), set to publish in the 8/24/26 edition of the *State Register*.

Best,
Katie

Katie Izzo
Rule Coordinator | Resource Management and Assistance Division
Pronouns: she/her/hers

Minnesota Pollution Control Agency
520 Lafayette Road N.
Saint Paul, MN, 55155-4194
O: 651-757-2595
Our mission is to protect and improve the environment and human health. | pca.state.mn.us



NOTICE OF INTENT TO ADOPT RULES WITH A HEARING

Minnesota Pollution Control Agency

Proposed Amendments to Rules Governing Water Quality Standards for Lake Aquatic Life and Recreation, Minnesota Rules Chapter 7050; Revisor's ID Number R-04740; Court of Administrative Hearings docket number 23-9003-39503

Introduction and Overview. The Minnesota Pollution Control Agency (MPCA) intends to adopt amendments to Minnesota Rules (Minn. R.) chapter 7050, Waters of the State, after a public hearing following the procedures in the rules of the Court of Administrative Hearings, Minn. R. parts 1400.2200 to 1400.2240, and the Administrative Procedure Act, Minnesota Statutes (Minn. Stat.) sections 14.131 to 14.20. The purposes of this rule, known as the Lakes Water Quality Standards (WQS) rule, are to adopt eutrophication standards for shallow or mixed lakes in the northern nutrient region, adopt nutrient and oxythermal standards to protect cold-water fish habitat, and adopt a tiered aquatic life use (TALU) framework. The MPCA also intends to make several housekeeping revisions, including correcting an error in the river eutrophication standards and moving lake designations in Minn. R. 7050.0470 into documents incorporated by reference.

This notice provides you the opportunity to submit your comments on this rule to the assigned Administrative Law Judge either orally at the hearing or in writing at any time before the close of the hearing record. The Subject of Rules section provides further description of these proposed rules. If the proposed rules affect you in any way, the MPCA encourages you to participate in the rulemaking process.

View the Alternative Format/Accommodation and MPCA Contact Person sections of this notice for information on requesting this document in an alternative format.

You may submit written pre-hearing comments on the proposed rules until **4:30 p.m. on October 8, 2026**. There will be an additional comment period after the hearing; see the Public Comment section for more information.

Public Hearing. The MPCA will hold a virtual public hearing on the above-named rules on **Monday, November 2, 2026, beginning at 3:00 p.m**. The hearing will continue until all interested or affected persons are heard, or until 6:00 p.m., whichever is earlier. Additional hearing days will be scheduled if necessary.

You can participate in the virtual hearing, which will be conducted by Administrative Law Judge Suzanne Todnem from the Court of Administrative Hearings, via WebEx by using this link along with the associated access code and password:

For a video and audio connection, join the hearing through an internet connection:

- Web link: https://minnesota.webex.com/minnesota/j.php?MTID=m2918a2a2d4d135b1f7175cc2dfd0f30f
- Meeting Number (access code): 2491 876 5329
- Password: hPaVqyeT353

For audio-only connection, join the virtual hearing by telephone:

- Call: 1-415-655-0003 (this is not a toll-free number)
- Access code: 2491 876 5329
- Password: 47287938

All interested or affected persons will have an opportunity to participate by submitting either oral or written comments, statements, or arguments. You may submit a statement without attending the hearing; refer to the Public Comment section for instructions.

If the public hearing is postponed or rescheduled, the MPCA will send a notice of such a change by GovDelivery as well as by email to the recipients listed in the SONAR's Required Notice and Additional Notice Plan sections, and post the notice of such a change on its website at https://www.pca.state.mn.us/get-engaged/lake-aquatic-life-and-recreation.

Administrative Law Judge. Judge Suzanne Todnem will conduct the hearing and can be reached by contacting William Moore, Rules Coordinator in person at the Court of Administrative Hearings, 600 N. Robert Street, Saint Paul MN 55101; by U.S. Mail at P.O. Box 64620, Saint Paul MN 55164-0620; by phone at 651-361-7893; or by email at william.t.moore@state.mn.us. Please refer to the Public Comment section for instructions on submitting comments.

Subject of Rules. The proposed rule amendments in this project cover three main topics discussed in Minn. R. chapter 7050 (Waters of the State). This chapter is about WQS governing lake aquatic life and recreational uses in Minnesota. The major goals of this rulemaking include 1) updating eutrophication standards for shallow or polymictic lakes in the northern nutrient region, 2) adopting nutrient and oxythermal habitat standards to protect cold-water fish habitat and updating use designations for cold-water lakes, and 3) adopting a TALU framework for lakes. In addition to these amendments, the MPCA is also proposing several housekeeping revisions, including correcting an error in the river eutrophication standards and moving lake designations in Minn. R. 7050.0470 into documents incorporated by reference (with the draft documents available for review at https://www.pca.state.mn.us/get-engaged/incorporations-by-reference).

The MPCA has determined that it is appropriate to assign different eutrophication standards to dimictic lakes and polymictic (shallow) lakes in the Northern Lakes and Forests and Northern Minnesota Wetlands ecoregions. MPCA staff determined this pattern to be the result of differences in mixing type, lake morphology, and watershed features and developed different criteria for dimictic and polymictic lakes for chlorophyll-a to protect aquatic life and recreational endpoints. Using these chlorophyll-a

thresholds, Agency staff also developed criteria for total phosphorus and Secchi depth using updated models.

Additionally, the MPCA is proposing changes to the existing standards for cold-water lake habitats and to change the list of lakes managed as cold water habitats. This will include the adoption of oxythermal habitat standards for lake trout, lake whitefish, and cisco lakes; new lake eutrophication standards for lake whitefish and cisco lakes; and revised eutrophication standards for lake trout and stream trout lakes. In addition, these revisions include changes to the list of lakes designated as Class 2A.

Lastly, the MPCA is proposing a TALU framework for Minnesota lakes. This framework is similar to the aquatic life use framework adopted for Minnesota streams. The proposed TALU framework consists of fish biological criteria for high-quality or Exceptional Use lakes. Under this framework, lakes meeting Exceptional Use goals would be assigned more stringent biological goals, which would need to be maintained.

Statutory Authority. Minn. Stat. §115.03, subd. 1(b)-(c), authorizes the MPCA to establish WQS, and Minn. Stat. §115.44 grants the MPCA authority to group designated waters of the state into classes.

Publication of Proposed Rules. A copy of the proposed rules is published with this Notice in the *State Register*. The proposed rules may also be viewed electronically on the MPCA's rulemaking webpage at https://www.pca.state.mn.us/get-engaged/lake-aquatic-life-and-recreation, as well as https://minnesotaoah.granicusideas.com/. To obtain a paper copy of the proposed rules or other rulemaking documents for the cost of reproduction (one copy per request), please contact the MPCA Contact Person listed below.

Statement of Need and Reasonableness. The Statement of Need and Reasonableness (SONAR) contains a summary of the justification for the proposed rules, a description of who will be affected by the proposed rules, and an estimate of the probable cost of the proposed rules. The SONAR is available to the public and may be viewed electronically at https://www.pca.state.mn.us/get-engaged/lake-aquatic-life-and-recreation as well as https://minnesotaoah.granicusideas.com/. To obtain a paper copy of the SONAR or other rulemaking documents for the cost of reproduction (one copy per request), please contact the MPCA Contact Person listed below.

MPCA Contact Person. The MPCA contact person is Rule Coordinator Katie Izzo at the Minnesota Pollution Control Agency, 520 Lafayette Road, Saint Paul MN 55155-4194; telephone 651-757-2595; and email katie.izzo@state.mn.us. You may also call the MPCA at 651-296-6300 or 1-800-657-3864; use your preferred relay service. **Please note that comments must be submitted according to the instructions in the Public Comment section of this Notice; the MPCA cannot take rulemaking comments by phone or email.**

Public Comment. You and all interested or affected persons, including individuals and representatives of associations or other interested groups, will have an opportunity to participate. The Administrative Law Judge will accept your statements orally at the hearing or in writing at any time before the close of the hearing record, and consider all comments equally regardless of how they are submitted. All evidence

that you present should relate to the proposed rules. If the proposed rules affect you in any way, the MPCA encourages you to participate.

You can submit written comments to the Administrative Law Judge by any of the following methods:

1) electronic submittal via the Court of Administrative Hearings' eComments website at https://minnesotaoah.granicusideas.com/;

2) U.S. Mail or in-person delivery to the attention of Judge Todnem regarding docket number 23-9003-39503. By mail: P.O. Box 64620, Saint Paul MN 55164-0620. In person: 600 N. Robert Street, Saint Paul MN 55101; or

3) fax to the attention of Judge Todnem regarding docket number 23-9003-39503, at 651-539-0310.

You can review frequently asked questions about the eComments website at https://mn.gov/oah/assets/ecomments-faq_tcm19-82012.pdf.

- **Pre-hearing:** You may submit pre-hearing comments until **4:30 p.m. on October 8, 2026**; this deadline will allow MPCA staff to prepare a response in time for presentation at the public hearing.
- **Post-hearing:** You may also submit written material to the Administrative Law Judge to be recorded in the hearing record for five working days after the public hearing ends. At the hearing the Administrative Law Judge may order this five-day comment period extended for a longer period but for no more than 20 calendar days, and Judge Todnem will address the post-hearing comment period length at the hearing.
- **Rebuttal period:** After the post-hearing comment period, there is a rebuttal period of five working days during which the MPCA and any interested person may respond in writing to any comments or information already submitted. No one may submit new evidence during the five-day rebuttal period.

The Court of Administrative Hearings must receive all comments and responses submitted to the Administrative Law Judge no later than 4:30 p.m. on the due date. All comments or responses received are public data and will be available for review on the eComments website immediately, and on the MPCA's website at https://www.pca.state.mn.us/get-engaged/lake-aquatic-life-and-recreation as soon as Agency staff can update it.

Hearing Procedure. The rule hearing procedure is governed by Minn. Stat. sections 14.131 to 14.20, and by the rules of the Court of Administrative Hearings (Minn. R. parts 1400.2000 to 1400.2240). You may direct questions about the rule hearing procedure to the Administrative Law Judge through William Moore, the Court of Administrative Hearings Rules Coordinator listed above.

Modifications. The MPCA may modify the proposed rules either as a result of public comment or as a result of the rule hearing process. It must support modifications by data and views submitted during the

public comment and rule hearing process. The adopted rules may not be substantially different than these proposed rules unless the Agency follows the procedure under Minn. R., part 1400.2110. If the final rules are identical to the rules originally published in the *State Register*, the Agency will publish a notice of adoption in the *State Register*; if the final rules are different from the proposed rules, the MPCA must publish a copy of the changes in the *State Register*.

Adoption Procedure After the Hearing. After the close of the hearing record, the Administrative Law Judge will issue a report on the proposed rules. You may ask to be notified of the date that the Administrative Law Judge's report will become available and can make this request at the hearing or in writing to the Administrative Law Judge. You may also ask to be notified of the date that the MPCA adopts the rules and the rules are filed with the Secretary of State, or register to receive notice of future MPCA rule proceedings, by requesting this at the hearing or by writing to the MPCA Contact Person listed above.

Lobbyist Registration. Minn. Stat. chapter 10A requires each lobbyist to register with the state's Campaign Finance and Public Disclosure Board. You may direct questions about this requirement to the Campaign Finance and Public Disclosure Board at Centennial Building Suite #190, 658 Cedar St., Saint Paul MN 55155, phone 651-539-1180 or 1-800-657-3889.

Alternative Format/Accommodation. Upon request, this information can be made available in an alternative format, such as large print, Braille, or audio. To make such a request or if you need an accommodation to make this hearing accessible, please contact the MPCA Contact Person at the address or telephone number listed above.

Order. I order that the rulemaking hearing be held at the date, time, and location listed above.

August 18, 2026
Date

Katrina Kessler
Katrina Kessler, Commissioner
Minnesota Pollution Control Agency

Lakes WQS Hearing Exhibit F2: Notice in SR

MINNESOTA STATE REGISTER

MONDAY, AUGUST 24, 2026

VOLUME 51, NUMBER 8

PAGES 215 - 300



Proposed Rules

Comments on Planned Rules or Rule Amendments. An agency must first solicit Comments on Planned Rules or Comments on Planned Rule Amendments from the public on the subject matter of a possible rulemaking proposal under active consideration within the agency (*Minnesota Statutes* §§ 14.101). It does this by publishing a notice in the *State Register* at least 60 days before publication of a notice to adopt or a notice of hearing, and within 60 days of the effective date of any new statutory grant of required rulemaking.

Rules to be Adopted After a Hearing. After receiving comments and deciding to hold a public hearing on the rule, an agency drafts its rule. It then publishes its rules with a notice of hearing. All persons wishing to make a statement must register at the hearing. Anyone who wishes to submit written comments may do so at the hearing, or within five working days of the close of the hearing. Administrative law judges may, during the hearing, extend the period for receiving comments up to 20 calendar days. For five business days after the submission period the agency and interested persons may respond to any new information submitted during the written submission period and the record then is closed. The administrative law judge prepares a report within 30 days, stating findings of fact, conclusions and recommendations. After receiving the report, the agency decides whether to adopt, withdraw or modify the proposed rule based on consideration of the comments made during the rule hearing procedure and the report of the administrative law judge. The agency must wait five days after receiving the report before taking any action.

Rules to be Adopted Without a Hearing. Pursuant to *Minnesota Statutes* § 14.22, an agency may propose to adopt, amend, suspend or repeal rules without first holding a public hearing. An agency must first solicit **Comments on Planned Rules** or **Comments on Planned Rule Amendments** from the public. The agency then publishes a notice of intent to adopt rules without a public hearing, together with the proposed rules, in the *State Register*. If, during the 30-day comment period, 25 or more persons submit to the agency a written request for a hearing of the proposed rules, the agency must proceed under the provisions of §§ 14.1414.20, which state that if an agency decides to hold a public hearing, it must publish a notice of intent in the *State Register*.

KEY: Proposed Rules - Underlining indicates additions to existing rule language. ~~Strikeouts~~ indicate deletions from existing rule language. If a proposed rule is totally new, it is designated "all new material." **Adopted Rules** - Underlining indicates additions to proposed rule language. ~~Strikeout~~ indicates deletions from proposed rule language.

Minnesota Pollution Control Agency (MPCA)

Proposed Permanent Rules Relating to Lake Water Quality; Notice of Intent to Adopt Rules with a Hearing

Proposed Amendments to Rules Governing Water Quality Standards for Lake Aquatic Life and Recreation, Minnesota Rules Chapter 7050; Revisor's ID Number R-04740; Court of Administrative Hearings docket number 23-9003-39503

Introduction and Overview. The Minnesota Pollution Control Agency (MPCA) intends to adopt amendments to Minnesota Rules (Minn. R.) chapter 7050, Waters of the State, after a public hearing following the procedures in the rules of the Court of Administrative Hearings, Minn. R. parts 1400.2200 to 1400.2240, and the Administrative Procedure Act, Minnesota Statutes (Minn. Stat.) sections 14.131 to 14.20. The purposes of this rule, known as the Lakes Water Quality Standards (WQS) rule, are to adopt eutrophication standards for shallow or mixed lakes in the northern nutrient region, adopt nutrient and oxythermal standards to protect cold-water fish habitat, and adopt a tiered aquatic life use (TALU) framework. The MPCA also intends to make several housekeeping revisions, including correcting an error in the river eutrophication standards and moving lake designations in Minn. R. 7050.0470 into documents incorporated by reference.

This notice provides you the opportunity to submit your comments on this rule to the assigned Administrative Law

Proposed Rules

Judge either orally at the hearing or in writing at any time before the close of the hearing record. The Subject of Rules section provides further description of these proposed rules. If the proposed rules affect you in any way, the MPCA encourages you to participate in the rulemaking process.

View the Alternative Format/Accommodation and MPCA Contact Person sections of this notice for information on requesting this document in an alternative format.

You may submit written pre-hearing comments on the proposed rules until **4:30 p.m. on October 8, 2026**. There will be an additional comment period after the hearing; see the Public Comment section for more information.

Public Hearing. The MPCA will hold a virtual public hearing on the above-named rules on **Monday, November 2, 2026, beginning at 3:00 p.m**. The hearing will continue until all interested or affected persons are heard, or until 6:00 p.m., whichever is earlier. Additional hearing days will be scheduled if necessary.

You can participate in the virtual hearing, which will be conducted by Administrative Law Judge Suzanne Todnem from the Court of Administrative Hearings, via WebEx by using this link along with the associated access code and password:

For a video and audio connection, join the hearing through an internet connection:

- Web link: ***Webex Meeting Link***
- Meeting Number (access code): 2491 876 5329
- Password: hPaVqyeT353

For audio-only connection, join the virtual hearing by telephone:

- Call: 1-415-655-0003 (this is not a toll-free number)
- Access code: 2491 876 5329
- Password: 47287938

All interested or affected persons will have an opportunity to participate by submitting either oral or written comments, statements, or arguments. You may submit a statement without attending the hearing; refer to the Public Comment section for instructions.

If the public hearing is postponed or rescheduled, the MPCA will send a notice of such a change by GovDelivery as well as by email to the recipients listed in the SONAR's Required Notice and Additional Notice Plan sections, and post the notice of such a change on its website at ***https://www.pca.state.mn.us/get-engaged/lake-aquatic-life-and-recreation***.

Administrative Law Judge. Judge Suzanne Todnem will conduct the hearing and can be reached by contacting William Moore, Rules Coordinator in person at the Court of Administrative Hearings, 600 N. Robert Street, Saint Paul MN 55101; by U.S. Mail at P.O. Box 64620, Saint Paul MN 55164-0620; by phone at 651-361-7893; or by email at ***william.t.moore@state.mn.us***. Please refer to the Public Comment section for instructions on submitting comments.

Subject of Rules. The proposed rule amendments in this project cover three main topics discussed in Minn. R. chapter 7050 (Waters of the State). This chapter is about WQS governing lake aquatic life and recreational uses in Minnesota. The major goals of this rulemaking include 1) updating eutrophication standards for shallow or polymictic lakes in the northern nutrient region, 2) adopting nutrient and oxythermal habitat standards to protect cold-water fish habitat and updating use designations for cold-water lakes, and 3) adopting a TALU framework for lakes. In addition to these amendments, the MPCA is also proposing several housekeeping revisions, including correcting an error in the river eutrophication standards and moving lake designations in Minn. R. 7050.0470 into documents incorporated by reference (with the draft documents available for review at ***https://www.pca.state.mn.us/get-engaged/incorporations-by-reference***).

The MPCA has determined that it is appropriate to assign different eutrophication standards to dimictic lakes and

polymictic (shallow) lakes in the Northern Lakes and Forests and Northern Minnesota Wetlands ecoregions. MPCA staff determined this pattern to be the result of differences in mixing type, lake morphology, and watershed features and developed different criteria for dimictic and polymictic lakes for chlorophyll-a to protect aquatic life and recreational endpoints. Using these chlorophyll-a thresholds, Agency staff also developed criteria for total phosphorus and Secchi depth using updated models.

Additionally, the MPCA is proposing changes to the existing standards for cold-water lake habitats and to change the list of lakes managed as cold water habitats. This will include the adoption of oxythermal habitat standards for lake trout, lake whitefish, and cisco lakes; new lake eutrophication standards for lake whitefish and cisco lakes; and revised eutrophication standards for lake trout and stream trout lakes. In addition, these revisions include changes to the list of lakes designated as Class 2A.

Lastly, the MPCA is proposing a TALU framework for Minnesota lakes. This framework is similar to the aquatic life use framework adopted for Minnesota streams. The proposed TALU framework consists of fish biological criteria for high-quality or Exceptional Use lakes. Under this framework, lakes meeting Exceptional Use goals would be assigned more stringent biological goals, which would need to be maintained.

Statutory Authority. Minn. Stat. §115.03, subd. 1(b)-(c), authorizes the MPCA to establish WQS, and Minn. Stat. §115.44 grants the MPCA authority to group designated waters of the state into classes.

Publication of Proposed Rules. A copy of the proposed rules is published with this Notice in the *State Register*. The proposed rules may also be viewed electronically on the MPCA's rulemaking webpage at ***https://www.pca.state.mn.us/get-engaged/lake-aquatic-life-and-recreation***, as well as ***https://minnesotaoah.granicusideas.com/***. To obtain a paper copy of the proposed rules or other rulemaking documents for the cost of reproduction (one copy per request), please contact the MPCA Contact Person listed below.

Statement of Need and Reasonableness. The Statement of Need and Reasonableness (SONAR) contains a summary of the justification for the proposed rules, a description of who will be affected by the proposed rules, and an estimate of the probable cost of the proposed rules. The SONAR is available to the public and may be viewed electronically at ***https://www.pca.state.mn.us/get-engaged/lake-aquatic-life-and-recreation*** as well as ***https://minnesotaoah.granicusideas.com/***. To obtain a paper copy of the SONAR or other rulemaking documents for the cost of reproduction (one copy per request), please contact the MPCA Contact Person listed below.

MPCA Contact Person. The MPCA contact person is Rule Coordinator Katie Izzo at the Minnesota Pollution Control Agency, 520 Lafayette Road, Saint Paul MN 55155-4194; telephone 651-757-2595; and email ***katie.izzo@state.mn.us***. You may also call the MPCA at 651-296-6300 or 1-800-657-3864; use your preferred relay service. **Please note that comments must be submitted according to the instructions in the Public Comment section of this Notice; the MPCA cannot take rulemaking comments by phone or email.**

Public Comment. You and all interested or affected persons, including individuals and representatives of associations or other interested groups, will have an opportunity to participate. The Administrative Law Judge will accept your statements orally at the hearing or in writing at any time before the close of the hearing record, and consider all comments equally regardless of how they are submitted. All evidence that you present should relate to the proposed rules. If the proposed rules affect you in any way, the MPCA encourages you to participate.

You can submit written comments to the Administrative Law Judge by any of the following methods:

1. electronic submittal via the Court of Administrative Hearings' eComments website at ***https://minnesotaoah.granicusideas.com/***;

2. U.S. Mail or in-person delivery to the attention of Judge Todnem regarding docket number 23-9003-39503. By mail: P.O. Box 64620, Saint Paul MN 55164-0620. In person: 600 N. Robert Street, Saint Paul MN 55101; or

3. fax to the attention of Judge Todnem regarding docket number 23-9003-39503, at 651-539-0310.

Proposed Rules

You can review frequently asked questions about the eComments website at ***https://mn.gov/oah/assets/ecomments-faq_tcm19-82012.pdf***.

- **Pre-hearing:** You may submit pre-hearing comments until **4:30 p.m. on October 8, 2026**; this deadline will allow MPCA staff to prepare a response in time for presentation at the public hearing.
- **Post-hearing:** You may also submit written material to the Administrative Law Judge to be recorded in the hearing record for five working days after the public hearing ends. At the hearing the Administrative Law Judge may order this five-day comment period extended for a longer period but for no more than 20 calendar days, and Judge Todnem will address the post-hearing comment period length at the hearing.
- **Rebuttal period:** After the post-hearing comment period, there is a rebuttal period of five working days during which the MPCA and any interested person may respond in writing to any comments or information already submitted. No one may submit new evidence during the five-day rebuttal period.

The Court of Administrative Hearings must receive all comments and responses submitted to the Administrative Law Judge no later than 4:30 p.m. on the due date. All comments or responses received are public data and will be available for review on the eComments website immediately, and on the MPCA's website at ***https://www.pca.state.mn.us/get-engaged/lake-aquatic-life-and-recreation*** as soon as Agency staff can update it.

Hearing Procedure. The rule hearing procedure is governed by Minn. Stat. sections 14.131 to 14.20, and by the rules of the Court of Administrative Hearings (Minn. R. parts 1400.2000 to 1400.2240). You may direct questions about the rule hearing procedure to the Administrative Law Judge through William Moore, the Court of Administrative Hearings Rules Coordinator listed above.

Modifications. The MPCA may modify the proposed rules either as a result of public comment or as a result of the rule hearing process. It must support modifications by data and views submitted during the public comment and rule hearing process. The adopted rules may not be substantially different than these proposed rules unless the Agency follows the procedure under Minn. R., part 1400.2110. If the final rules are identical to the rules originally published in the *State Register*, the Agency will publish a notice of adoption in the *State Register*; if the final rules are different from the proposed rules, the MPCA must publish a copy of the changes in the *State Register*.

Adoption Procedure After the Hearing. After the close of the hearing record, the Administrative Law Judge will issue a report on the proposed rules. You may ask to be notified of the date that the Administrative Law Judge's report will become available and can make this request at the hearing or in writing to the Administrative Law Judge. You may also ask to be notified of the date that the MPCA adopts the rules and the rules are filed with the Secretary of State, or register to receive notice of future MPCA rule proceedings, by requesting this at the hearing or by writing to the MPCA Contact Person listed above.

Lobbyist Registration. Minn. Stat. chapter 10A requires each lobbyist to register with the state's Campaign Finance and Public Disclosure Board. You may direct questions about this requirement to the Campaign Finance and Public Disclosure Board at Centennial Building Suite #190, 658 Cedar St., Saint Paul MN 55155, phone 651-539-1180 or 1-800-657-3889.

Alternative Format/Accommodation. Upon request, this information can be made available in an alternative format, such as large print, Braille, or audio. To make such a request or if you need an accommodation to make this hearing accessible, please contact the MPCA Contact Person at the address or telephone number listed above.

Order. I order that the rulemaking hearing be held at the date, time, and location listed above.

Date: August 18, 2026

Katrina Kessler, Commissioner
Minnesota Pollution Control Agency

7050.0150 DETERMINING WATER QUALITY, BIOLOGICAL AND PHYSICAL CONDITIONS, AND COMPLIANCE WITH STANDARDS.

[For text of subparts 1 to 3, see Minnesota Rules]

Subp. 4. **Definitions.** For the purposes of this chapter and chapter 7053, the following terms have the meanings given them.

[For text of items A to J, see Minnesota Rules]

K. "Dimictic lake" means a lake that mixes twice a year, in the spring and fall, and is stratified during the summer and winter.

~~K.~~ L. "Ecoregion" means an area of relative homogeneity in ecological systems based on similar soils, land use, land surface form, and potential natural vegetation. Minnesota ecoregions are shown on the map in part 7050.0468.

~~L.~~ M. "Eutrophication" means the increased productivity of the biological community in water bodies in response to increased nutrient loading. Eutrophication is characterized by increased growth and abundance of algae and other aquatic plants, reduced water transparency, reduction or loss of dissolved oxygen, and other chemical and biological changes. The acceleration of eutrophication due to excess nutrient loading from human sources and activities, called cultural eutrophication, causes a degradation of water quality and possible loss of beneficial uses.

~~M.~~ N. "Eutrophication standard" means the combination of indicators of enrichment and indicators of response as described in subpart 5. The indicators upon which the eutrophication standard for specific water bodies are based are as provided under subparts 5a to 5c.

O. "Geometry ratio" means a measure of a lake's geometric characteristics used as evidence to determine if a lake is polymictic or dimictic. The calculation used to determine lake stratification type for the purpose of assessing eutrophication standards in Minnesota is calculated as the fourth root of lake surface area (m^2) divided by maximum depth (m) ($A_0^{0.25}$/Zmax, where A_0 is lake surface area and Zmax is maximum depth).

~~N.~~ P. "Hydraulic residence time" means the time water resides in a basin or, alternately, the time it would take to fill the basin if it were empty.

~~O.~~ Q. "Impaired water" or "impaired condition" means a water body that does not meet applicable water quality standards or fully support applicable beneficial uses, due in whole or in part to water pollution from point or nonpoint sources, or any combination thereof.

~~P.~~ R. "Index of biotic integrity," "index of biological integrity, " or "IBI" means an index developed by measuring attributes of an aquatic community that change in quantifiable and predictable ways in response to human disturbance, representing the health of that community.

~~Q.~~ S. "Lake" means an enclosed basin filled or partially filled with standing fresh water with a maximum depth greater than 15 feet. Lakes may have no inlet or outlet, an inlet or outlet, or both an inlet and outlet.

~~R.~~ T. "Lake morphometry" means the physical characteristics of the lake basin that are reasonably necessary to determine the shape of a lake, such as maximum length and width, maximum and mean depth, area, volume, and shoreline configuration.

U. "Lentic water" means a standing water body, such as a lake, pond, wetland, swamp, or bog.

~~S.~~ V. "Lotic water" means a flowing or moving water body such as a stream, river, or ditch.

~~T.~~ W. "Mixing status" means the frequency of complete mixing of the lake water from surface to bottom, which is determined by whether temperature gradients are established and maintained in the water column during the summer season.

~~U.~~ X. "Measurable increase" or "measurable impact" means a change in trophic status that can be discerned above the normal variability in water quality data using a weight of evidence approach. The change in trophic status does not require a demonstration of statistical significance to be considered measurable. Mathematical models may be used as a tool in the data analysis to help predict changes in trophic status.

~~V.~~ Y. "Natural causes" means the multiplicity of factors that determine the physical, chemical, or biological conditions that would exist in a water body in the absence of measurable impacts from human activity or influence.

~~W.~~ Z. "Normal aquatic biota" and "normally present" mean a healthy aquatic community expected to be present in the water body in the absence of pollution of the water, consistent with any variability due to natural hydrological, substrate, habitat, or other physical and chemical characteristics. Expected presence is based on comparing the aquatic community in the water body of interest to the aquatic community in representative reference water bodies.

~~X.~~ AA. "Nuisance algae bloom" means an excessive population of algae that is characterized by obvious green or blue-green pigmentation in the water, floating mats of algae, reduced light transparency, aesthetic degradation, loss of recreational use, possible harm to the aquatic community, or possible toxicity to animals and humans. Algae blooms are measured through tests for chlorophyll-a, observations of Secchi disk transparency, and observations of impaired recreational and aesthetic conditions by the users of the water body, or any other reliable data that identifies the population of algae in an aquatic community.

BB. "Oxythermal habitat" means a measure of temperature and dissolved oxygen in a water column of a lake where both dissolved oxygen and temperature are suitable to support aquatic life.

~~Y.~~ CC. "Periphyton" means algae on the bottom of a water body. In rivers or streams, these forms are typically found attached to logs, rocks, or other substrates, but when dislodged the algae will become part of the seston.

DD. "Polymictic lake" means a lake with frequent mixing of the water column during the ice-free period.

~~Z.~~ EE. "Readily available and reliable data and information" means chemical, biological, and physical data and information determined by the commissioner to meet the quality assurance and quality control requirements in subpart 8, that are not more than ten years old from the time they are used for the assessment. A subset of data in the ten-year period, or data more than ten years old can be used if credible scientific evidence shows that these data are representative of current conditions.

~~AA.~~ FF. "Reference water body" means a water body minimally or least impacted by point or nonpoint sources of pollution that is representative of water bodies of a similar surface water body type and within a geographic region such as an ecoregion or watershed. Reference water bodies are used as a base for comparing the quality of similar water bodies in the same geographic region.

~~BB.~~ GG. "Reservoir" means a body of water in a natural or artificial basin or watercourse where the outlet or flow is artificially controlled by a structure such as a dam. Reservoirs are distinguished from river systems by having a hydraulic residence time of at least 14 days. For purposes of this item, residence time is determined using a flow equal to the $122Q_{10}$ for the months of June through September.

~~CC.~~ HH. "River nutrient region" means the geographic basis for regionalizing the river eutrophication criteria as described in Heiskary, S. and K. Parson, Regionalization of Minnesota's Rivers for Application of River Nutrient Criteria, Minnesota Pollution Control Agency (2013), which is incorporated by reference. The document is not subject to frequent change and is available through the Minitex interlibrary loan system.

~~DD.~~ II. "Secchi disk" means a tool that is used to measure the transparency of lake water. A Secchi disk is an eight-inch weighted disk on a calibrated rope, either white or with quadrants of black and white. To measure water transparency with a Secchi disk, the disk is viewed from the shaded side of a boat. The depth of the water at the point where the disk reappears upon raising it after it has been lowered beyond visibility is recorded.

~~EE.~~ JJ. "Secchi disk transparency" means the transparency of water as measured by a Secchi disk, a Secchi tube, or a transparency tube.

~~FF.~~ KK. "Secchi tube" means a tool that is used to measure the transparency of stream or river water. A Secchi tube is a clear plastic tube, one meter in length and 1-3/4 inch in diameter, with a mini-Secchi disk on a string. To measure water transparency, the tube is filled with water collected from a stream or river and, looking into the tube from the top, the weighted Secchi disk is lowered into the tube by a string until it disappears and then raised until it reappears, allowing the user to raise and lower the disk within the same water sample numerous times. The depth of the water at the midpoint between disappearance and reappearance of the disk is recorded in centimeters, which are marked on the side of the tube. If the Secchi disk is visible when it is lowered to the bottom of the tube, the transparency reading is recorded as "greater than 100 centimeters."

~~GG.~~ LL. "Seston" means particulate matter suspended in water bodies and includes plankton and organic and inorganic matter.

~~HH.~~ MM. "Shallow lake" means an enclosed basin filled or partially filled with standing fresh water with a maximum depth of 15 feet or less or with 80 percent or more of the lake area shallow enough to support emergent and submerged rooted aquatic plants (the littoral zone). It is uncommon for shallow lakes to thermally stratify during the summer. The quality of shallow lakes will permit the propagation and maintenance of a healthy indigenous aquatic community and they will be suitable for boating and other forms of aquatic recreation for which they may be usable. Shallow lakes are differentiated from wetlands and lakes on a case-by-case basis. Wetlands are defined in part 7050.0186, subpart 1a.

~~II.~~ NN. "Summer-average" means a representative average of concentrations or measurements of nutrient enrichment factors, taken over one summer season.

~~JJ.~~ OO. "Summer season" means a period annually from June 1 through September 30.

~~KK.~~ PP. "Transparency tube" means a tool that is used to measure the transparency of stream or river water. A transparency tube is a graduated clear plastic tube, 24 inches or more in length by 1-1/2 inches in diameter, with a stopper at the bottom end. The inside surface of the stopper is painted black and white. To measure water transparency, the tube is filled with water from a surface water; the water is released through a valve at the bottom end until the painted surface of the stopper is just visible through the water column when viewed from the top of the tube. The depth, in centimeters, is noted. More water is released until the screw in the middle of the painted symbol on the stopper is clearly visible; this depth is noted. The two observed depths are averaged to obtain a transparency measurement.

~~LL.~~ QQ. "Trophic status or condition" means the productivity of a lake as measured by the phosphorus content, algae abundance, and depth of light penetration.

~~MM.~~ RR. "Use attainability analysis" means a structured scientific assessment of the physical, chemical, biological, and economic factors affecting attainment of the uses of water bodies. A use attainability analysis is required to remove a designated use specified in section 101(a)(2) of the Clean Water Act that is not an existing use. The allowable reasons for removing a designated use are described in Code of Federal Regulations, title 40, section 131.10 (g).

~~NN.~~ SS. "Water body" means a lake, reservoir, wetland, or a geographically defined portion of a river or stream.

~~OO.~~ TT. "Water body type" means a group of water bodies with similar natural physical, chemical, and biological attributes, where the characteristics are similar among water bodies within each type and distinct from water bodies of other types.

[For text of subpart 5, see Minnesota Rules]

Subp. 5a. **Impaired condition; lakes~~, shallow lakes,~~ and reservoirs.**

A. For lakes~~, shallow lakes,~~ and reservoirs, a finding of an impaired condition must be supported by data showing:

[For text of subitems (1) and (2), see Minnesota Rules]
[For text of items B and C, see Minnesota Rules]
[For text of subparts 5b and 5c, see Minnesota Rules]

Subp. 6. **Impairment of biological community and aquatic habitat.** In evaluating whether the narrative standards in subpart 3, which prohibit serious impairment of the normal aquatic biota and the use thereof, material alteration of the species composition, material degradation of stream beds, and the prevention or hindrance of the propagation and migration of aquatic biota normally present, are being met, the commissioner will consider all readily available and reliable data and information for the following factors of use impairment:

[For text of items A to C, see Minnesota Rules]

D. a quantitative or qualitative assessment of habitat quality, determined by an assessment of:

[For text of subitems (1) to (5), see Minnesota Rules]

(6) types of land use in the watershed; ~~and~~

(7) oxythermal habitat; and

~~(7)~~ (8) other scientifically accepted and valid factors of habitat quality; and

E. any other scientifically objective, credible, and supportable factors.

A finding of an impaired condition must be supported by data for the factors listed in at least one of items A to C. The biological quality of any given surface water body will be assessed by comparison to the biological conditions determined by the commissioner using a biological condition gradient model or a set of reference water bodies which best represents the most natural condition for that surface water body type within a geographic region.

[For text of subparts 7 and 8, see Minnesota Rules]

7050.0220 SPECIFIC WATER QUALITY STANDARDS BY ASSOCIATED USE CLASSES.

[For text of subparts 1 to 5, see Minnesota Rules]

Subp. 5a. **Cool and warm water aquatic life and habitat and associated use classes.** Water quality standards applicable to use classes 2B, 2Be, 2Bg, 2Bm, or 2D; 3; 4A and 4B; and 5 surface waters. See part 7050.0225, subpart 2, for class 3 and 5 standards applicable to wetlands. The water quality standards in part 7050.0222, subpart 4, that apply to class 2B also apply to classes 2Be, 2Bg, and 2Bm. In addition to the water quality standards in part 7050.0222, subpart 4, the biological criteria defined in part 7050.0222, subpart 4d, apply to classes 2Be, 2Bg, and 2Bm.

A. MISCELLANEOUS SUBSTANCE, CHARACTERISTIC, OR POLLUTANT

2B&D CS	2B&D MS	2B&D FAV	4A IR	4B LS	5 AN

[For text of subitems (1) to (5), see Minnesota Rules]

(6) Eutrophication standards for lakes~~, shallow lakes,~~ and reservoirs (phosphorus, total, µg/L; chlorophyll-a, µg/L; Secchi disk transparency, meters)

See part 7050.0222, subparts4 and 4a	--	--	--	--	--

[For text of subitems (7) to (20), see Minnesota Rules]

[For text of items B to H, see Minnesota Rules]

[For text of subparts 6 to 7, see Minnesota Rules]

7050.0222 SPECIFIC WATER QUALITY STANDARDS FOR CLASS 2 WATERS OF THE STATE; AQUATIC LIFE AND RECREATION.

[For text of subpart 1, see Minnesota Rules]

Subp. 2. **Class 2A waters; aquatic life and recreation.** The quality of class 2A surface waters shall be such as to permit the propagation and maintenance of a healthy community of coldwater aquatic biota, and their habitats according to the definitions in subpart 2c. These waters shall be suitable for aquatic recreation of all kinds, including bathing, for which the waters may be usable. This class of surface waters is also protected as a source of drinking water. Abbreviations, acronyms, and symbols are explained in subpart 1.

Substance, Characteristic, or Pollutant (Class 2A)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
Acenaphthene	µg/L	20	HH	56	112	Tox
Acetochlor	µg/L	3.6	Tox	86	173	Tox
Acrylonitrile (c)	µg/L	0.38	HH	1,140*	2,281*	Tox
Alachlor (c)	µg/L	3.8	HH	800*	1,600*	Tox
Aluminum, total	µg/L	87	Tox	748	1,496	Tox
Ammonia un-ionized as N	µg/L	16	Tox	--	--	NA

The percent un-ionized ammonia can be calculated for any temperature and pH by using the following equation taken from Emerson, K., R.C. Russo, R.E. Lund, and R.V. Thurston, Aqueous ammonia equilibrium calculations; effect of pH and temperature. Journal of the Fisheries Research Board of Canada 32: 2379-2383 (1975):

$$f = \frac{1}{10^{(pk_a - pH)} + 1} \times 100$$

where: f = the percent of total ammonia in the un-ionized state

$pk_a = 0.09 + (2730/T)$ (dissociation constant for ammonia)

T = temperature in degrees Kelvin (273.16° Kelvin = 0° Celsius)

Substance, Characteristic, or Pollutant (Class 2A)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
Anthracene	µg/L	0.035	Tox	0.32	0.63	Tox
Antimony, total	µg/L	5.5	HH	90	180	Tox
Arsenic, total	µg/L	2.0	HH	360	720	Tox
Atrazine (c)	µg/L	3.4	HH	323	645	Tox
Benzene (c)	µg/L	5.1	HH	4,487*	8,974*	Tox
Bromoform	µg/L	33	HH	2,900	5,800	Tox
Cadmium, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: exp.(0.7852[ln(total hardness mg/L)]-3.490)

The MS in µg/L shall not exceed: exp.(1.128[ln(total hardness mg/L)]-3.828)

The FAV in µg/L shall not exceed: exp.(1.128[ln(total hardness mg/L)]-3.1349)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total cadmium standards for five hardness values:

TH in mg/L	50	100	200	300	400
Cadmium, total					
CS µg/L	0.66	1.1	2.0	2.7	3.4
MS µg/L	1.8	3.9	8.6	14	19
FAV µg/L	3.6	7.8	17	27	37

Substance, Characteristic, or Pollutant (Class 2A)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
Carbon tetrachloride (c)	µg/L	1.9	HH	1750*	3500*	Tox
Chlordane (c)	ng/L	0.073	HH	1200*	2400*	Tox
Chloride	mg/L	230	Tox	860	1720	Tox
Chlorine, total residual	µg/L	11	Tox	19	38	Tox

Chlorine standard applies to conditions of continuous exposure, where continuous exposure refers to chlorinated effluents that are discharged for more than a total of two hours in any 24-hour period.

Chlorobenzene (Monochlorobenzene)	µg/L	20	HH	423	846	Tox
Chloroform (c)	µg/L	53	HH	1,392	2,784	Tox
Chlorpyrifos	µg/L	0.041	Tox	0.083	0.17	Tox
Chromium +3, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: exp.(0.819[ln(total hardness mg/L)]+1.561)

The MS in µg/L shall not exceed: exp.(0.819[ln(total hardness mg/L)]+3.688)

The FAV in µg/L shall not exceed: exp.(0.819[ln(total hardness mg/L)]+4.380)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total chromium +3 standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Chromium +3, total					
CS µg/L	117	207	365	509	644
MS µg/L	984	1,737	3,064	4,270	5,405
FAV µg/L	1,966	3,469	6,120	8,530	10,797

Substance, Characteristic, or Pollutant (Class 2A)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
Chromium +6, total	µg/L	11	Tox	16	32	Tox
Cobalt, total	µg/L	2.8	HH	436	872	Tox
Color value	Pt/Co	30	NA	--	--	NA
Copper, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: exp.(0.620[ln(total hardness mg/L)]-0.570)

The MS in µg/L shall not exceed: exp.(0.9422[ln(total hardness mg/L)]-1.464)

The FAV in µg/L shall not exceed: exp.(0.9422[ln(total hardness mg/L)]-0.7703)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total copper standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Copper, total					
CS µg/L	6.4	9.8	15	19	23
MS µg/L	9.2	18	34	50	65
FAV µg/L	18	35	68	100	131

Substance, Characteristic, or Pollutant (Class 2A)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
Cyanide, free	µg/L	5.2	Tox	22	45	Tox
DDT (c)	ng/L	0.11	HH	550*	1100*	Tox
1,2-Dichloroethane (c)	µg/L	3.5	HH	45,050*	90,100*	Tox
Dieldrin (c)	ng/L	0.0065	HH	1,300*	2,500*	Tox
Di-2-ethylhexyl phthalate (c)	µg/L	1.9	HH	--*	--*	NA
Di-n-octyl phthalate	µg/L	30	Tox	825	1,650	Tox
Endosulfan	µg/L	0.0076	HH	0.084	0.17	Tox
Endrin	µg/L	0.0039	HH	0.090	0.18	Tox
Escherichia (E.) coli	See below	See below	HH	See below	See below	NA

Not to exceed 126 organisms per 100 milliliters as a geometric mean of not less than five samples representative of conditions within any calendar month, nor shall more than ten percent of all samples taken during any calendar month individually exceed 1,260 organisms per 100 milliliters. The standard applies only between April 1 and October 31.

Ethylbenzene	µg/L	68	Tox	1,859	3,717	Tox

Substance, Characteristic, or Pollutant (Class 2A)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV

Eutrophication standards for aquatic life assigned to class 2A lakes and reservoirs.

Designated lake trout lakes in all ecoregions (lake trout lakes support ~~natural~~ populations of lake trout, Salvelinus namaycush):

Phosphorus, total	µg/L	~~12~~ 7	NA	--	--	NA
Chlorophyll-a	µg/L	3	NA	--	--	NA
Secchi disk transparency	meters	No less than ~~4.8~~ 3.5	NA	--	--	NA

Designated lake whitefish lakes in all ecoregions (lake whitefish lakes support populations of lake whitefish, Coregonus clupeaformis):

Phosphorus, total	µg/L	12	NA	--	--	NA
Chlorophyll-a	µg/L	5	NA	--	--	NA
Secchi disk transparency	meters	No less than 2.8	NA	--	--	NA

Designated cisco lakes in the Northern Lakes and Forests and Northern Minnesota Wetlands Ecoregions (cisco lakes support populations of cisco, Coregonus artedi):

Phosphorus, total	µg/L	20	NA	--	--	NA
Chlorophyll-a	µg/L	9	NA	--	--	NA
Secchi disk transparency	meters	No lessthan 1.8	NA	--	--	NA

Designated cisco lakes in all other ecoregions (cisco lakes support populations of cisco, Coregonus artedi):

Phosphorus, total	µg/L	25	NA	--	--	NA
Chlorophyll-a	µg/L	12	NA	--	--	NA
Secchi disk transparency	meters	No less than 1.3	NA	--	--	NA

Designated stream trout lakes in all ecoregions~~, except lake trout lakes~~ (stream trout lakes support or are managed for stream trout species, such as brook trout, rainbow trout, and brown trout, or trout hybrids, such as splake):

Phosphorus, total	µg/L	~~20~~ 15	NA	--	--	NA
Chlorophyll-a	µg/L	6	NA	--	--	NA
Secchi disk transparency	meters	No less than 2.5	NA	--	--	NA

Eutrophication standards for recreation assigned to class 2A lakes and reservoirs. Lakes and reservoirs in the Northern Lakes and Forest and Northern Minnesota Wetlands Ecoregions:

Phosphorus, total	µg/L	20	NA	--	--	NA
Chlorophyll-a	µg/L	9	NA	--	--	NA
Secchi disk transparency	meters	No less than 1.8	NA	--	--	NA

Lakes and reservoirs in the North Central Hardwood Forest Ecoregion:

Phosphorus, total	µg/L	40	NA	--	--	NA
Chlorophyll-a	µg/L	14	NA	--	--	NA
Secchi disk transparency	meters	No less than 1.4	NA	--	--	NA

Additional narrative eutrophication standards for class 2A lakes and reservoirs are found under subpart 2a.

Eutrophication standards for class 2A rivers and streams.

North River Nutrient Region:		
Phosphorus, total	µg/L	less than or equal to 50
Chlorophyll-a (seston)	µg/L	less than or equal to 7
Diel dissolved oxygen flux	mg/L	less than or equal to 3.0
Biochemical oxygen demand (BOD_5)	mg/L	less than or equal to 1.5

Central River Nutrient Region:

Phosphorus, total	µg/L	less than or equal to 100
Chlorophyll-a (seston)	µg/L	less than or equal to 18
Diel dissolved oxygen flux	mg/L	less than or equal to 3.5
Biochemical oxygen demand (BOD_5)	mg/L	less than or equal to 2.0

South River Nutrient Region:

Phosphorus, total	µg/L	less than or equal to 150
Chlorophyll-a (seston)	µg/L	less than or equal to 35
Diel dissolved oxygen flux	mg/L	less than or equal to 4.5
Biochemical oxygen demand (BOD_5)	mg/L	less than or equal to 3.0

Additional narrative eutrophication standards for class 2A rivers and streams are found under subpart 2b.

Substance, Characteristic, or Pollutant (Class 2A)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
Fluoranthene	µg/L	1.9	Tox	3.5	6.9	Tox
Heptachlor (c)	ng/L	0.10	HH	260*	520*	Tox
Heptachlor epoxide (c)	ng/L	0.12	HH	270*	530*	Tox
Hexachlorobenzene (c)	ng/L	0.061	HH	--*	--*	Tox
Lead, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: exp.(1.273[ln(total hardness mg/L)]-4.705)

The MS in µg/L shall not exceed: exp.(1.273[ln(total hardness mg/L)]-1.460)

The FAV in µg/L shall not exceed: exp.(1.273[ln(total hardness mg/L)]-0.7643)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total lead standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Lead, total					
CS µg/L	1.3	3.2	7.7	13	19
MS µg/L	34	82	197	331	477
FAV µg/L	68	164	396	663	956

Substance, Characteristic, or Pollutant (Class 2A)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
Lindane (c) (Hexachlorocyclohexane, gamma-)	µg/L	0.0087	HH	1.0*	2.0*	Tox
Mercury, total in water	ng/L	6.9	HH	2,400*	4,900*	Tox
Mercury, totalin edible fish	mg/kgppm	0.2	HH	NA	NA	NA
Methylene chloride (c) Dichloromethane)	µg/L	45	HH	13,875*	27,749*	Tox
Metolachlor	µg/L	23	Tox	271	543	Tox
Naphthalene	µg/L	65	HH	409	818	Tox
Nickel, total	µg/L	equation	Tox/HH	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS shall not exceed the human health-based standard of 297 µg/L. For waters with total hardness values less than 212 mg/L, the CS in µg/L is toxicity-based and shall not exceed: exp.(0.846[ln(total hardness mg/L)]+1.1645)

The MS in µg/L shall not exceed: exp.(0.846[ln(total hardness mg/L)]+3.3612)

The FAV in µg/L shall not exceed: exp.(0.846[ln(total hardness mg/L)]+4.0543)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total nickel standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Nickel, total					
CS µg/L	88	158	283	297	297
MS µg/L	789	1,418	2,549	3,592	4,582
FAV µg/L	1,578	2,836	5,098	7,185	9,164

Substance, Characteristic, or Pollutant (Class 2A)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
Oil	µg/L	500	NA	5,000	10,000	NA
Oxygen, dissolved	mg/L	See below	NA	--	--	NA

7.0 mg/L as a daily minimum. This dissolved oxygen standard requires compliance with the standard 50 percent of the days at which the flow of the receiving water is equal to the $7Q_{10}$.

Oxythermal habitat (T_{DO3})	°C	See below	NA	--	--	NA

An average T_{DO3} (temperature at 3 mg/L of dissolved oxygen) sufficient to support coldwater fish species must be maintained during the summer season. The following are specific to lakes supporting different coldwater fish species: 8.8°C for designated lake trout (Salvelinus namaycush) lakes. 17.2°C for designated lake whitefish (Coregonus clupeaformis) lakes. 21.2°C for designated cisco (Coregonus artedi) lakes.

Parathion	µg/L	0.013	Tox	0.07	0.13	Tox
Pentachlorophenol	µg/L	0.93	HH	equation	equation	Tox

The MS and FAV vary with pH and are calculated using the following equations:

The MS in µg/L shall not exceed: exp.(1.005[pH]-4.830)

The FAV in µg/L shall not exceed: exp.(1.005[pH]-4.1373)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For pH values less than 6.0, 6.0 shall be used to calculate the standard and for pH values greater than 9.0, 9.0 shall be used to calculate the standard.

Example of pentachlorophenol standards for five pH values:

pH su	6.5	7.0	7.5	8.0	8.5
Pentachlorophenol					
CS µg/L	0.93	0.93	0.93	0.93	0.93
MS µg/L	5.5	9.1	15	25	41
FAV µg/L	11	18	30	50	82

Substance, Characteristic, or Pollutant (Class 2A)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
pH, minimum	su	6.5	NA	--	--	NA
pH, maximum	su	8.5	NA	--	--	NA
Phenanthrene	µg/L	3.6	Tox	32	64	Tox
Phenol	µg/L	123	Tox	2,214	4,428	Tox
Polychlorinated biphenyls, total (c)	ng/L	0.014	HH	1,000*	2,000*	Tox
Radioactive materials	NA	See below	NA	See below	See below	NA

Not to exceed the lowest concentrations permitted to be discharged to an uncontrolled environment as permitted by the appropriate authority having control over their use.

Selenium, total	µg/L	5.0	Tox	20	40	Tox
Silver, total	µg/L	0.12	Tox	equation	equation	Tox

The MS and FAV vary with total hardness and are calculated using the following equations:

The MS in µg/L shall not exceed: exp.(1.720[ln(total hardness mg/L)]-7.2156)

The FAV in µg/L shall not exceed: exp.(1.720[ln(total hardness mg/L)]-6.520)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of silver standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Silver, total					
CS µg/L	0.12	0.12	0.12	0.12	0.12
MS µg/L	1.0	2.0	6.7	13	22
FAV µg/L	1.2	4.1	13	27	44

Substance, Characteristic, or Pollutant (Class 2A)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
Temperature	°C or°F	No material increase	NA	--	--	NA
1,1,2,2-Tetrachloroethane (c)	µg/L	1.1	HH	1,127*	2,253*	Tox
Tetrachloroethylene (c)	µg/L	3.8	HH	428*	857*	Tox
Thallium, total	µg/L	0.28	HH	64	128	Tox
Toluene	µg/L	253	Tox	1,352	2,703	Tox
Toxaphene (c)	ng/L	0.31	HH	730*	1,500*	Tox
1,1,1-Trichloroethane	µg/L	329	Tox	2,957	5,913	Tox
1,1,2-Trichloroethylene (c)	µg/L	25	HH	6,988*	13,976*	Tox
2,4,6-Trichlorophenol	µg/L	2.0	HH	102	203	Tox
Total suspended solids (TSS) TSS standards for class 2A may be exceeded for no more than ten percent of the time. This standard applies April 1 through September 30	mg/L	10	NA	--	--	NA
Vinyl chloride (c)	µg/L	0.17	HH	--*	--*	NA
Xylene, total m,p,o	µg/L	166	Tox	1,407	2,814	Tox
Zinc, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: exp.(0.8473[ln(total hardness mg/L)]+0.7615)

The MS in µg/L shall not exceed: exp.(0.8473[ln(total hardness mg/L)]+0.8604)

The FAV in µg/L shall not exceed: exp.(0.8473[ln(total hardness mg/L)]+1.5536

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of zinc standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Zinc, total					
CS µg/L	59	106	191	269	343
MS µg/L	65	117	211	297	379
FAV µg/L	130	234	421	594	758

[For text of subparts 2a and 2b, see Minnesota Rules]

Subp. 2c. **Beneficial use definitions for ~~lotic~~ coldwater aquatic life and habitats (class 2A).**

A. Subitems (1) to (5) apply to the beneficial uses in items B and C:

[For text of subitem (1), see Minnesota Rules]

(2) The attributes of species composition, diversity, and functional organization are measured using:

(a) the fish IBI for lotic habitats as defined in Fish Data Collection Protocols for Lotic Waters in Minnesota (2017); ~~or~~

(b) the macroinvertebrate IBI for lotic habitats as defined in Macroinvertebrate Data Collection Protocols for Lotic Waters in Minnesota (2017)~~.~~; or

(c) the fish IBI for lentic habitats as defined in Manual of Instructions for Lake Survey (2017) and Lake Index of Biological Integrity (IBI) Nearshore Sampling Manual (2022).

(3) Water body types ~~for streams and rivers~~ are defined in the documents referenced in subitem (2).

(4) The following documents are incorporated by reference and are not subject to frequent change:

(a) Calibration of the Biological Condition Gradient for Streams of Minnesota, Gerritsen et al. (2012). The document is available on the agency's website at ~~www.pca.state.mn.us/regulations/minnesota-rulemaking~~ https://www.pca.state.mn.us/get-engaged/incorporations-by-reference;

(b) Fish Data Collection Protocols for Lotic Waters in Minnesota, Minnesota Pollution Control Agency (2017). The document is available on the agency's website at ~~www.pca.state.mn.us/regulations/minnesota-rulemaking~~ https://www.pca.state.mn.us/get-engaged/incorporations-by-reference;

(c) Macroinvertebrate Data Collection Protocols for Lotic Waters in Minnesota, Minnesota Pollution Control Agency (2017). The document is available on the agency's website at ~~www.pca.state.mn.us/regulations/~~

~~minnesota-rulemaking~~ https://www.pca.state.mn.us/get-engaged/incorporations-by-reference; ~~and~~

(d) Development of Biological Criteria for Tiered Aquatic Life Uses, Minnesota Pollution Control Agency (2016). The document is available on the agency's website at ~~www.pca.state.mn.us/regulations/minnesota-rulemaking.~~ https://www.pca.state.mn.us/get-engaged/incorporations-by-reference;

(e) Biological Condition Gradient (BCG) Assessment Models for Lake Fish Communities of Minnesota, Gerritsen and Stamp (2014). The document is available on the agency's website at https://www.pca.state.mn.us/get-engaged/incorporations-by-reference;

(f) Manual of Instructions for Lake Survey, Minnesota Department of Natural Resources (2017). The document is available on the agency's website at https://www.pca.state.mn.us/get-engaged/incorporations-by-reference;

(g) Lake Index of Biological Integrity (IBI) Nearshore Sampling Manual, Minnesota Department of Natural Resources (2022). The document is available on the agency's website at https://www.pca.state.mn.us/get-engaged/incorporations-by-reference; and

(h) Development of Fish-Based Indices of Biological Integrity for Minnesota Lakes, Bacigalupi et al. (2021). The document is available on the agency's website at https://www.pca.state.mn.us/get-engaged/incorporations-by-reference.

(5) The beneficial use subclass designators "e" and "g" are added to the class 2A designator as specific additional designators. The additional subclass designators do not replace the class 2A designator. All requirements for class 2A coldwater ~~stream and river~~ habitats in parts 7050.0222 and 7052.0100 continue to apply in addition to requirements for class 2Ae or class 2Ag coldwater ~~stream and river~~ habitats in part 7050.0222. ~~These subclass designators are applied to lotic waters only.~~

B. "Exceptional coldwater aquatic life and habitat" or "class 2Ae" is a beneficial use that means waters capable of supporting and maintaining an exceptional and balanced, integrated, adaptive community of coldwater aquatic organisms having a species composition, diversity, and functional organization comparable to the 75th percentile of biological condition gradient level 3 as established in Calibration of the Biological Condition Gradient for Streams of Minnesota, Gerritsen et al. (2012) for streams and rivers and in Biological Condition Gradient (BCG) Assessment Models for Lake Fish Communities of Minnesota, Gerritsen and Stamp (2014) for lakes.

C. "General coldwater aquatic life and habitat" or "class 2Ag" is a beneficial use that means waters capable of supporting and maintaining a balanced, integrated, adaptive community of coldwater aquatic organisms having a species composition, diversity, and functional organization comparable to the median of biological condition gradient level 4 as established in Calibration of the Biological Condition Gradient for Streams of Minnesota, Gerritsen et al. (2012) for streams and rivers and in Biological Condition Gradient (BCG) Assessment Models for Lake Fish Communities of Minnesota, Gerritsen and Stamp (2014) for lakes.

Subp. 2d. **Biological criteria for ~~lotic~~ coldwater aquatic life and habitats (class 2A).**

Water Body Type	Tier	Class	Assemblage	Biocriterion
Southern coldwater streams	Exceptional	2Ae	Fish	82
	General	2Ag	Fish	50
Northern coldwater streams	Exceptional	2Ae	Fish	60
	General	2Ag	Fish	35
Northern coldwater streams	Exceptional	2Ae	Macroinvertebrates	52

Water Body Type	Tier	Class	Assemblage	Biocriterion
	General	2Ag	Macroinvertebrates	32
Southern coldwater streams	Exceptional	2Ae	Macroinvertebrates	72
	General	2Ag	Macroinvertebrates	43
Deep, complex lakes	Exceptional	2Ae	Fish	64
	General	2Ag	Fish	45
Deep, moderately complex lakes	Exceptional	2Ae	Fish	59
	General	2Ag	Fish	38
Moderately deep lakes	General	2Ag	Fish	24
Shallow lakes	General	2Ag	Fish	36

The biological criteria for lotic coldwater aquatic life and habitats (class 2A) are applicable to perennial and intermittent waters that allow for colonization of fish or macroinvertebrates.

Subp. 3. **Class 2Bd waters.** The quality of class 2Bd surface waters shall be such as to permit the propagation and maintenance of a healthy community of cool or warm water aquatic biota and their habitats according to the definitions in subpart 3c. These waters shall be suitable for aquatic recreation of all kinds, including bathing, for which the waters may be usable. This class of surface waters is also protected as a source of drinking water. The applicable standards are given below. Abbreviations, acronyms, and symbols are explained in subpart 1.

Substance, Characteristic, or Pollutant (Class 2Bd)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
Acenaphthene	µg/L	20	HH	56	112	Tox
Acetochlor	µg/L	3.6	Tox	86	173	Tox
Acrylonitrile (c)	µg/L	0.38	HH	1,140*	2,281*	Tox
Alachlor (c)	µg/L	4.2	HH	800*	1,600*	Tox
Aluminum, total	µg/L	125	Tox	1,072	2,145	Tox
Ammonia un-ionized as N	µg/L	40	Tox	--	--	NA

The percent un-ionized ammonia can be calculated for any temperature and pH by using the following equation taken from Emerson, K., R.C. Russo, R.E. Lund, and R.V. Thurston, Aqueous ammonia equilibrium calculations; effect of pH and temperature. Journal of the Fisheries Research Board of Canada 32: 2379-2383 (1975):

$$f = 1/(10^{(pka-pH)} + 1) \times 100$$

where: f = the percent of total ammonia in the un-ionized state

$pk_a = 0.09 + (2730/T)$ (dissociation constant for ammonia)

T = temperature in degrees Kelvin (273.16° Kelvin = 0° Celsius)

Substance, Characteristic, or Pollutant (Class 2Bd)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
Anthracene	µg/L	0.035	Tox	0.32	0.63	Tox
Antimony, total	µg/L	5.5	HH	90	180	Tox
Arsenic, total	µg/L	2.0	HH	360	720	Tox
Atrazine (c)	µg/L	3.4	HH	323	645	Tox
Benzene (c)	µg/L	6.0	HH	4,487*	8,974*	Tox
Bromoform	µg/L	41	HH	2,900	5,800	Tox
Cadmium, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: exp.(0.7852[ln(total hardness mg/L)]-3.490)

The MS in µg/L shall not exceed: exp.(1.128[ln(total hardness mg/L)]-1.685)

The FAV in µg/L shall not exceed: exp.(1.128[ln(total hardness mg/L)]-0.9919)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total cadmium standards for five hardness values:

TH in mg/L	50	100	200	300	400
Cadmium, total					
CS µg/L	0.66	1.1	2.0	2.7	3.4
MS µg/L	15	33	73	116	160
FAV µg/L	31	67	146	231	319

Substance, Characteristic, or Pollutant (Class 2Bd)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
Carbon tetrachloride (c)	µg/L	1.9	HH	1,750*	3,500*	Tox
Chlordane (c)	ng/L	0.29	HH	1,200*	2,400*	Tox
Chloride	mg/L	230	Tox	860	1,720	Tox
Chlorine, total residual	µg/L	11	Tox	19	38	Tox

Chlorine standard applies to conditions of continuous exposure, where continuous exposure refers to chlorinated effluents that are discharged for more than a total of two hours in any 24-hour period.

Chlorobenzene (Monochlorobenzene)	µg/L	20	HH	423	846	Tox
Chloroform (c)	µg/L	53	HH	1,392	2,784	Tox
Chlorpyrifos	µg/L	0.041	Tox	0.083	0.17	Tox
Chromium +3, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: exp.(0.819[ln(total hardness mg/L)]+1.561)

The MS in µg/L shall not exceed: exp.(0.819[ln(total hardness mg/L)]+3.688)

The FAV in µg/L shall not exceed: exp.(0.819[ln(total hardness mg/L)]+4.380)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total chromium +3 standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Chromium +3, total					
CS µg/L	117	207	365	509	644
MS µg/L	984	1,737	3,064	4,270	5,405
FAV µg/L	1,966	3,469	6,120	8,530	10,797

Substance, Characteristic, or Pollutant (Class 2Bd)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
Chromium +6, total	µg/L	11	Tox	16	32	Tox
Cobalt, total	µg/L	2.8	HH	436	872	Tox
Copper, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: exp.(0.620[ln(total hardness mg/L)]-0.570)

The MS in µg/L shall not exceed: exp.(0.9422[ln(total hardness mg/L)]-1.464)

The FAV in µg/L shall not exceed: exp.(0.9422[ln(total hardness mg/L)]-0.7703)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total copper standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Copper, total					
CS µg/L	6.4	9.8	15	19	23
MS µg/L	9.2	18	34	50	65
FAV µg/L	18	35	68	100	131

Substance, Characteristic, or Pollutant (Class 2Bd)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
Cyanide, free	µg/L	5.2	Tox	22	45	Tox
DDT (c)	ng/L	1.7	HH	550*	1,100*	Tox
1,2-Dichloroethane (c)	µg/L	3.8	HH	45,050*	90,100*	Tox
Dieldrin (c)	ng/L	0.026	HH	1,300*	2,500*	Tox
Di-2-ethylhexyl phthalate (c)	µg/L	1.9	HH	--*	--*	NA
Di-n-octyl phthalate	µg/L	30	Tox	825	1,650	Tox
Endosulfan	µg/L	0.029	HH	0.28	0.56	Tox
Endrin	µg/L	0.016	HH	0.090	0.18	Tox
Escherichia (E.) coli	See below	See below	HH	See below	See below	NA

Not to exceed 126 organisms per 100 milliliters as a geometric mean of not less than five samples representative of conditions within any calendar month, nor shall more than ten percent of all samples taken during any calendar month individually exceed 1,260 organisms per 100 milliliters. The standard applies only between April 1 and October 31.

Ethylbenzene	µg/L	68	Tox	1,859	3,717	Tox

Substance, Characteristic, or Pollutant (Class 2Bd)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**

Eutrophication standards for class 2Bd lakes~~, shallow lakes,~~ and reservoirs. Dimictic Lakes~~, Shallow Lakes,~~ and Reservoirs in Northern Lakes and ~~Forest Ecoregion~~ Forests and Northern Minnesota Wetlands Ecoregions:

Phosphorus, total	µg/L	~~30~~ 20	NA	--	--	NA
Chlorophyll-a	µg/L	9	NA	--	--	NA
Secchi disk transparency	meters	Not less than ~~2.0~~ 1.8	NA	--	--	NA

Dimictic Lakes and Reservoirs in North Central Hardwood ~~Forest~~ Forests Ecoregion:

Phosphorus, total	µg/L	40	NA	--	--	NA
Chlorophyll-a	µg/L	14	NA	--	--	NA
Secchi disk transparency	meters	Not less than 1.4	NA	--	--	NA

Dimictic Lakes and Reservoirs in Western Corn Belt Plains and Northern Glaciated Plains Ecoregions:

Phosphorus, total	µg/L	65	NA	--	--	NA
Chlorophyll-a	µg/L	22	NA	--	--	NA
Secchi disk transparency	meters	Not less than 0.9	NA	--	--	NA

Polymictic Lakes in Northern Lakes and Forests and Northern Minnesota Wetlands Ecoregions:

Phosphorus, total	µg/L	32	NA	--	--	NA
Chlorophyll-a	µg/L	18	NA	--	--	NA
Secchi disk transparency	meters	Not less than 0.9	NA	--	--	NA

~~Shallow~~ Polymictic Lakes in North Central Hardwood ~~Forest~~ Forests Ecoregion:

Phosphorus, total	µg/L	60	NA	--	--	NA
Chlorophyll-a	µg/L	20	NA	--	--	NA
Secchi disk transparency	meters	Not less than 1.0	NA	--	--	NA

~~Shallow~~ Polymictic Lakes in Western Corn Belt Plains and Northern Glaciated Plains Ecoregions:

Phosphorus, total	µg/L	90	NA	--	--	NA
Chlorophyll-a	µg/L	30	NA	--	--	NA
Secchi disk transparency	meters	Not less than 0.7	NA	--	--	NA

Additional narrative eutrophication standards for class 2Bd lakes~~, shallow lakes,~~ and reservoirs are found under subpart 3a.

Eutrophication standards for class 2Bd rivers and streams.

North River Nutrient Region:

Phosphorus, total	µg/L	less than or equal to 50
Chlorophyll-a (seston)	µg/L	less than or equal to 7
Diel dissolved oxygen flux	mg/L	less than or equal to 3.0
Biochemical oxygen demand (BOD_5)	mg/L	less than or equal to 1.5

Central River Nutrient Region:

Phosphorus, total	µg/L	less than or equal to 100
Chlorophyll-a (seston)	µg/L	less than or equal to 18
Diel dissolved oxygen flux	mg/L	less than or equal to 3.5
Biochemical oxygen demand (BOD_5)	mg/L	less than or equal to 2.0

South River Nutrient Region:

Phosphorus, total	µg/L	less than or equal to 150
Chlorophyll-a (seston)	µg/L	less than or equal to 35
Diel dissolved oxygen flux	mg/L	less than or equal to 4.5
Biochemical oxygen demand (BOD_5)	mg/L	less than or equal to 3.0

Additional narrative eutrophication standards for class 2Bd rivers and streams are found under subpart 3b.

Substance, Characteristic, or Pollutant (Class 2Bd)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
Fluoranthene	µg/L	1.9	Tox	3.5	6.9	Tox
Heptachlor (c)	ng/L	0.39	HH	260*	520*	Tox
Heptachlor epoxide (c)	ng/L	0.48	HH	270*	530*	Tox
Hexachlorobenzene (c)	ng/L	0.24	HH	--*	--*	Tox
Lead, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: exp.(1.273[ln(total hardness mg/L)]-4.705)

The MS in µg/L shall not exceed: exp.(1.273[ln(total hardness mg/L)]-1.460)

The FAV in µg/L shall not exceed: exp.(1.273[ln(total hardness mg/L)]-0.7643)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total lead standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Lead, total					
CS µg/L	1.3	3.2	7.7	13	19
MS µg/L	34	82	197	331	477
FAV µg/L	68	164	396	663	956

Substance, Characteristic, or Pollutant (Class 2Bd)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
Lindane (c) (Hexachlorocyclohexane, gamma-)	µg/L	0.032	HH	4.4*	8.8*	Tox
Mercury, total in water	ng/L	6.9	HH	2,400*	4,900*	Tox

Substance, Characteristic, or Pollutant (Class 2Bd)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
Mercury, totalin edible fish tissue	mg/kgppm	0.2	HH	NA	NA	NA
Methylene chloride (c) (Dichloromethane)	µg/L	46	HH	13,875*	27,749*	Tox
Metolachlor	µg/L	23	Tox	271	543	Tox
Naphthalene	µg/L	81	Tox	409	818	Tox
Nickel, total	µg/L	equation	Tox/HH	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS shall not exceed the human health-based standard of 297 µg/L. For waters with total hardness values less than 212 mg/L, the CS in µg/L is toxicity-based and shall not exceed: exp.(0.846[ln(total hardness mg/L)]+1.1645)

The MS in µg/L shall not exceed: exp.(0.846[ln(total hardness mg/L)]+3.3612)

The FAV in µg/L shall not exceed: exp.(0.846[ln(total hardness mg/L)]+4.0543)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total nickel standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Nickel, total					
CS µg/L	88	158	283	297	297
MS µg/L	789	1,418	2,549	3,592	4,582
FAV µg/L	1,578	2,836	5,098	7,185	9,164

Substance, Characteristic, or Pollutant (Class 2Bd)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
Oil	µg/L	500	NA	5,000	10,000	NA
Oxygen, dissolved	mg/L	See below	NA	--	--	NA

5.0 mg/L as a daily minimum. This dissolved oxygen standard may be modified on a site-specific basis according to part 7050.0220, subpart 7, except that no site-specific standard shall be less than 5 mg/L as a daily average and 4 mg/L as a daily minimum. Compliance with this standard is required 50 percent of the days at which the flow of the receiving water is equal to the $7Q_{10}$.

Parathion	µg/L	0.013	Tox	0.07	0.13	Tox
Pentachlorophenol	µg/L	1.9	HH	equation	equation	Tox

The MS and FAV vary with pH and are calculated using the following equations:

The MS in µg/L shall not exceed: exp.(1.005[pH]-4.830)

The FAV in µg/L shall not exceed: exp.(1.005[pH]-4.1373)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For pH values less than 6.0, 6.0 shall be used to calculate the standard and for pH values greater than 9.0, 9.0 shall be used to calculate the standard.

Example of pentachlorophenol standards for five pH values:

pH su	6.5	7.0	7.5	8.0	8.5
Pentachlorophenol					
CS µg/L	1.9	1.9	1.9	1.9	1.9
MS µg/L	5.5	9.1	15	25	41
FAV µg/L	11	18	30	50	82

Substance, Characteristic, or Pollutant (Class 2Bd)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
pH, minimum	su	6.5	NA	--	--	NA
pH, maximum	su	9.0	NA	--	--	NA
Phenanthrene	µg/L	3.6	Tox	32	64	Tox
Phenol	µg/L	123	Tox	2,214	4,428	Tox
Polychlorinated biphenyls, total (c)	ng/L	0.029	HH	1,000*	2,000*	Tox
Radioactive materials	NA	See below	NA	See below	See below	NA

Not to exceed the lowest concentrations permitted to be discharged to an uncontrolled environment as permitted by the appropriate authority having control over their use.

Selenium, total	µg/L	5.0	Tox	20	40	Tox
Silver, total	µg/L	1.0	Tox	equation	equation	Tox

The MS and FAV vary with total hardness and are calculated using the following equations:

The MS in µg/L shall not exceed: exp.(1.720[ln(total hardness mg/L)]-7.2156)

The FAV in µg/L shall not exceed: exp.(1.720[ln(total hardness mg/L)]-6.520)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total silver standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Silver, total					
CS µg/L	1.0	1.0	1.0	1.0	1.0
MS µg/L	1.0	2.0	6.7	13	22
FAV µg/L	1.2	4.1	13	27	44

Substance, Characteristic, or Pollutant (Class 2Bd)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
Temperature	°F	See below	NA	--	--	NA

5°F above natural in streams and 3°F above natural in lakes, based on monthly average of the maximum daily temperatures, except in no case shall it exceed the daily average temperature of 86°F.

1,1,2,2-Tetrachloroethane (c)	µg/L	1.5	HH	1,127*	2,253*	Tox
Tetrachloroethylene (c)	µg/L	3.8	HH	428*	857*	Tox
Thallium, total	µg/L	0.28	HH	64	128	Tox
Toluene	µg/L	253	Tox	1,352	2,703	Tox
Toxaphene (c)	ng/L	1.3	HH	730*	1,500*	Tox
1,1,1-Trichloroethane	µg/L	329	Tox	2,957	5,913	Tox
1,1,2-Trichloroethylene (c)	µg/L	25	HH	6,988*	13,976*	Tox
2,4,6-Trichlorophenol	µg/L	2.0	HH	102	203	Tox
Total suspended solids (TSS)						
North River Nutrient Region	mg/L	15	NA	-	-	NA
Central River Nutrient Region	mg/L	30	NA	-	-	NA
South River Nutrient Region	mg/L	65	NA	-	-	NA
Red River mainstem - headwaters to border TSS standards for the class 2Bd North, Central, and South River Nutrient Regions and the Red River mainstem may be exceeded for no more than ten percent of the time. This standard applies April 1 through September 30	mg/L	100	NA	-	-	NA
Total suspended solids (TSS), summer average						
Lower Mississippi River mainstem - Pools 2 through 4	mg/L	32	NA	-	-	NA
Lower Mississippi River mainstem below Lake Pepin TSS standards for the class 2Bd Lower Mississippi River may be exceeded for no more than 50 percent of the time. This standard applies June 1 through September 30	mg/L	30	NA	-	-	NA

Substance, Characteristic, or Pollutant (Class 2Bd)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
Vinyl chloride (c)	µg/L	0.18	HH	--*	--*	NA

Substance, Characteristic, or Pollutant (Class 2Bd)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
Xylene, total m,p,o	µg/L	166	Tox	1,407	2,814	Tox
Zinc, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: exp.(0.8473[ln(total hardness mg/L)]+0.7615)

The MS in µg/L shall not exceed: exp.(0.8473[ln(total hardness mg/L)]+0.8604)

The FAV in µg/L shall not exceed: exp.(0.8473[ln(total hardness mg/L)]+1.5536)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total zinc standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Zinc, total					
CS µg/L	59	106	191	269	343
MS µg/L	65	117	211	297	379
FAV µg/L	130	234	421	594	758

Subp. 3a. **Narrative eutrophication standards for class 2Bd lakes~~, shallow lakes,~~ and reservoirs.**

A. Eutrophication standards applicable to lakes~~, shallow lakes,~~ and reservoirs that lie on the border between two ecoregions or that are in the Red River Valley (also referred to as Lake Agassiz Plains), Northern Minnesota Wetlands, or Driftless Area Ecoregion must be applied on a case-by-case basis. The commissioner shall use the standards applicable to adjacent ecoregions as a guide.

[For text of item B, see Minnesota Rules]

C. It is the policy of the agency to protect all lakes~~, shallow lakes,~~ and reservoirs from the undesirable effects of cultural eutrophication. Lakes~~, shallow lakes,~~ and reservoirs with a baseline quality better than the numeric eutrophication standards in subpart 3 must be maintained in that condition through the strict application of all relevant federal, state, and local requirements governing antidegradation, the discharge of nutrients from point and nonpoint sources, and the protection of lake~~, shallow lake,~~ and reservoir resources, including, but not limited to:

[For text of subitems (1) to (7), see Minnesota Rules]

D. Lakes~~, shallow lakes,~~ and reservoirs with a baseline quality that is poorer than the numeric eutrophication standards in subpart 3 must be considered to be in compliance with the standards if the baseline quality is the result of natural causes. The commissioner shall determine baseline quality and compliance with these standards using data and the procedures in part 7050.0150, subpart 5.

[For text of item E, see Minnesota Rules]

[For text of subpart 3b, see Minnesota Rules]

Subp. 3c. **Beneficial use definitions for ~~lotic~~ warm or cool water aquatic life and habitats (class 2Bd).**

A. Subitems (1) to (5) apply to the beneficial uses in items B to D:

[For text of subitem (1), see Minnesota Rules]

(2) The attributes of species composition, diversity, and functional organization are measured using:

(a) the fish IBI as defined in Fish Data Collection Protocols for Lotic Waters in Minnesota (2017); ~~or~~

(b) the macroinvertebrate IBI as defined in Macroinvertebrate Data Collection Protocols for Lotic Waters in Minnesota (2017)~~.~~; or

(c) the fish IBI for lentic habitats as defined in Manual of Instructions for Lake Survey (2017) and Lake Index of Biological Integrity (IBI) Nearshore Sampling Manual (2022).

(3) Water body types ~~for streams and rivers~~ are defined in the documents referenced in subitem (2).

(4) The following documents are incorporated by reference and are not subject to frequent change:

(a) Calibration of the Biological Condition Gradient for Streams of Minnesota, Gerritsen et al. (2012). The document is available on the agency's website at ~~www.pca.state.mn.us/regulations/minnesota-rulemaking~~ https://www.pca.state.mn.us/get-engaged/incorporations-by-reference;

(b) Fish Data Collection Protocols for Lotic Waters in Minnesota, Minnesota Pollution Control Agency (2017). The document is available on the agency's website at ~~www.pca.state.mn.us/regulations/minnesota-rulemaking~~ https://www.pca.state.mn.us/get-engaged/incorporations-by-reference;

(c) Macroinvertebrate Data Collection Protocols for Lotic Waters in Minnesota, Minnesota Pollution Control Agency (2017). The document is available on the agency's website at ~~www.pca.state.mn.us/regulations/minnesota-rulemaking~~ https://www.pca.state.mn.us/get-engaged/incorporations-by-reference; ~~and~~

(d) Development of Biological Criteria for Tiered Aquatic Life Uses, Minnesota Pollution Control Agency (2016). The document is available on the agency's website at ~~www.pca.state.mn.us/regulations/minnesota-rulemaking.~~ https://www.pca.state.mn.us/get-engaged/incorporations-by-reference;

(e) Biological Condition Gradient (BCG) Assessment Models for Lake Fish Communities of Minnesota, Gerritsen and Stamp (2014). The document is available on the agency's website at https://www.pca.state.mn.us/get-engaged/incorporations-by-reference;

(f) Manual of Instructions for Lake Survey, Minnesota Department of Natural Resources (2017). The document is available on the agency's website at https://www.pca.state.mn.us/get-engaged/incorporations-by-reference;

(g) Lake Index of Biological Integrity (IBI) Nearshore Sampling Manual, Minnesota Department of Natural Resources (2022). The document is available on the agency's website at https://www.pca.state.mn.us/get-engaged/incorporations-by-reference; and

(h) Development of Fish-Based Indices of Biological Integrity for Minnesota Lakes, Bacigalupi et al. (2021). The document is available on the agency's website at https://www.pca.state.mn.us/get-engaged/incorporations-by-reference.

(5) The beneficial use subclass designators "e," "g," and "m" are added to the class 2Bd designator as specific additional designators. The additional subclass designators do not replace the class 2Bd designator. All requirements for class 2Bd warm or cool water ~~stream and river~~ habitats in parts 7050.0222 and 7052.0100 continue to apply in addition to requirements for class 2Bde, class 2Bdg, or class 2Bdm warm or cool water ~~stream and river~~ habitats in part 7050.0222. ~~These~~ The "m" subclass ~~designators are~~ designator is applied to lotic waters only.

B. "Exceptional cool and warm water aquatic life and habitat, also protected as a source for drinking water" or "class 2Bde" is a beneficial use that means waters capable of supporting and maintaining an exceptional and balanced, integrated, adaptive community of warm or cool water aquatic organisms having a species composition, diversity, and functional organization comparable to the 75th percentile of biological condition gradient level 3 as established in Calibration of the Biological Condition Gradient for Streams of Minnesota, Gerritsen et al. (2012) for streams and rivers and in Biological Condition Gradient (BCG) Assessment Models for Lake Fish Communities of Minnesota, Gerritsen and Stamp (2014) for lakes.

C. "General cool and warm water aquatic life and habitat, also protected as a source for drinking water" or "class 2Bdg" is a beneficial use that means waters capable of supporting and maintaining a balanced, integrated, adaptive community of warm or cool water aquatic organisms having a species composition, diversity, and functional organization comparable to the median of biological condition gradient level 4 as established in Calibration of the Biological Condition Gradient for Streams of Minnesota, Gerritsen et al. (2012) for streams and rivers and in Biological Condition Gradient (BCG) Assessment Models for Lake Fish Communities of Minnesota, Gerritsen and Stamp (2014) for lakes.

[For text of item D, see Minnesota Rules]

Subp. 3d. **Biological criteria for ~~lotic~~ warm or cool water aquatic life and habitats (class 2Bd).**

Water Body Type	Tier	Class	Assemblage	Biocriterion
Southern rivers	Exceptional	2Bde	Fish	71
	General	2Bdg	Fish	49
Southern streams	Exceptional	2Bde	Fish	66
	General	2Bdg	Fish	50
	Modified	2Bdm	Fish	35
Southern headwaters	Exceptional	2Bde	Fish	74
	General	2Bdg	Fish	55
	Modified	2Bdm	Fish	33
Northern rivers	Exceptional	2Bde	Fish	67
	General	2Bdg	Fish	38
Northern streams	Exceptional	2Bde	Fish	61
	General	2Bdg	Fish	47
	Modified	2Bdm	Fish	35
Northern headwaters	Exceptional	2Bde	Fish	68
	General	2Bdg	Fish	42
	Modified	2Bdm	Fish	23
Low gradient	Exceptional	2Bde	Fish	70
	General	2Bdg	Fish	42
	Modified	2Bdm	Fish	15
Northern forest rivers	Exceptional	2Bde	Macroinvertebrates	77
	General	2Bdg	Macroinvertebrates	49
Prairie and southern forest rivers	Exceptional	2Bde	Macroinvertebrates	63
	General	2Bdg	Macroinvertebrates	31
High-gradient northern forest streams	Exceptional	2Bde	Macroinvertebrates	82
	General	2Bdg	Macroinvertebrates	53

Water Body Type	Tier	Class	Assemblage	Biocriterion
Low-gradient northern forest streams	Exceptional	2Bde	Macroinvertebrates	76
	General	2Bdg	Macroinvertebrates	51
	Modified	2Bdm	Macroinvertebrates	37
High-gradient southern streams	Exceptional	2Bde	Macroinvertebrates	62
	General	2Bdg	Macroinvertebrates	37
	Modified	2Bdm	Macroinvertebrates	24
Low-gradient southern forest streams	Exceptional	2Bde	Macroinvertebrates	66
	General	2Bdg	Macroinvertebrates	43
	Modified	2Bdm	Macroinvertebrates	30
Low-gradient prairie streams	Exceptional	2Bde	Macroinvertebrates	69
	General	2Bdg	Macroinvertebrates	41
	Modified	2Bdm	Macroinvertebrates	22
Deep, complex lakes	Exceptional	2Ae	Fish	64
	General	2Ag	Fish	45
Deep, moderately complex lakes	Exceptional	2Ae	Fish	59
	General	2Ag	Fish	38
Moderately deep lakes	General	2Ag	Fish	24
Shallow lakes	General	2Ag	Fish	36

The biological criteria for lotic warm or cool water aquatic life and habitats (class 2Bd) are applicable to perennial and intermittent waters that allow for colonization of fish or macroinvertebrates.

Subp. 4. **Class 2B waters.** The quality of class 2B surface waters shall be such as to permit the propagation and maintenance of a healthy community of cool or warm water aquatic biota, and their habitats according to the definitions in subpart 4c. These waters shall be suitable for aquatic recreation of all kinds, including bathing, for which the waters may be usable. This class of surface water is not protected as a source of drinking water. The applicable standards are given below. Abbreviations, acronyms, and symbols are explained in subpart 1.

Substance, Characteristic, or Pollutant (Class 2B)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
Acenaphthene	µg/l	20	HH	56	112	Tox
Acetochlor	µg/L	3.6	Tox	86	173	Tox
Acrylonitrile (c)	µg/l	0.89	HH	1,140*	2,281*	Tox
Alachlor (c)	µg/L	59	Tox	800	1,600	Tox
Aluminum, total	µg/L	125	Tox	1,072	2,145	Tox

Substance, Characteristic, or Pollutant (Class 2B)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
Ammonia un-ionized as N	µg/L	40	Tox	--	--	NA

The percent un-ionized ammonia can be calculated for any temperature and pH by using the following equation taken from Emerson, K., R.C. Russo, R.E. Lund, and R.V. Thurston, Aqueous ammonia equilibrium calculations; effect of pH and temperature. Journal of the Fisheries Research Board of Canada 32: 2379-2383 (1975):

$$f = 1/(10^{(pka-pH)} + 1) \times 100$$

where: f = the percent of total ammonia in the un-ionized state
$pk_a = 0.09 + (2730/T)$ (dissociation constant for ammonia)
T = temperature in degrees Kelvin (273.16° Kelvin = 0° Celsius)

Substance, Characteristic, or Pollutant (Class 2B)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
Anthracene	µg/L	0.035	Tox	0.32	0.63	Tox
Antimony, total	µg/L	31	Tox	90	180	Tox
Arsenic, total	µg/L	53	HH	360	720	Tox
Atrazine (c)	µg/L	10	Tox	323	645	Tox
Benzene (c)	µg/L	98	HH	4,487	8,974	Tox
Bromoform	µg/L	466	HH	2,900	5,800	Tox
Cadmium, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: exp.(0.7852[ln(total hardness mg/L)]-3.490)

The MS in µg/L shall not exceed: exp.(1.128[ln(total hardness mg/L)]-1.685)

The FAV in µg/L shall not exceed: exp.(1.128[ln(total hardness mg/L)]-0.9919)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total cadmium standards for five hardness values:

TH in mg/L	50	100	200	300	400
Cadmium, total					
CS µg/L	0.66	1.1	2.0	2.7	3.4
MS µg/L	15	33	73	116	160
FAV µg/L	31	67	146	231	319

Substance, Characteristic, or Pollutant (Class 2B)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
Carbon tetrachloride (c)	µg/L	5.9	HH	1,750*	3,500*	Tox
Chlordane (c)	ng/L	0.29	HH	1,200*	2,400*	Tox
Chloride	mg/L	230	Tox	860	1,720	Tox
Chlorine, total residual	µg/L	11	Tox	19	38	Tox

Chlorine standard applies to conditions of continuous exposure, where continuous exposure refers to chlorinated effluents that are discharged for more than a total of two hours in any 24-hour period.

Chlorobenzene (Monochlorobenzene)	µg/L	20	HH	423	846	Tox
Chloroform (c)	µg/L	155	Tox	1,392	2,784	Tox
Chlorpyrifos	µg/L	0.041	Tox	0.083	0.17	Tox
Chromium +3, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations

The CS in µg/L shall not exceed: exp.(0.819[ln(total hardness mg/L)]+1.561)

The MS in µg/L shall not exceed: exp.(0.819[ln(total hardness mg/L)]+3.688)

The FAV in µg/L shall not exceed: exp.(0.819[ln(total hardness mg/L)]+4.380)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total chromium +3 standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Chromium +3, total					
CS µg/L	117	207	365	509	644
MS µg/L	984	1,737	3,064	4,270	5,405
FAV µg/L	1,966	3,469	6,120	8,530	10,797

Substance, Characteristic, or Pollutant (Class 2B)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
Chromium +6, total	µg/L	11	Tox	16	32	Tox
Cobalt, total	µg/L	5.0	Tox	436	872	Tox
Copper, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: exp.(0.6200[ln(total hardness mg/L)]-0.570)

The MS in µg/L shall not exceed: exp.(0.9422[ln(total hardness mg/L)]-1.464)

The FAV in µg/L shall not exceed: exp.(0.9422[ln(total hardness mg/L)]-0.7703)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total copper standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Copper, total					
CS µg/L	6.4	9.8	15	19	23
MS µg/L	9.2	18	34	50	65
FAV µg/L	18	35	68	100	131

Substance, Characteristic, or Pollutant (Class 2B)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
Cyanide, free	µg/L	5.2	Tox	22	45	Tox
DDT (c)	ng/L	1.7	HH	550*	1,100*	Tox
1,2-Dichloroethane (c)	µg/L	190	HH	45,050*	90,100*	Tox
Dieldrin (c)	ng/L	0.026	HH	1,300*	2,500*	Tox
Di-2-ethylhexyl phthalate (c)	µg/L	2.1	HH	--*	--*	NA
Di-n-octyl phthalate	µg/L	30	Tox	825	1,650	Tox
Endosulfan	µg/L	0.031	HH	0.28	0.56	Tox
Endrin	µg/L	0.016	HH	0.090	0.18	Tox
Escherichia (E.) coli	See below	See below	HH	See below	See below	NA

Not to exceed 126 organisms per 100 milliliters as a geometric mean of not less than five samples representative of conditions within any calendar month, nor shall more than ten percent of all samples taken during any calendar month individually exceed 1,260 organisms per 100 milliliters. The standard applies only between April 1 and October 31.

Ethylbenzene	µg/L	68	Tox	1,859	3,717	Tox

Substance, Characteristic, or Pollutant (Class 2B)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**

Eutrophication standards for class 2B lakes~~, shallow lakes,~~ and reservoirs. Dimictic Lakes~~, Shallow Lakes,~~ and Reservoirs in Northern Lakes and ~~Forest~~ Forests and Northern Minnesota Wetlands Ecoregions:

Phosphorus, total	µg/L	~~30~~ 20	NA	--	--	NA
Chlorophyll-a	µg/L	9	NA	--	--	NA
Secchi disk transparency	meters	Not less than ~~2.0~~ 1.8	NA	--	--	NA

Dimictic Lakes and Reservoirs in North Central Hardwood ~~Forest~~ Forests Ecoregion:

Phosphorus, total	µg/L	40	NA	--	--	NA
Chlorophyll-a	µg/L	14	NA	--	--	NA
Secchi disk transparency	meters	Not less than 1.4	NA	--	--	NA

Dimictic Lakes and Reservoirs in Western Corn Belt Plains and Northern Glaciated Plains Ecoregions:

Phosphorus, total	µg/L	65	NA	--	--	NA
Chlorophyll-a	µg/L	22	NA	--	--	NA
Secchi disk transparency	meters	Not less than 0.9	NA	--	--	NA

Polymictic Lakes in Northern Lakes and Forests and Northern Minnesota Wetlands Ecoregions:

Phosphorus, total	µg/L	32	NA	--	--	NA
Chlorophyll-a	µg/L	18	NA	--	--	NA
Secchi disk transparency	meters	Not less than 0.9	NA	--	--	NA

~~Shallow~~ Polymictic Lakes in North Central Hardwood ~~Forest~~ Forests Ecoregion:

Phosphorus, total	µg/L	60	NA	--	--	NA
Chlorophyll-a	µg/L	20	NA	--	--	NA
Secchi disk transparency	meters	Not less than 1.0	NA	--	--	NA

~~Shallow~~ Polymictic Lakes in Western Corn Belt Plains and Northern Glaciated Plains Ecoregions:

Phosphorus, total	µg/L	90	NA	--	--	NA
Chlorophyll-a	µg/L	30	NA	--	--	NA
Secchi disk transparency	meters	Not less than 0.7	NA	--	--	NA

Additional narrative eutrophication standards for class 2B lakes~~, shallow lakes,~~ and reservoirs are found in subpart 4a.

Substance, Characteristic, or Pollutant (Class 2B)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV

Eutrophication standards for class 2B rivers and streams.

North River Nutrient Region:

Phosphorus, total	µg/L	less than or equal to 50
Chlorophyll-a (seston)	µg/L	less than or equal to 7
Diel dissolved oxygen flux	mg/L	less than or equal to 3.0
Biochemical oxygen demand (BOD_5)	mg/L	less than or equal to 1.5

Central River Nutrient Region:

Phosphorus, total	µg/L	less than or equal to 100
Chlorophyll-a (seston)	µg/L	less than or equal to 18
Diel dissolved oxygen flux	mg/L	less than or equal to 3.5
Biochemical oxygen demand (BOD_5)	mg/L	less than or equal to 2.0

South River Nutrient Region:

Phosphorus, total	µg/L	less than or equal to 150
Chlorophyll-a (seston)	µg/L	less than or equal to ~~40~~ 35
Diel dissolved oxygen flux	mg/L	less than or equal to ~~5.0~~ 4.5
Biochemical oxygen demand (BOD_5)	mg/L	less than or equal to ~~3.5~~ 3.0

Site-specific standards for specified river reaches or other waters are:

Mississippi River Navigational Pool 1 (river miles 854.1 to 847.7 reach from ~~Fridley~~ Upper St. Anthony Falls to Ford Lock and Dam No. 1 in St. Paul):

Phosphorus, total	µg/L	less than or equal to 100
Chlorophyll-a (seston)	µg/L	less than or equal to 35

Mississippi River Navigational Pool 2 (river miles 847.7 to 815.2 reach from Ford Lock and Dam No. 1 to Hastings Lock and Dam No. 2):

Phosphorus, total	µg/L	less than or equal to 125
Chlorophyll-a (seston)	µg/L	less than or equal to 35

Mississippi River Navigational Pool 3 (river miles 815.2 to 796.9 reach from Hastings Lock and Dam No. 2 to Red Wing Lock and Dam No. 3):

Phosphorus, total	µg/L	less than or equal to 100
Chlorophyll-a (seston)	µg/L	less than or equal to 35

Mississippi River Navigational Pool 4 (river miles 796.9 to 752.8 reach from Red Wing Lock and Dam No. 3 to Alma Lock and Dam No. 4)~~.~~: Lake Pepin occupies majority of Pool 4 and Lake Pepin site-specific standards are used for this pool.

Mississippi River Navigational Pools 5 to 8 (river miles 752.8 to 679.1 Alma Lock and Dam No. 4 to Genoa Lock and Dam No. 8):

Phosphorus, total	µg/L	less than or equal to 100
Chlorophyll-a (seston)	µg/L	less than or equal to 35

Lake Pepin:

Phosphorus, total	µg/L	less than or equal to 100
Chlorophyll-a (seston)	µg/L	less than or equal to 28

Crow Wing River from confluence of Long Prairie River to the mouth of the Crow Wing River at the Mississippi River:

Phosphorus, total	µg/L	less than or equal to 75
Chlorophyll-a (seston)	µg/L	less than or equal to 13
Diel dissolved oxygen flux	mg/L	less than or equal to 3.5
Biochemical oxygen demand (BOD_5)	mg/L	less than or equal to 1.7

Crow River from the confluence of the North Fork of the Crow River and South Fork of the Crow River to the mouth of the Crow River at the Mississippi River:

Phosphorus, total	µg/L	less than or equal to 125
Chlorophyll-a (seston)	µg/L	less than or equal to 27
Diel dissolved oxygen flux	mg/L	less than or equal to 4.0
Biochemical oxygen demand (BOD_5)	mg/L	less than or equal to 2.5

Additional narrative eutrophication standards for class 2B rivers and streams are found in subpart 4b.

Substance, Characteristic, or Pollutant (Class 2B)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
Fluoranthene	µg/L	1.9	Tox	3.5	6.9	Tox
Heptachlor (c)	ng/L	0.39	HH	260*	520*	Tox

Substance, Characteristic, or Pollutant (Class 2B)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
Heptachlor epoxide (c)	ng/L	0.48	HH	270*	530*	Tox
Hexachlorobenzene (c)	ng/L	0.24	HH	--*	--*	Tox
Lead, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: exp.(1.273[ln(total hardness mg/L)]-4.705)

The MS in µg/L shall not exceed: exp.(1.273[ln(total hardness mg/L)]-1.460)

The FAV in µg/L shall not exceed: exp.(1.273[ln(total hardness mg/L)]-0.7643)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total lead standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Lead, total					
CS µg/L	1.3	3.2	7.7	13	19
MS µg/L	34	82	197	331	477
FAV µg/L	68	164	396	663	956

Substance, Characteristic, or Pollutant (Class 2B)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
Lindane (c) (Hexachlorocyclobenzene, gamma-)	µg/L	0.036	HH	4.4*	8.8*	Tox
Mercury, total in water	ng/L	6.9	HH	2,400*	4,900*	Tox
Mercury, totalin edible fish tissue	mg/kgppm	0.2	HH	NA	NA	NA
Methylene chloride (c) (Dichloromethane)	µg/L	1,940	HH	13,875	27,749	Tox
Metolachlor	µg/L	23	Tox	271	543	Tox
Naphthalene	µg/L	81	Tox	409	818	Tox
Nickel, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: exp.(0.846[ln(total hardness mg/L)]+1.1645)

The MS in µg/L shall not exceed: exp.(0.846[ln(total hardness mg/L)]+3.3612)

The FAV in µg/L shall not exceed: exp.(0.846[ln(total hardness mg/l)]+4.0543)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total nickel standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Nickel, total					
CS µg/L	88	158	283	399	509
MS µg/L	789	1,418	2,549	3,592	4,582
FAV µg/L	1,578	2,836	5,098	7,185	9,164

Substance, Characteristic, or Pollutant (Class 2B)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
Oil	µg/l	500	NA	5,000	10,000	NA
Oxygen, dissolved	mg/L	See below	NA	--	--	NA

5.0 mg/L as a daily minimum. This dissolved oxygen standard may be modified on a site-specific basis according to part 7050.0220, subpart 7, except that no site-specific standard shall be less than 5 mg/L as a daily average and 4 mg/L as a daily minimum. Compliance with this standard is required 50 percent of the days at which the flow of the receiving water is equal to the $7Q_{10}$. This standard applies to all class 2B waters except for:

(1) those portions of the Mississippi River from the outlet of the Metro Wastewater Treatment Works in Saint Paul (River Mile 835) to Lock and Dam No. 2 at Hastings (River Mile 815). For this reach of the Mississippi River, the standard is not less than 5 mg/L as a daily average from April 1 through November 30, and not less than 4 mg/L at other times; and

(2) the portion of the Minnesota River from the outlet of the Blue Lake wastewater treatment works (River Mile 21) to the mouth at Fort Snelling. For the specified reach of the Minnesota River, the standard is not less than 5 mg/L as a daily average year round.

Parathion	µg/L	0.013	Tox	0.07	0.13	Tox
Pentachlorophenol	µg/L	equation	Tox/HH	equation	equation	Tox

The CS, MS, and FAV vary with pH and are calculated using the following equations:

For waters with pH values greater than 6.95, the CS shall not exceed the human health-based standard of 5.5 µg/L.

For waters with pH values less than 6.96, the CS in µg/L shall not exceed the toxicity-based standard of exp.(1.005[pH]-5.290)

The MS in µg/L shall not exceed: exp.(1.005[pH]-4.830)

The FAV in µg/L shall not exceed: exp.(1.005[pH]-4.1373)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For pH values less than 6.0, 6.0 shall be used to calculate the standard and for pH values greater than 9.0, 9.0 shall be used to calculate the standard.

Example of pentachlorophenol standards for five pH values:

pH su	6.5	7.0	7.5	8.0	8.5
Pentachlorophenol					
CS µg/L	3.5	5.5	5.5	5.5	5.5
MS µg/L	5.5	9.1	15	25	41
FAV µg/L	11	18	30	50	82

Substance, Characteristic, or Pollutant (Class 2B)	**Units**	**CS**	**Basis for CS**	**MS**	**FAV**	**Basis for MS, FAV**
pH, minimum	su	6.5	NA	--	--	NA
pH, maximum	su	9.0	NA	--	--	NA
Phenanthrene	µg/L	3.6	Tox	32	64	Tox
Phenol	µg/L	123	Tox	2,214	4,428	Tox
Polychlorinated biphenyls, total (c)	ng/L	0.029	HH	1,000*	2,000*	Tox
Radioactive materials	NA	See below	NA	See below	See below	NA

Not to exceed the lowest concentrations permitted to be discharged to an uncontrolled environment as permitted by the appropriate authority having control over their use.

Selenium, total	µg/L	5.0	Tox	20	40	Tox
Silver, total	µg/L	1.0	Tox	equation	equation	Tox

The MS and FAV vary with total hardness and are calculated using the following equations:

The MS in µg/L shall not exceed: exp.(1.720[ln(total hardness mg/L)]-7.2156)

The FAV in µg/L shall not exceed: exp.(1.720[ln(total hardness mg/L)]-6.520

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total silver standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Silver, total					
CS µg/L	1.0	1.0	1.0	1.0	1.0
MS µg/L	1.0	2.0	6.7	13	22
FAV µg/L	1.2	4.1	13	27	44

Substance, Characteristic, or Pollutant (Class 2B)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
Temperature	°F	See below	NA	--	--	NA

5°F above natural in streams and 3°F above natural in lakes, based on monthly average of the maximum daily temperatures, except in no case shall it exceed the daily average temperature of 86°F.

1,1,2,2-Tetrachloroethane (c)	µg/L	13	HH	1,127	2,253	Tox
Tetrachloroethylene (c)	µg/L	8.9	HH	428	857	Tox
Thallium, total	µg/L	0.56	HH	64	128	Tox
Toluene	µg/L	253	Tox	1,352	2,703	Tox
Toxaphene (c)	ng/L	1.3	HH	730*	1,500*	Tox
1,1,1-Trichloroethane	µg/L	329	Tox	2,957	5,913	Tox
1,1,2-Trichloroethylene (c)	µg/L	120	HH	6,988	13,976	Tox
2,4,6-Trichlorophenol	µg/L	2.0	HH	102	203	Tox

Total suspended solids (TSS)						
North River Nutrient Region	mg/L	15	NA	--	--	NA
Central River Nutrient Region	mg/L	30	NA	--	--	NA
South River Nutrient Region	mg/L	65	NA	--	--	NA
Red River mainstem - headwaters to border TSS standards for the class 2B North, Central, and South River Nutrient Regions and the Red River mainstem may be exceeded for no more than ten percent of the time. This standard applies April 1 through September 30	mg/L	100	NA	--	--	NA
Total suspended solids (TSS), summer average						
Lower Mississippi River mainstem - Pools 2 through 4	mg/L	32	NA	--	--	NA
Lower Mississippi River mainstem below Lake Pepin TSS standards for the class 2B Lower Mississippi River may be exceeded for no more than 50 percent of the time. This standard applies June 1 through September 30	mg/L	30	NA	--	--	NA

Substance, Characteristic, or Pollutant (Class 2B)	Units	CS	Basis for CS	MS	FAV	Basis for MS, FAV
Vinyl chloride (c)	µg/L	9.2	HH	--*	--*	NA
Xylene, total m,p,o	µg/L	166	Tox	1,407	2,814	Tox
Zinc, total	µg/L	equation	Tox	equation	equation	Tox

The CS, MS, and FAV vary with total hardness and are calculated using the following equations:

The CS in µg/L shall not exceed: exp.(0.8473[ln(total hardness mg/L)]+0.7615)

The MS in µg/L shall not exceed: exp.(0.8473[ln(total hardness mg/L)]+0.8604)

The FAV in µg/L shall not exceed: exp.(0.8473[ln(total hardness mg/L)]+1.5536)

Where: exp. is the natural antilogarithm (base e) of the expression in parenthesis.

For hardness values greater than 400 mg/L, 400 mg/L shall be used to calculate the standard.

Example of total zinc standards for five total hardness values:

TH in mg/L	50	100	200	300	400
Zinc, total					
CS µg/L	59	106	191	269	343
MS µg/L	65	117	211	297	379
FAV µg/L	130	234	421	594	758

Subp. 4a. **Narrative eutrophication standards for class 2B lakes~~, shallow lakes,~~ and reservoirs.**

A. Eutrophication standards applicable to lakes~~, shallow lakes,~~ and reservoirs that lie on the border between two ecoregions or that are in the Red River Valley (also referred to as Lake Agassiz Plains), Northern Minnesota Wetlands, or Driftless Area Ecoregion must be applied on a case-by-case basis. The commissioner shall use the standards applicable to adjacent ecoregions as a guide.

[For text of item B, see Minnesota Rules]

C. It is the policy of the agency to protect all lakes~~, shallow lakes,~~ and reservoirs from the undesirable effects of cultural eutrophication. Lakes~~, shallow lakes,~~ and reservoirs with a baseline quality better than the numeric eutrophication standards in subpart 4 must be maintained in that condition through the strict application of all relevant federal, state, and local requirements governing antidegradation, the discharge of nutrients from point and nonpoint sources, and the protection of lake~~, shallow lake,~~ and reservoir resources, including, but not limited to:

[For text of subitems (1) to (7), see Minnesota Rules]

D. Lakes~~, shallow lakes,~~ and reservoirs with a baseline quality that is poorer than the numeric eutrophication standards in subpart 4 must be considered to be in compliance with the standards if the baseline quality is the result of natural causes. The commissioner shall determine baseline quality and compliance with these standards using data and the procedures in part 7050.0150, subpart 5.

[For text of item E, see Minnesota Rules]

[For text of subpart 4b, see Minnesota Rules]

Subp. 4c. **Beneficial use definitions for ~~lotic~~ warm or cool water aquatic life and habitats (class 2B).**

A. Subitems (1) to (5) apply to the beneficial uses in items B to D:

[For text of subitem (1), see Minnesota Rules]

(2) The attributes of species composition, diversity, and functional organization are measured using:

(a) the fish IBI as defined in Fish Data Collection Protocols for Lotic Waters in Minnesota (2017); ~~or~~

(b) the macroinvertebrate IBI as defined in Macroinvertebrate Data Collection Protocols for Lotic Waters in Minnesota (2017)~~.~~; or

(c) the fish IBI for lentic habitats as defined in Manual of Instructions for Lake Survey (2017) and Lake Index of Biological Integrity (IBI) Nearshore Sampling Manual (2022).

[For text of subitem (3), see Minnesota Rules]

(4) The following documents are incorporated by reference and are not subject to frequent change:

(a) Calibration of the Biological Condition Gradient for Streams of Minnesota, Gerritsen et al. (2012). The document is available on the agency's website at ~~www.pca.state.mn.us/regulations/minnesota-rulemaking~~ https://www.pca.state.mn.us/get-engaged/incorporations-by-reference;

(b) Fish Data Collection Protocols for Lotic Waters in Minnesota, Minnesota Pollution Control Agency (2017). The document is available on the agency's website at ~~www.pca.state.mn.us/regulations/minnesota-rulemaking~~ https://www.pca.state.mn.us/get-engaged/incorporations-by-reference;

(c) Macroinvertebrate Data Collection Protocols for Lotic Waters in Minnesota, Minnesota Pollution Control Agency (2017). The document is available on the agency's website at ~~www.pca.state.mn.us/regulations/minnesota-rulemaking~~ https://www.pca.state.mn.us/get-engaged/incorporations-by-reference; ~~and~~

(d) Development of Biological Criteria for Tiered Aquatic Life Uses, Minnesota Pollution Control Agency (2016). The document is available on the agency's website at ~~www.pca.state.mn.us/regulations/minnesota-rulemaking.~~ https://www.pca.state.mn.us/get-engaged/incorporations-by-reference;

(e) Biological Condition Gradient (BCG) Assessment Models for Lake Fish Communities of Minnesota, Gerritsen and Stamp (2014). The document is available on the agency's website at https://www.pca.state.mn.us/get-engaged/incorporations-by-reference;

(f) Manual of Instructions for Lake Survey, Minnesota Department of Natural Resources (2017). The document is available on the agency's website at https://www.pca.state.mn.us/get-engaged/incorporations-by-reference;

(g) Lake Index of Biological Integrity (IBI) Nearshore Sampling Manual, Minnesota Department of Natural Resources (2022). The document is available on the agency's website at https://www.pca.state.mn.us/get-engaged/incorporations-by-reference; and

(h) Development of Fish-Based Indices of Biological Integrity for Minnesota Lakes, Bacigalupi et al. (2021). The document is available on the agency's website at https://www.pca.state.mn.us/get-engaged/incorporations-by-reference.

(5) The beneficial use subclass designators "e," "g," and "m" are added to the class 2B designator as specific additional designators. The additional subclass designators do not replace the class 2B designator. All requirements for class 2B warm or cool water ~~stream and river~~ habitats in parts 7050.0222 and 7052.0100 continue to apply in addition to requirements for class 2Be, class 2Bg, or class 2Bm warm or cool water ~~stream and river~~ habitats in part 7050.0222. ~~These~~ The "m" subclass ~~designators are~~ designator is applied to lotic waters only.

B. "Exceptional cool and warm water aquatic life and habitat" or "class 2Be" is a beneficial use that means waters capable of supporting and maintaining an exceptional and balanced, integrated, adaptive community of warm or cool water aquatic organisms having a species composition, diversity, and functional organization comparable to the 75th percentile of biological condition gradient level 3 as established in Calibration of the Biological Condition Gradient for Streams of Minnesota, Gerritsen et al. (2012) for streams and rivers and in Biological Condition Gradient (BCG) Assessment Models for Lake Fish Communities of Minnesota, Gerritsen and Stamp (2014) for lakes.

C. "General cool and warm water aquatic life and habitat" or "class 2Bg" is a beneficial use that means waters capable of supporting and maintaining a balanced, integrated, adaptive community of warm or cool water aquatic organisms having a species composition, diversity, and functional organization comparable to the median of biological condition gradient level 4 as established in Calibration of the Biological Condition Gradient for Streams of Minnesota, Gerritsen et al. (2012) for streams and rivers and in Biological Condition Gradient (BCG) Assessment Models for Lake Fish Communities of Minnesota, Gerritsen and Stamp (2014) for lakes.

[For text of item D, see Minnesota Rules]

Subp. 4d. **Biological criteria for ~~lotic~~ warm or cool water aquatic life and habitats (class 2B).**

Water Body Type	Tier	Class	Assemblage	Biocriterion
Southern rivers	Exceptional	2Be	Fish	71
	General	2Bg	Fish	49
Southern streams	Exceptional	2Be	Fish	66
	General	2Bg	Fish	50
	Modified	2Bm	Fish	35
Southern headwaters	Exceptional	2Be	Fish	74
	General	2Bg	Fish	55
	Modified	2Bm	Fish	33
Northern rivers	Exceptional	2Be	Fish	67
	General	2Bg	Fish	38
Northern streams	Exceptional	2Be	Fish	61
	General	2Bg	Fish	47
	Modified	2Bm	Fish	35
Northern headwaters	Exceptional	2Be	Fish	68
	General	2Bg	Fish	42
	Modified	2Bm	Fish	23
Low gradient	Exceptional	2Be	Fish	70
	General	2Bg	Fish	42
	Modified	2Bm	Fish	15
Northern forest rivers	Exceptional	2Be	Macroinvertebrates	77
	General	2Bg	Macroinvertebrates	49
Prairie and southern forest rivers	Exceptional	2Be	Macroinvertebrates	63
	General	2Bg	Macroinvertebrates	31
High-gradient northern forest streams	Exceptional	2Be	Macroinvertebrates	82
	General	2Bg	Macroinvertebrates	53

Water Body Type	Tier	Class	Assemblage	Biocriterion
Low-gradient northern forest streams	Exceptional	2Be	Macroinvertebrates	76
	General	2Bg	Macroinvertebrates	51
	Modified	2Bm	Macroinvertebrates	37
High-gradient southern streams	Exceptional	2Be	Macroinvertebrates	62
	General	2Bg	Macroinvertebrates	37
	Modified	2Bm	Macroinvertebrates	24
Low-gradient southern forest streams	Exceptional	2Be	Macroinvertebrates	66
	General	2Bg	Macroinvertebrates	43
	Modified	2Bm	Macroinvertebrates	30
Low-gradient prairie streams	Exceptional	2Be	Macroinvertebrates	69
	General	2Bg	Macroinvertebrates	41
	Modified	2Bm	Macroinvertebrates	22
Deep, complex lakes	Exceptional	2Ae	Fish	64
	General	2Ag	Fish	45
Deep, moderately complex lakes	Exceptional	2Ae	Fish	59
	General	2Ag	Fish	38
Moderately deep lakes	General	2Ag	Fish	24
Shallow lakes	General	2Ag	Fish	36

The biological criteria for lotic warm or cool water aquatic life and habitats (class 2B) are applicable to perennial and intermittent waters that allow for colonization of fish or macroinvertebrates.

[For text of subparts 5 to 9, see Minnesota Rules]

7050.0460 WATERS SPECIFICALLY CLASSIFIED; EXPLANATION OF LISTINGS IN PART 7050.0470.

[For text of subparts 1 and 2, see Minnesota Rules]

Subp. 3. **Abbreviations and symbols.** The listings in part 7050.0470 include the following abbreviations and symbols:

T., R., S. means township, range, and section, respectively.

An asterisk (*) preceding the name of the water body means the water body is an outstanding resource value water.

[month/day/year/letter code] ~~following the name of the outstanding resource value water in brackets~~ is the effective date the water resource was designated as an outstanding resource value water. The letter code (P or R) indicates the applicable discharge restrictions in part 7050.0265, subpart 6 or 7, or 7050.0270, subpart 5 or 6. The letter code P corresponds to the prohibited discharges provision in part 7050.0265, subpart 7, or 7050.0270, subpart 6. The letter code R corresponds to the restricted discharges provision in part 7050.0265, subpart 6, or 7050.0270, subpart 5.

[WR] ~~following the name of the water body~~ means the water body is a designated ~~as a~~ wild rice water in part

7050.0470, subpart 1.

[LAT] means the water body is a designated lake trout (Salvelinus namaycush) lake in part 7050.0470.

[LKW] means the water body is a designated lake whitefish (Coregonus clupeaformis) lake in part 7050.0470.

[TLC] means the water body is a designated cisco (Coregonus artedi) lake in part 7050.0470.

[SRT] means the water body is a designated stream trout lake in part 7050.0470.

Class 2Bd waters are class 2B waters also protected for domestic consumption purposes (class 1). Applicable standards for class 2Bd waters are listed in part 7050.0222, subparts 3 and 3a.

7050.0470 CLASSIFICATIONS FOR SURFACE WATERS IN MAJOR DRAINAGE BASINS.

Subpart 1. **Lake Superior basin.** The water-use classifications for the stream reaches within each of the major watersheds in the Lake Superior basin listed in item A are found in tables entitled "Beneficial Use Designations for Stream Reaches" published on the website of the Minnesota Pollution Control Agency at ~~www.pca.state.mn.us/regulations/incorporations-reference~~ https://www.pca.state.mn.us/get-engaged/incorporations-by-reference. The tables are incorporated by reference and are not subject to frequent change. The date after each watershed listed in item A is the publication date of the applicable table. The water-use classifications for the other listed waters in the Lake Superior basin are as identified in items B to D. See part 7050.0415 for the classifications of waters not listed. Designated use information for water bodies can also be accessed through the agency's Environmental Data Access (http://www.pca.state.mn.us/quick-links/eda-surface-water-data). For an explanation of listings and abbreviations, see part 7050.0460.

[For text of item A, see Minnesota Rules]

B. Lakes (by eight-digit hydrologic unit code):

(1) 04010101 Lake Superior - North (November 2025);

(2) 04010102 Lake Superior - South (November 2025);

(3) 04010201 St. Louis River (November 2025);

(4) 04010202 Cloquet River (November 2025); and

(5) 04010301 Nemadji River (November 2025).

~~(1) *Alder Lake, 16-0114-00, [11/5/84P] (T.64, R.1E): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(2) *Alton Lake, 16-0622-00, [11/5/84P] (T.62, 63, R.4, 5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(3) Artichoke Lake, 69-0623-00, [WR] (T.52, R.17, S.17, 18, 19, 20): 2B, 3, 4A, 4B, 5, 6;~~

~~(4) Bath Lake, 16-0164-00, (T.62, R.1W, S.5, 6; T.63, R.1W, S.31, 32): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(5) Bean Lake (lower Twin), 38-0409-00, (T.56, R.8W, S.25, 26): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(6) Bear Lake (see Twin Lake, upper);~~

~~(7) Bearskin Lake, East, 16-0146-00, (T.64, R.1E, 1W): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(8) *Bearskin Lake, West, 16-0228-00, [3/7/88R] (T.64, 65, R.1): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(9) *Bench Lake, 16-0063-00, [11/5/84P] (T.64, 2E, S.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(10) Benson Lake, 38-0018-00, (T.58, R.6W, S.29): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(11) *Birch Lake, 16-0247-00, [3/7/88R] (T.65, R.1, 2): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(12) *Black Lake, 58-0001-00, [3/7/88P] (T.45, R.15): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(13) Bluebill Lake, 38-0261-00, [WR] (T.59, R.7, S.15): 2B, 3, 4A, 4B, 5, 6;~~

~~(14) Bogus Lake, 16-0050-00, (T.62, R.2E, S.12): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(15) Bone Lake, 38-0065-00, (T.61, R.6W, S.13, 14): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(16) Bow Lake, 16-0211-00, (T.64, R.1W, S.15): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(17) Boys Lake, 16-0044-00, (T.62, R.2E, S.5, 8): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(18) Breda Lake, 69-0037-00, [WR] (T.56, R.12, S.16): 2B, 3, 4A, 4B, 5, 6;~~

~~(19) Briar Lake, 69-0128-00, (T.53, R.13W, S.14, 15, 23): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(20) *Brule Lake, 16-0348-00, [11/5/84P] (T.63, R.2, 3): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(21) Cabin Lake, 38-0260-00, [WR] (T.59, R.7, S.13, 14, 23, 24): 2B, 3, 4A, 4B, 5, 6;~~

~~(22) Canton Mine Pit Lake, 69-1294-00, (T.58, R.16, S.2, 3): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(23) Caribou Lake, 16-0360-00, [WR] (T.60, R.3W, S.1, 2, 11, 12; T.61, R.3W, S.35, 36): 2B, 3, 4A, 4B, 5, 6;~~

~~(24) Carrot Lake, 16-0071-00, (T.64, R.2E, S.17): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(25) Cedar Lake, 69-0431-00, (T.58, R.15W, S.20): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(26) Chester Lake, 69-0033-00, (T.64, R.3E, S.32, 33): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(27) Christine Lake, 16-0373-00, [WR] (T.61, R.3W, S.28, 29, 32): 2B, 3, 4A, 4B, 5, 6;~~

~~(28) Clearwater Lake (Clear Lake), 69-0397-00, (T.52, R.15W, S.23): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(29) *Clearwater Lake (Emby Lake), 16-0139-00, [11/5/84P] (T.65, R.1E): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(30) Colby Lake, 69-0249-00, (T.58, R.14): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(31) *Cone Lake, 16-0412-00, North, [11/5/84P] (T.63, 64, R.3): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(32) Corona Lake, 09-0048-00, (T.48, R.19W, S.11, 12): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(33) Corsica Mine Pit Lake, 69-1316-00, (T.58, R.16, S.18): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(34) Crosscut Lake, 38-0257-00, (T.59, R.7W, S.7, 18): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(35) *Crystal Lake, 16-0090-00, [11/5/84P] (T.64, R.1E, 2E): 1B, 2A, 3, 4A, 4B, 5, 6;~~

(36) *Daniels Lake, 16-0150-00, [11/5/84P] (T.65, R.1E, 1W): 1B, 2A, 3, 4A, 4B, 5, 6;

(37) *Davis Lake, 16-0435-00, [11/5/84P] (T.64, R.3): 1B, 2A, 3, 4A, 4B, 5, 6;

(38) Devilfish Lake, 16-0029-00, (T.64, R.3E): 1B, 2A, 3, 4A, 4B, 5, 6;

(39) Divide (Towhey) Lake, 38-0256-00, (T.59, R.7W, S.7, 8): 1B, 2A, 3, 4A, 4B, 5, 6;

(40) Duke Lake, 16-0111-00, (T.63, R.1E, S.30): 1B, 2A, 3, 4A, 4B, 5, 6;

(41) *Duncan Lake, 16-0232-00, [11/5/84P] (T.65, R.1): 1B, 2A, 3, 4A, 4B, 5, 6;

(42) *Dunn Lake, 16-0245-00, [11/5/84P] (T.65, R.1, 2): 1B, 2A, 3, 4A, 4B, 5, 6;

(43) East Lake, 38-0020-00, (T.59, R.6W, S.1, 2): 1B, 2A, 3, 4A, 4B, 5, 6;

(44) *Echo Lake, 38-0028-00, [3/7/88R] (T.59, R.6, S.14, 15, 22, 23): 1B, 2A, 3, 4A, 4B, 5, 6;

(45) Elbow Lake, Little, 69-1329-00, (T.57, R.18W, S.9, 10, 16): 1B, 2A, 3, 4A, 4B, 5, 6;

(46) Embarrass Mine Pit (Sabin Lake or Lake Mine), 69-0429-00, (T.58, R.15W, S.5, 6): 1B, 2A,; 3, 4A, 4B, 5, 6

(47) Esther Lake, 16-0023-00, (T.63, R.3E, S.6; T.64, R.3E, S.31): 1B, 2A, 3, 4A, 4B, 5, 6;

(48) *Fan Lake (West Lily), 16-0084-00, [11/5/84P] (T.65, R.2E): 1B, 2Bd, 3, 4A, 4B, 5, 6;

(49) Feather Lake, 16-0905-00, (T.61, R.5W, S.35): 1B, 2A, 3, 4A, 4B, 5, 6;

(50) Flour Lake, 16-0147-00, (T.64, R.1E, 1W): 1B, 2A, 3, 4A, 4B, 5, 6;

(51) Fourmile Lake, 16-0639-00, [WR] (T.60, R.5W, S.4, 8, 9, 10, 16, 17): 2B, 3, 4A, 4B, 5, 6;

(52) Fowl Lake, North, 16-0036-00, (T.64, 65, R.3E): 1B, 2Bd, 3, 4A, 4B, 5, 6;

(53) Fowl Lake, South, 16-0034-00, (T.64, 65, R.3E): 1B, 2Bd, 3, 4A, 4B, 5, 6;

(54) Fraser Mine Pit Lake, (T.58, R.20, S.23): 1C, 2Bd, 3, 4A, 4B, 5, 6, until the city of Chisholm no longer uses Fraser Mine Pit Lake as a water supply source for its public water system, and then the classification is identified in part 7050.0415, subpart 4;

(55) *Gadwall Lake (Gadwell Lake), 16-0060-00, [11/5/84P] (T.64, R.2E, S.3): 1B, 2A, 3, 4A, 4B, 5, 6;

(56) *Gaskin Lake, 16-0319-00, [11/5/84P] (T.64, R.2): 1B, 2A, 3, 4A, 4B, 5, 6;

(57) *Gogebic Lake, 16-0087-00, [11/5/84P] (T.65, R.2E, S.30, 31): 1B, 2A, 3, 4A, 4B, 5, 6;

(58) Goldeneye (Duck) Lake, 38-0029-00, (T.59, R.6W, S.15): 1B, 2A, 3, 4A, 4B, 5, 6;

(59) *Greenwood Lake, 16-0077-00, [3/7/88R] (T.64, R.2E): 1B, 2A, 3, 4A, 4B, 5, 6;

(60) Hay Lake, 69-0435-00, [WR] (T.59, R.15, S.8): 2B, 3, 4A, 4B, 5, 6;

(61) Hungry Jack Lake, 16-0227-00, (T.64, 65, R.1): 1B, 2A, 3, 4A, 4B, 5, 6;

~~(62) Jim Lake (Jerry Lake), 16-0135-00, (T.64, R.1E): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(63) Judson Mine Pit, 69-1295-00, (T.58, R.19W, S.20, 29): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(64) Junco Lake, 16-0159-00, (T.62, R.1W, S.11, 12, 13): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(65) *Kemo Lake, 16-0188-00, [3/7/88R] (T.63, R.1): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(66) Kimball Lake, 16-0045-00, (T.62, R.2E, S.7, 8, 17): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(67) Leo Lake, 16-0198-00, (T.64, R.1W, S.4, 5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(68) Lieung (Lieuna) Lake, 69-0123-00, [WR] (T.53, R.13, S.3, 4, 9, 10): 2B, 3, 4A, 4B, 5, 6;~~

~~(69) *Lily Lakes (Vaseux Lake and Fan Lake), 16-0083-00 and 16-0084-00, [11/5/84P] (T.65, R.2E): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(70) Lima Lake, 16-0226-00, (T.64, R.1W, S.35): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(71) *Lizz Lake, 16-0199-00, [11/5/84P] (T.64, R.1W, S.7, 18): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(72) Loaine (Sand) Lake, 69-0016-00, (T.54, R.12W, S.16, 17): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(73) Loft Lake, 16-0031-00, (T.64, R.3E, S.21): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(74) Long Lake, 69-0044-00, [WR] (T.57, R.12, S.4, 5; T.58, R.12, S.32, 33): 2B, 3, 4A, 4B, 5, 6;~~

~~(75) Margaret Lake, 16-0896-00, (T.64, R.3E, S.27, 28, 33, 34): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(76) Marsh Lake, 16-0488-00, [WR] (T.62, R.4W, S.22, 23, 27, 28): 2B, 3, 4A, 4B, 5, 6;~~

~~(77) McFarland Lake, 16-0027-00, (T.64, R.3E): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(78) Mesabi (Missabe) Mountain Mine Pit Lake, 69-1292-00, (T.58, R.17, S.8): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(79) Mink Lake, 16-0046-00, (T.62, R.2E, S.8): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(80) Mirror Lake, 69-0234-00, (T.52, R.14W, S.19, 30): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(81) *Misquah Lake, 16-0225-00, [11/5/84P] (T.64, R.1): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(82) Moore Lake, 16-0489-00, [WR] (T.62, R.4W, S.23, 24): 2B, 3, 4A, 4B, 5, 6;~~

~~(83) Moosehorn Lake, 16-0015-00, (T.63, R.3E, S.36; T.63, R.4E, S.31): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(84) *Moose Lake, 16-0043-00, [11/5/84P] (T.65, R.2E, 3E): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(85) Morton Mine Pit Lake, 69-1310-00, (T.57, R.21, S.10, 11, 14): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(86) *Moss Lake, 16-0234-00, [3/7/88R] (T.65, R.1): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(87) *Mountain Lake, 16-0093-00, [11/5/84P] (T.65, R.1E, 2E): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(88) Muckwa Lake, 16-0105-00, (T.63, R.1E, S.21, 28): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(89) *Mulligan Lake, 16-0389-00, [11/5/84P] (T.63, R.3W, S.1, 12): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(90) Musquash Lake, 16-0104-00, (T.63, R.1E, S.20, 28, 29): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(91) Normanna Lake, 69-0122-00, (T.52, R.13W, S.7, 8): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(92) Northern Light Lake, 16-0089-00, [WR] (T.63, R.2E, S.29, 30, 31, 32, 33; T.63, R.1E, S.25): 2B, 3, 4A, 4B, 5, 6;~~

~~(93) Olga Lake, 16-0024-00, (T.63, R.3E, S.6; T.64, R.3E, S.31): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(94) Olson Lake, 16-0158-00, (T.62, R.1W, S.9, 16): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(95) *Onega Lake (Omega Lake), 16-0353-00, [11/5/84P] (T.64, R.2, 3): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(96) *Otto Lake, lower (South Otto), 16-0323-00, [11/5/84P] (T.64, R.2): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(97) Pancore (Lost) Lake, 16-0475-00, (T.61, R.4W, S.22, 27): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(98) Papoose Lake, 69-0024-00, [WR] (T.55, R.12, S.9): 2B, 3, 4A, 4B, 5, 6;~~

~~(99) *Partridge Lake, 16-0233-00, [11/5/84P] (T.65, R.1): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(100) *Pemmican Lake, 16-0085-00, [11/5/84P] (T.65, R.2E, S.22): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(101) *Pike Lake, West, 16-0086-00, [11/5/84P] (T.65, R.2E): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(102) Pine Lake, 16-0194-00, (T.63, R.1W, S.35, 36): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(103) *Pine Lake, 16-0041-00, [11/5/84P] (T.64, 65, R.1E, 2E, 3E): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(104) Pine Mountain Lake, 16-0108-00, (T.63, R.1E, S.26, 27, 34, 35): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(105) Poplar Lake, 16-0239-00, (T.64N, R.1, 2W): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(106) *Ptarmigan Lake, 16-0183-00, [11/5/84P] (T.63, R.1, S.20, 29): 1B 2Bd, 3, 4A, 4B, 5, 6;~~

~~(107) *Ram Lake, 16-0174-00, [11/5/84P] (T.63, R.1W, S.9, 10): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(108) Rice Lake, 16-0453-00, [WR] (T.61 R.3W, S.7; T.61, R.4W, S.2, 11, 12): 2B, 3, 4A, 4B, 5, 6;~~

~~(109) *Rose Lake, 16-0230-00, [11/5/84P] (T.65, R.1): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(110) Round Island Lake, 38-0417-00 [WR] (T.59, R.8, S.12): 2B, 3, 4A, 4B, 5, 6;~~

~~(111) Round Lake, 69-0048-00, [WR] (T.58, R.12, S.25, 26): 2B, 3, 4A, 4B, 5, 6;~~

~~(112) St. James Mine Pit, 69-0428-00, (T.58, R.15W, S.3, 4): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(113) Saint Mary's Lake, 69-0651-00, (T.57, R.17, S.9, 16, 17): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(114) *Sawbill Lake, 16-0496-00, [11/5/84P] (T.62, 63, R.4): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(115) Section 8 Lake, 38-0258-00, (T.59, R.7W, S.8): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(116) Seven Beaver Lake, 69-0002-00, [WR] (T.58, R.11, 12): 2B, 3, 4A, 4B, 5, 6;~~

~~(117) Shady, North, Lake, 16-0076-00, (T.64, R.2E, S.21, 22): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(118) Shoe Lake, 16-0080-00, (T.64, 2E, S.30): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(119) Sled Lake, 16-0897-00, (T.63, R.1W, S.3): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(120) *Sock Lake, 16-0335-00, [11/5/84P] (T.65, R.2W, S.26): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(121) Sonju Lake, 38-0248-00, (T.58, R.7W, S.27, 28): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(122) *South Lake, 16-0244-00, [11/5/84P] (T.65, R.1, 2): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(123) Spring Hole Lake, 69-1372-00, (T.55, R.14W, S.14): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(124) *State Lake, 16-0293-00, [11/5/84P] (T.63, 64, R.2): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(125) Steer Lake, 38-0920-00, (T.60, R.6W, S.32): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(126) Stone Lake, 69-0686-00, [WR] (T.55, R.17, S.6; T.55, R.18, S.1; T.56, R.17, S.31; T.56, R.18, S.36): 2B, 3, 4A, 4B, 5, 6;~~

~~(127) Stone Lake (Skibo Lake), 69-0046-00, [WR] (T.58, R.12, S.17, 19, 20): 2B, 3, 4A, 4B, 5, 6;~~

~~(128) Stone Lake (Murphy Lake or Tommila Lake), 69-0035-00, [WR] (T.56, R.12, S.13, 24): 2B, 3, 4A, 4B, 5, 6;~~

~~(129) *Superior, Lake, excluding the portions identified in subitem (130) 16-0001-00, [11/5/84R] (T.49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, R.14W-7E): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(130) *Superior, Lake, 16-0001-00, [3/9/98P] (those portions of Lake Superior north of latitude 47 degrees, 57 minutes, 13 seconds, east of Hat Point, south of the Minnesota-Ontario boundary, and west of the Minnesota-Michigan boundary): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(131) Swamp River (Reservoir), 16-0901-00, [WR] (T.63, R.4E, S.4; T.64, R.4E, S.33): 2B, 3, 4A, 4B, 5, 6;~~

~~(132) *Swan Lake, 16-0268-00, [11/5/84P] (T.63, R.2): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(133) Talus Lake, 16-0187-00, (T.63, R.1W, S.26, 27): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(134) Thompson Lake, 16-0160-00, (T.62, R.1W, S.19, 20, 29, 30): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(135) Thrasher Lake, 16-0192-00, (T.63, R.1W, S.31): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(136) Thrush Lake, 16-0191-00, (T.63, R.1W, S.31): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(137) *Topper Lake, 16-0336-00, [11/5/84P] (T.65, R.2W, S.27): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(138) *Trout Lake, 16-0049-00, [3/7/88R] (T.62, R.2E): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(139) *Trout Lake, Little, 16-0170-00, [11/5/84P] (T.63, R.1): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(140) Turnip Lake, 16-0132-00, (T.64, R.1E, S.24): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(141) Twin Lake, lower, 69-0967-02, (T.50, R.14W, S.28, 33): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(142) Twin Lake, upper, 69-0967-01, (T.50, R.14W, S.28, 33): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(143) *Twin Lake, upper (Bear Lake), 38-0408-00, [3/7/88R] (T.56, R.8, S.25): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(144) unnamed lake, 16-0903-00, (T.63, R.3E, S.20, 21, 28, 29): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(145) unnamed lake, 16-0908-00, (T.63, R.1W, S.31): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(146) *unnamed lake, 16-0237-00, [11/5/84P] (T.63, R.1, S.19, 30; T.63, R.2, S.24, 25): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(147) *Vale Lake, 16-0061-00, [11/5/84P] (T.64, R.2E, S.3): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(148) Vaseux Lake (East Lily), see Lily Lakes;~~

~~(149) *Vista Lake, 16-0224-00, [11/5/84P] (T.64, R.1): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(150) *Wanihigan Lake (Trap Lake), 16-0349-00, [11/5/84P] (T.63, 64, R.2, 3): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(151) *Wee Lake, 16-0183-00, [11/5/84P] (T.62, R.4W, S.13): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(152) *Wench Lake, 16-0398-00, [11/5/84P] (T.63, R.3W, S.7, 18): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(153) White Pine Lake, 16-0369-00, [WR] (T.61, R.3W, S.19, 20, 29, 30): 2B, 3, 4A, 4B, 5, 6; and~~

~~(154) *Winchell Lake, 16-0354-00, [11/5/84P] (T.64, R.2, 3): 1B, 2A, 3, 4A, 4B, 5, 6.~~

[For text of items C and D, see Minnesota Rules]

Subp. 2. **Lake of the Woods basin.** The water-use classifications for the stream reaches within each of the major watersheds in the Lake of the Woods basin listed in item A are found in tables entitled "Beneficial Use Designations for Stream Reaches" published on the website of the Minnesota Pollution Control Agency at ~~www.pca.state.mn.us/regulations/incorporations-reference~~ https://www.pca.state.mn.us/get-engaged/incorporations-by-reference. The tables are incorporated by reference and are not subject to frequent change. The date after each watershed listed in item A is the publication date of the applicable table. The water-use classifications for the other listed waters in the Lake of the Woods basin are as identified in items B to D. See part 7050.0415 for the classifications of waters not listed. Designated use information for water bodies can also be accessed through the agency's Environmental Data Access (http://www.pca.state.mn.us/quick-links/eda-surface-water-data).

[For text of item A, see Minnesota Rules]

B. Lakes (by eight-digit hydrologic unit code):

(1) 09030001 Rainy River - Headwaters (November 2025);

(2) 09030002 Vermilion River (November 2025);

(3) 09030003 Rainy River - Rainy Lake (November 2025);

(4) 09030005 Little Fork River (November 2025);

(5) 09030006 Big Fork River (November 2025);

(6) 09030007 Rapid River (November 2025);

(7) 09030008 Rainy River - Lower (November 2025); and

(8) 09030009 Lake of the Woods (November 2025).

~~(1) *Adams Lake, 38-0153-00, [11/5/84P] (T.64, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(2) *Agamok Lake, 38-0011-00, [11/5/84P] (T.65, R.5, 6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(3) *Ahmakose Lake, 38-0365-00 [11/5/84P] (T.64, R.7): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(4) *Ahsub Lake, 38-0516-00, [11/5/84P] (T.64, R.8W, S.27, 28): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(5) *Alpine Lake, 16-0759-00, [11/5/84P] (T.65, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(6) *Alruss Lake, 69-0005-00, [11/5/84P] (T.64, R.11W, S.7; T.64, R.12W, S.12): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(7) *Amoeber Lake, 38-0227-00, [11/5/84P] (T.65, R.6, 7): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(8) *Arkose Lake, 38-0382-00, [11/5/84P] (T.64, 65, R.7): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(9) *Ashdick Lake (Caribou Lake), 38-0210-00, [11/5/84P] (T.66, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(10) *Basswood Lake, 38-0645-00, [11/5/84P] (T.64, 65, R.9, 10): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(11) *Bat Lake, 16-0752-00, [11/5/84P] (T.64, 65, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(12) *Beartrack Lake, 69-0480-00, [11/5/84P] (T.67, R.15): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(13) *Beaver Lake (Elbow Lake), 38-0223-00, [11/5/84P] (T.63, 64, R.6, 7): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(14) Beaver Hut Lake, 38-0737-00, (T.61, R.10W, S.30, 31; T.61, R.11, S.25, 36): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(15) Beetle Lake, 38-0551-00, (T.60, R.9W, S.7): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(16) Big Lake, 69-0190-00, (T.64, 65, R.13): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(17) *Bingshick Lake, 16-0627-00, [11/5/84P] (T.65, R.4, 5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(18) *Brandt Lake (Brant Lake), 16-0600-00, [11/5/84P] (T.65, R.4): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(19) *Burntside Lake, 69-0118-00, [3/7/88R] (T.63, 64, R.12, 13, 14): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(20) Camp Four (Wessman) Lake, 69-0788-00, (T.59, R.19W, S.4): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(21) *Camp Lake, 38-0789-00, [11/5/84P] (T.64, R.11): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(22) *Caribou Lake, 31-0620-00, [3/7/88R] (T.58, R.26): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(23) *Cash Lake, 16-0438-00, [11/5/84P] (T.64, R.3): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(24) Cedar Lake, 38-0810-00, (T.63, R.11, 12): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(25) Chant Lake, 69-0172-00, (T.63, R.13W, S.10): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(26) *Cherokee Lake, 16-0524-00, [11/5/84P] (T.63, 64, R.4): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(27) *Cherry Lake, 38-0166-00, [11/5/84P] (T.65, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(28) *Conchu Lake, 38-0720-00, [11/5/84P] (T.63, R.10W, S.21, 22): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(29) *Crab Lake (includes West Crab Lake, 69-0297-00), 69-0220-00, [11/5/84P] (T.63, R.13, 14): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(30) Crab Lake, 16-0357-00, (T.65, R.2, 3): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(31) Crane Lake, 69-0616-00, (T.67, 68, R.16, 17): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(32) *Crooked Lake, 16-0723-00, [11/5/84P] (T.64, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(33) *Crooked Lake, 38-0817-00, [11/5/84P] (T.66, R.11, 12): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(34) *Cruiser Lake (Trout Lake), 69-0832-00, [11/5/84P] (T.69, 70, R.19): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(35) Cub Lake, 69-1318-00, (T.61, R.14W, S.2): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(36) Dan Lake, 38-0853-00, (T.63, R.10W, S.17): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(37) Deepwater Lake, 69-0858-00, (T.59, R.20W, S.2): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(38) Dry Lake, 69-0064-00, (T.63, R.12W, S.9): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(39) Dry Lake, Little, 69-1040-00, (T.63, R.12W, S.9): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(40) *Eddy Lake, 38-0187-00, [11/5/84P] (T.65, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(41) Eikela Lake, 38-0677-00, (T.60, R.10W, S.22): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(42) Ennis Lake, 38-0634-00, (T.64, R.9W, S.33): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(43) Erskine Lake, 31-0311-00, (T.61, R.24W, S.2, 3): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(44) *Ester Lake (Gnig Lake), 38-0207-00, [11/5/84P] (T.65, 66, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(45) *Eugene Lake, 69-0473-00, [11/5/84P] (T.67, R.15): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(46) *Explorer Lake (South Three Lake), 38-0399-00, [11/5/84P] (T.64, R.7, 8): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(47) Extortion Lake, 16-0450-00, (T.65, R.3W, S.31, 32): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(48) Fall Lake, 38-0811-00, (T.63, 64, R.11, 12): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(49) Farm Lake, 38-0779-00, (T.62, 63, R.11): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(50) *Fat Lake, 69-0481-00, [11/5/84P] (T.67, R.15): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(51) *Fay Lake, 16-0783-00, [11/5/84P] (T.65, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(52) Fenske Lake, 69-0085-00, (T.64, R.12, S.29, 30, 32): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(53) *Fern Lake, 16-0716-00, [11/5/84P] (T.64, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(54) *Fern Lake, West, 16-0718-00, [11/5/84P] (T.64, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(55) *Finger Lake, 69-0348-00, [11/5/84P] (T.67, R.14): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(56) *Fishdance Lake, 38-0343-00, [11/5/84P] (T.63, R.7): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(57) *Found Lake, 38-0620-00, [11/5/84P] (T.64, R.9W, S.10, 15): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(58) *Fraser Lake, 38-0372-00, [11/5/84P] (T.64, R.7): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(59) *French Lake, 16-0755-00, [11/5/84P] (T.64, 65, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(60) *Frost Lake, 16-0571-00, [11/5/84P] (T.64, R.4): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(61) *Gabimichigami Lake, 16-0811-00, [11/5/84P] (T.64, 65, R.5, 6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(62) *Ge-Be-On-Equat Lake, 69-0350-00, [11/5/84P] (T.67, R.14): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(63) *Gijikiki Lake (Cedar Lake), 38-0209-00, [11/5/84P] (T.65, 66, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(64) *Gillis Lake, 16-0753-00, [11/5/84P] (T.64, 65, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(65) Glacier Pond No. 1, 38-0712-00, (T.63, R. 10W, S.11): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(66) Glacier Pond No. 2, 38-0712-02, (T.63, R.10W, S.11): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(67) *Gordon Lake, 16-0569-00, [11/5/84P] (T.64, R.4): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(68) Gull Lake, 16-0632-00, (T.66, R.4, 5): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(69) *Gun Lake, 69-0487-00, [11/5/84P] (T.67, 68, R.15): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(70) *Gunflint Lake, 16-0356-00, [3/7/88R] (T.65, R.2, 3, 4): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(71) Gunflint Lake, Little, 16-0330-00, (T.65, R.2): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(72) Gypsy Lake, 38-0665-00, (T.60, R.10W, S.6, 7): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(73) Hanson Lake, 69-0189-00, (T.64, R.13W, S.36): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(74) *Hanson Lake, 38-0206-00, [11/5/84P] (T.65, 66, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(75) High Lake, 69-0071-00, (T.63, R.12W, S.3, 4, 5; T.64, R.12W, S.33, 34): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(76) Hogback (Twin or Canal) Lake, 38-0057-01 and 38-0057-02, (T.60, R.6W, S.31): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(77) *Holt Lake, 38-0178-00, [11/5/84P] (T.65, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(78) *Howard Lake, 16-0789-00, [11/5/84P] (T.65, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(79) *Hustler Lake, 69-0343-00, [11/5/84P] (T.66, 67, R.14): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(80) *Ima Lake (Slate Lake), 38-0400-00, [11/5/84P] (T.64, R.7, 8): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(81) Indian Lake, 38-0440-00, (T.60, R.8W, S.35): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(82) *Jacob (Louis) Lake, 69-0077-00, [11/5/84P] (T.64, R.12W, S.11, 12): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(83) James (Jammer) Lake, 69-0734-00, (T.60, R.18W, S.27): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(84) Jasper Lake, 38-0641-00, (T.63, 64, R.9, 10): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(85) *Jasper Lake, 16-0768-00, [11/5/84P] (T.65, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(86) *Johnson Lake, 69-0691-00, [3/7/88R] (T.67, 68, R.17, 18): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(87) Jouppi Lake, 38-0909-00, (T.59, R.8W, S.14, 22, 23): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(88) Judd Lake, 38-0615-00, (T.63, R.9W, S.4, 5; T.64, R.9W, S.32, 33): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(89) *Kabetogama Lake, 69-0845-00, [11/5/84P] (T.69, 70, R.19, 20, 21, 22): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(90) *Karl Lake, 16-0461-00, [11/5/84P] (T.64, R.3, 4): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(91) *Kek Lake, Little, 38-0228-00, [11/5/84P] (T.65, R.6, 7): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(92) *Kekekabic Lake, 38-0226-00, [11/5/84P] (T.64, 65, R.6, 7): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(93) *Knife Lake, 38-0404-00, [11/5/84P] (T.65, R.6, 7, 8): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(94) *Lake of the Clouds Lake (Dutton Lake), 38-0169-00, [11/5/84P] (T.65, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(95) Lake of the Woods, 39-0002-00, (T.161, 162, 163, 164, 165, 166, 167, 168, R.30, 31, 32, 33, 34, 35, 36): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(96) Lake Vermilion, 69-0378-00, (T.61, 62, 63, R.14, 15, 16, 17, 18): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(97) *Larson Lake, 31-0317-00, [3/7/88R] (T.61, R.24W, S.16, 21): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(98) Little Long Lake, 69-0066-00, (T.63, R.12): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(99) *Long Island Lake, 16-0460-00, [11/5/84P] (T.64, R.3, 4): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(100) *Loon Lake, 16-0448-00, [3/7/88R] (T.65, R.3): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(101) *Loon Lake, 69-0470-00, [11/5/84P] (T.66, 67, R.15): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(102) *Lunar Lake (Moon Lake), 38-0168-00, [11/5/84P] (T.65, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(103) *Lynx Lake, 69-0383-00, [11/5/84P] (T.66, R.14, 15): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(104) *Magnetic Lake, 16-0463-00, [3/7/88R] (T.65, R.3, 4): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(105) *Makwa Lake (Bear Lake), 38-0147-00, [11/5/84P] (T.64, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(106) *Marble Lake, 38-0109-00, [11/5/84P] (T.64, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(107) *Mavis Lake, 16-0528-00, [11/5/84P] (T.64, R.4W, S.4): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(108) *Mayhew Lake, 16-0337-00, [3/7/88R] (T.65, R.2): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(109) *Meditation Lake, 16-0583-00, [11/5/84P] (T.65, R.4W, S.7, 8): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(110) *Mesaba Lake, 16-0673-00, [11/5/84P] (T.63, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(111) Miner's Mine Pit, 69-1293-00, (T.63, R.12W, S.26, 27, 28): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(112) *Missing Link Lake, 16-0529-00, [11/5/84P] (T.64, R.4W, S.4): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(113) *Missionary Lake (East Three Lake), 38-0398-00, [11/5/84P] (T.64, R.7, 8): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(114) *Moose Lake, 38-0644-00, [11/5/84P] (T.64, R.9, 10): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(115) *Mora Lake, 16-0732-00, [11/5/84P] (T.64, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(116) *Mukooda Lake, 69-0684-00, [11/5/84P] (T.68, R.17): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(117) *Namakan Lake, 69-0693-00, [11/5/84P] (T.69, 70, R.17, 18, 19): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(118) *Neglige Lake, 38-0492-00, [11/5/84P] (T.64, R.8W, S.1, 2, 11, 12): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(119) Nickel (Nichols) Lake, 31-0470-00, (T.59, R.25W, S.12): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(120) Norberg Lake, 69-1312-00, (T.61, R.14W, S.1): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(121) *North Lake, 16-0331-00, [3/7/88R] (T.65, R.2): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(122) North Lake, Little, 16-0329-00, (T.65, R.2): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(123) Norway Lake, 38-0688-00, (T.61, R.10W, S.3): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(124) *Ogishkemuncie Lake, 38-0180-00, [11/5/84P] (T.65, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(125) *Ojibway Lake (upper Twin), 38-0640-00, [3/7/88R] (T.63, R.9, 10): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(126) *Owl Lake, 16-0726-00, [11/5/84P] (T.64, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(127) *Oyster Lake, 69-0330-00, [11/5/84P] (T.66, R.14): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(128) *Paulson Lake, 16-0626-00, [11/5/84P] (T.65, R.4W, S.19; T.65, R.5W, S.24): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(129) Peanut Lake, 38-0662-00, (T.60, R.10W, S.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(130) Pelican Lake, 69-0841-00, (T.64, 65, R.19, 20, 21): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(131) *Pellet Lake, 16-0592-00, [11/5/84P] (T.65, R.4, S.19, 20): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(132) *Peter Lake, 16-0757-00, [11/5/84P] (T.64, 65, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(133) Pickerel Lake, 69-0934-00, (T.60, R.21W, S.17): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(134) Portage Lake, 16-0327-00, (T.64, R. 2W, S.3, 4, 5; T.65, R.2W, S.33): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(135) *Portage Lake, 38-0524-00, [11/5/84P] (T.65, R.8): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(136) Portage Lake, Little, 16-0297-00, (T.64, R.2W, S.3): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(137) *Powell Lake, 16-0756-00, [11/5/84P] (T.64, 65, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(138) *Rabbit Lake, 38-0214-00, [11/5/84P] (T.66, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(139) *Rainy Lake, 69-0694-00, [11/5/84P] (T.70, 71, R.18, 19, 20, 21, 22, 23): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(140) *Raven Lake (Lynx Lake), 38-0113-00, [11/5/84P] (T.64, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(141) *Red Rock Lake, 16-0793-00, [11/5/84P] (T.65, 66, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(142) Regenbogan Lake, 69-0081-00, (T.64, R.12W, S.18): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(143) *Rog Lake, 16-0765-00, [11/5/84P] (T.65, R.5W, S.16, 17): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(144) *Ruby Lake, Big, 16-0333-00, [11/5/84P] (T.66, R.14): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(145) *Saganaga Lake, 16-0633-00, [11/5/84P] (T.66, 67, R.4, 5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(146) *Saganaga Lake, Little, 16-0890-00, [11/5/84P] (T.64, R.5, 6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(147) *Sand Point Lake, 69-0617-00, [11/5/84P] (T.67, 68, 69, R.16, 17): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(148) Scarp (Cliff) Lake, 38-0058-00, (T.60, R.6W, S.31, 32): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(149) *Sea Gull Lake, 16-0629-00, [11/5/84P] (T.65, 66, R.4, 5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(150) *Sema Lake (Coon Lake), 38-0386-00, [11/5/84P] (T.65, R.7): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(151) Shoo-fly Lake, 38-0422-00, (T.59, R.8W, S.1; T.60, R.8W, S.36): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(152) *Skull Lake, 38-0624-00, [11/5/84P] (T.64, R.9W, S.14): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(153) *Snowbank Lake, 38-0529-00, [11/5/84P] (T.63, 64, R.8, 9): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(154) *Spoon Lake (Fames Lake), 38-0388-00, [11/5/84P] (T.65, R.7): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(155) *Spring Lake, 69-0761-00, [3/7/88R] (T.68, R.18): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(156) Steamhaul Lake, 38-0570-00, (T.60, R.9W, S.23): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(157) *Strup Lake, 38-0360-00, [11/5/84P] (T.64, R.7): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(158) *Sumpet Lake, 38-0283-00, [11/5/84P] (T.61, R.7): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(159) Surber Lake, 16-0343-00, (T.65, R.2W, S.34): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(160) *Takuemich Lake, 69-0369-00, [11/5/84P] (T.67, 68, R.14): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(161) *Tarry Lake, 16-0731-00, [11/5/84P] (T.64, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(162) *Thomas Lake, 38-0351-00, [11/5/84P] (T.63, 64, R.7): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(163) *Thumb Lake, 69-0352-00, [11/5/84P] (T.67, R.14): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(164) Tofte Lake, 38-0724-00, (T.63, R.10W, S.2, 3, 10, 11; T.64, R.10W, S.35): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(165) *Topaz Lake (Star Lake), 38-0172-00, [11/5/84P] (T.65, R.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(166) *Town Lake, 16-0458-00, [11/5/84P] (T.63, 64, R.3, 4): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(167) Trappers Lake, 38-0431-00, (T.60, R.8W, S.27, 34): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(168) Trip Lake, 16-0451-00, (T.65, R.3W, S.32): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(169) *Trout Lake, Big, 69-0498-00, [11/5/84P] (T.63, 64, R.15, 16): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(170) *Trout Lake, Little (Pocket Lake), 69-0682-00, [11/5/84P] (T.68, R.17): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(171) *Trygg (Twigg) Lake, 69-0389-00, [11/5/84P] (T.68, R.14W, S.31; T.68, R.15W, S.36): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(172) *Tucker Lake (Trucker Lake), 16-0417-00, [11/5/84P] (T.64, R.3): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(173) *Tuscarora Lake, 16-0623-00, [11/5/84P] (T.64, R.4, 5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(174) unnamed (Pear) lake, 38-0769-00, (T.60, R.11W, S.4): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(175) *unnamed lake, 16-0598-00, [11/5/84P] (T.65, R.4, S.29, 30): 1B, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(176) unnamed swamp, Winton, (T.63, R.11, S.19; T.63, R.12, S.24): 3, 4A, 4B, 5, 6, 7;~~

~~(177) *Vera Lake, 38-0491-00, [11/5/84P] (T.64, R.8): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(178) Vermilion, Lake, 69-0378-00, (see Lake Vermilion);~~

~~(179) *Virgin Lake, 16-0719-00, [11/5/84P] (T.64, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(180) West Crab Lake, 69-0220-00, (see Crab Lake);~~

~~(181) White Iron Lake, 69-0004-00, (T.62, 63, R.11, 12): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(182) *Wine Lake, 16-0686-00, [11/5/84P] (T.63, R.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(183) *Wisini Lake, 38-0361-00, [11/5/84P] (T.64, R.7): 1B, 2A, 3, 4A, 4B, 5, 6; and~~

~~(184) Woods, Lake of the, 39-0002-00, (see Lake of the Woods).~~

[For text of items C and D, see Minnesota Rules]

Subp. 3. **Red River of the North basin.** The water-use classifications for the stream reaches within each of the major watersheds in the Red River of the North basin listed in item A are found in tables entitled "Beneficial Use Designations for Stream Reaches" published on the website of the Minnesota Pollution Control Agency at ~~www.pca.state.mn.us/regulations/incorporations-reference~~ https://www.pca.state.mn.us/get-engaged/incorporations-by-reference. The tables are incorporated by reference and are not subject to frequent change. The date after each watershed listed in item A is the publication date of the applicable table. The water-use classifications for the other listed waters in the Red River of the North basin are as identified in items B to D. See part 7050.0415 for the classifications of waters not listed. Designated use information for water bodies can also be accessed through the agency's Environmental Data Access (http://www.pca.state.mn.us/quick-links/eda-surface-water-data).

[For text of item A, see Minnesota Rules]

B. Lakes (by eight-digit hydrologic unit code):

(1) 09020101 Bois de Sioux River (November 2025);

(2) 09020102 Mustinka River (November 2025);

(3) 09020103 Otter Tail River (November 2025);

(4) 09020104 Upper Red River of the North (November 2025);

(5) 09020106 Buffalo River (November 2025);

(6) 09020107 Red River of the North - Marsh River (November 2025);

(7) 09020108 Wild Rice River (November 2025);

(8) 09020301 Red River of the North - Sandhill River (November 2025);

(9) 09020302 Upper/Lower Red Lake (November 2025);

(10) 09020303 Red Lake River (November 2025);

(11) 09020304 Thief River (November 2025);

(12) 09020305 Clearwater River (November 2025);

(13) 09020306 Red River of the North - Grand Marais Creek (November 2025);

(14) 09020309 Snake River (November 2025);

(15) 09020311 Red River of the North - Tamarac River (November 2025);

(16) 09020312 Two Rivers (November 2025); and

(17) 09020314 Roseau River (November 2025).

~~(1) Bass Lake, 56-0722-00, (T.135, R.42W, S.10, 11): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(2) Hanson Lake, 03-0177-00, (T.139, R.39W, S.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(3) Hoot Lake, 56-0782-00, (T.133, R.42, 43): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(4) Lake Bronson, 35-0003-00, (T.160, 161, R.46): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(5) Twin Lake, East, 03-0362-00, (T.138, R.41): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(6) unnamed slough, Vergas, (T.137, R.40, S.18; T.137, R.41, S.13, 24): 3, 4A, 4B, 5, 6, 7;~~

~~(7) Wapatus (Island) Lake, 15-0127-00, (T.144, R.38W, S.21, 28): 1B, 2A, 3, 4A, 4B, 5, 6; and~~

~~(8) Wright Lake, 56-0783-00, (T.133, R.42, 43): 1C, 2Bd, 3, 4A, 4B, 5, 6.~~

[For text of items C and D, see Minnesota Rules]

Subp. 4. **Upper Mississippi River basin (headwaters to the confluence with the St. Croix River).** The water-use classifications for the stream reaches within each of the major watersheds in the upper Mississippi River basin from the headwaters to the confluence with the St. Croix River listed in item A are found in tables entitled "Beneficial Use Designations for Stream Reaches" published on the website of the Minnesota Pollution Control Agency at ~~www.pca.state.mn.us/regulations/incorporations-reference~~ https://www.pca.state.mn.us/get-engaged/incorporations-by-reference. The tables are incorporated by reference and are not subject to frequent change. The date after each watershed listed in item A is the publication date of the applicable table. The water-use classifications for the other listed waters in the upper Mississippi River basin from the headwaters to the confluence with the St. Croix River are as identified in items B to D. See part 7050.0415 for the classifications of waters not listed. Designated use information for water bodies can also be accessed through the agency's Environmental Data Access (http://www.pca.state.mn.us/quick-links/eda-surface-water-data).

[For text of item A, see Minnesota Rules]

B. Lakes (by eight-digit hydrologic unit code):

(1) 07010101 Mississippi River - Headwaters (November 2025);

(2) 07010102 Leech Lake River (November 2025);

(3) 07010103 Mississippi River - Grand Rapids (November 2025);

(4) 07010104 Mississippi River - Brainerd (November 2025);

(5) 07010105 Pine River (November 2025);

(6) 07010106 Crow Wing River (November 2025);

(7) 07010107 Redeye River (November 2025);

(8) 07010108 Long Prairie River (November 2025);

(9) 07010201 Mississippi River - Sartell (November 2025);

(10) 07010202 Sauk River (November 2025);

(11) 07010203 Mississippi River - St. Cloud (November 2025);

(12) 07010204 North Fork Crow River (November 2025);

(13) 07010205 South Fork Crow River (November 2025);

(14) 07010206 Mississippi River - Twin Cities (November 2025); and

(15) 07010207 Rum River (November 2025).

~~(1) Allen Lake, 18-0208-00, (T.138, R.26W, S.5): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(2) Bald Eagle Lake, 62-0002-00, (T.30, 31, R.21, 22): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(3) Bee Cee Lake, 31-0443-00, (T.58, R.25W, S.28, 33): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(4) Benedict Lake, 29-0048-00, (T.142, R.32): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(5) Benjamin Lake, 04-0033-00, (T.148, R.30W, S.7, 18; T.148, R.31W, S.13): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(6) Blacksmith Lake, 29-0275-00, (T.142, R.35W, S.13): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(7) *Blue Lake, 01-0181-00, [3/7/88R] (T.46, 47, R.27): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(8) *Blue Lake, 29-0184-00, [3/7/88R] (T.141, R.34): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(9) *Bluewater Lake, 31-0395-00, [3/7/88R] (T.57, R.25): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(10) Cenaiko Lake (unnamed), 02-0654-00, (T.31, R.24W, S.26): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(11) Centerville Lake, 02-0006-00, (T.31, R.22): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(12) Charley Lake, 62-0062-00, (T.30, R.23): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(13) Crappie Lake, 29-0127-00, (T.143, R.33W, S.31):1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(14) Deep Lake, 62-0018-00, (T.30, R.22): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(15) Diamond Lake, 11-0396-00, (T.141, R.30W, S.26, 27, 34): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(16) Hazel Lake, 11-0295-00, (T.141, R.29W, S.25): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(17) Hay Lake, lower, 18-0378-00, (T.137, R.28, 29): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(18) *Kabekona Lake, 29-0075-00, [3/7/88R] (T.142, 143, R.32, 33): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(19) Kennedy Lake, 31-0137-00, (T.58, R.23): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(20) Kremer Lake, 31-0645-00, (T.58, R.26W, S.33, 34): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(21) LaSalle Lake, lower, 29-0309-00, (T.145, R.35): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(22) Loon (Townline) Lake, 01-0024-00, (T.50, R.22W, S.7; T.50, R.23W, S.12, 13): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(23) Lucky Lake, 31-0603-00, (T.57, R.26W, S.14): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(24) Mallen Mine Pit, 18-0740-00, (T.46, R.29W, S.17): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(25) Manuel (South Yawkey) Mine Pit, 18-0435-00, (T.46, R.29W, S.1): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(26) Margaret Lake, 11-0045-00, (T.139, R.26W, S.16): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(27) Marion Lake, 11-0046-00, (T.139, R.26W, S.16, 17): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(28) Martin (Huntington, Feigh) Mine Pit, 18-0441-00, (T.46, R.29W, S.9, 10, 16): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(29) Moonshine Lake, Little (Moonshine), 31-0444-00, (T.58, R.25W, S.28, 33): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(30) Newman (Putnam) Lake, 29-0237-00, (T.145, R.34W, S.10, 11): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(31) Otter Lake, 02-0003-00, (T.30, 31, R.22): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(32) Pennington (Mahnomen, Alstead, Arco) Mine Pit, 18-0439-00, (T.46, R.29W, S.3, 9, 10, 11): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(33) Perch Lake, 11-0826-00, (T.139, R.31W, S.33): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(34) Pleasant Lake, 62-0046-00, (T.30, R.22, 23): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(35) Pleasant Lake, 18-0278-00, (T.137, R.27W, S.19): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(36) *Pokegama Lake, 31-0532-01 and 31-0532-02, [3/7/88R] (T.54, 55, R.25, 26): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(37) Portsmouth Mine Pit, 18-0437-00, (T.46, R.29W, S.1, 2, 11): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(38) *Roosevelt Lake, 11-0043-00, [3/7/88R] (T.138, 139, R.26): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(39) Sagamore Mine Pit, 18-0523-00, (T.46, R.29W, S.19; T.46, R.30W, S.24): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(40) Section 6 Mine Pit, 18-0667-00, (T.46, R.29W, S.6): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(41) Snoshoe Mine Pit, 18-0524-00, (T.46, R.29W, S.17, 18): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(42) Snowshoe (Little Andrus) Lake, 11-0054-00, (T.139, R.26W, S.29, 30): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(43) Strawberry Lake, 18-0363-00, (T.137, R.28W, S.27, 34): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(44) Sucker Lake, 62-0028-00, (T.30, R.22): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(45) Taylor Lake, 01-0109-00, (T.52, R.25W, S.16): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(46) Teepee Lake, 11-0312-00, (T.141, R.29W, S.30; T.141, R.30W, S.25): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(47) Tioga Mine Pit, 31-0946-00, (T.55, R.26W, S.26): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(48) Trout Lake, 31-0216-00, (T.55, 56, R.24): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(49) *Trout Lake, Big, 31-0410-00, [3/7/88R] (T.57, 58, R.25): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(50) *Trout Lake, Big, 18-0315-00, [3/7/88R] (T.137, 138, R.27, 28): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(51) *Trout Lake, Little, 31-0394-00, [3/7/88R] (T.57, R.25): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(52) unnamed swamp, Flensburg, (T.129, R.31, S.25): 3, 4A, 4B, 5, 6, 7;~~

~~(53) unnamed slough, Miltona, (T.130, R.37, S.26, 35, 36): 3, 4A, 4B, 5, 6, 7;~~

~~(54) unnamed swamp, Staples, (T.133, R.33, S.1): 3, 4A, 4B, 5, 6, 7;~~

~~(55) unnamed swamp, Taconite, (T.56, R.24, S.22): 3, 4A, 4B, 5, 6, 7;~~

~~(56) Vadnais Lake, 62-0038-00, (T.30, R.22): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(57) Wabana Lake, 31-0392-00, (T.57, R.25): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(58) Watab Lake, Big, 73-0102-00, (T.124, R.30): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(59) Wilkinson Lake, 62-0043-00, (T.30, R.22): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(60) Willard Lake, 11-0564-00, (T.139, R.30W, S.15): 1B, 2A, 3, 4A, 4B, 5, 6; and~~

~~(61) Yawkey (North Yawkey) Mine Pit, 18-0434-00, (T.46, R.29W, S.1): 1B, 2A, 3, 4A, 4B, 5, 6.~~

[For text of items C and D, see Minnesota Rules]

Subp. 5. **Minnesota River basin.** The water-use classifications for the stream reaches within each of the major watersheds in the Minnesota River basin listed in item A are found in tables entitled "Beneficial Use Designations for Stream Reaches" published on the website of the Minnesota Pollution Control Agency at ~~www.pca.state.mn.us/regulations/incorporations-reference~~ https://www.pca.state.mn.us/get-engaged/incorporations-by-reference. The tables are incorporated by reference and are not subject to frequent change. The date after each watershed listed in item A is the publication date of the applicable table. The water-use classifications for the other listed waters in the Minnesota River basin are as identified in items B to D. See part 7050.0415 for the classifications of waters not listed. Designated use information for water bodies can also be accessed through the agency's Environmental Data Access (http://www.pca.state.mn.us/quick-links/eda-surface-water-data).

[For text of item A, see Minnesota Rules]

B. Lakes (by eight-digit hydrologic unit code):

(1) 07020001 Minnesota River - Headwaters (November 2025);

(2) 07020002 Pomme de Terre River (November 2025);

(3) 07020003 Lac qui Parle River (November 2025);

(4) 07020004 Minnesota River - Yellow Medicine River (November 2025);

(5) 07020005 Chippewa River (November 2025);

(6) 07020006 Redwood River (November 2025);

(7) 07020007 Minnesota River - Mankato (November 2025);

(8) 07020008 Cottonwood River (November 2025);

(9) 07020009 Blue Earth River (November 2025);

(10) 07020010 Watonwan River (November 2025);

(11) 07020011 Le Sueur River (November 2025); and

(12) 07020012 Lower Minnesota River (November 2025).

~~(1) Amber Lake, 46-0034-00, (T.102, R.30): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(2) Bardwell Lake, 46-0023-00, (T.102, R.30): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(3) Budd Lake, 46-0030-00, (T.102, R.30): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(4) Courthouse Lake, 10-0005-00, (T.115, R.23W, S.9): 1B, 2A, 3, 4A, 4B, 5, 6;~~

~~(5) George Lake, 46-0024-00, (T.102, R.30): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(6) Hall Lake, 46-0031-00, (T.102, R.30): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(7) Mud Lake, 46-0035-00, (T.102, R.30): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(8) One Hundred Acre Slough, Saint James, (T.106, R.31, S.7): 3, 4A, 4B, 5, 6, 7;~~

~~(9) Silver Lake, North, 46-0016-00, (T.101, R.30): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(10) Sisseton Lake, 46-0025-00, (T.102, R.30): 1C, 2Bd, 3, 4A, 4B, 5, 6;~~

~~(11) unnamed marsh, Barry, (T.124, R.47, S.8): 3, 4A, 4B, 5, 6, 7;~~

~~(12) unnamed slough, Kensington, (T.127, R.40, S.34): 3, 4A, 4B, 5, 6, 7;~~

~~(13) unnamed slough, Brandon, (T.129, R.39, S.21, 22): 3, 4A, 4B, 5, 6, 7;~~

~~(14) unnamed swamp, Minnesota Lake, (T.104, R.25, S.3, 4): 3, 4A, 4B, 5, 6, 7;~~

~~(15) unnamed swamp (Skauby Lake), 17-0035-00, Storden, (T.107, R.37, S.30): 3, 4A, 4B, 5, 6, 7;~~

~~(16) unnamed swamp, Sunburg, Sunburg Coop Cry., (T.122, R.36, S.30): 3, 4A, 4B, 5, 6, 7;~~

~~(17) unnamed swamp, Lowry, (T.126, R.39, S.35, 36): 3, 4A, 4B, 5, 6, 7; and~~

~~(18) Wilmert Lake, 46-0014-00, (T.101, R.30): 1C, 2Bd, 3, 4A, 4B, 5, 6.~~

[For text of items C and D, see Minnesota Rules]

Subp. 6. **Saint Croix River basin.** The water-use classifications for the stream reaches within each of the major watersheds in the Saint Croix River basin listed in item A are found in tables entitled "Beneficial Use Designations for Stream Reaches" published on the website of the Minnesota Pollution Control Agency at ~~www.pca.state.mn.us/regulations/incorporations-reference~~ https://www.pca.state.mn.us/get-engaged/incorporations-by-reference. The tables are incorporated by reference and are not subject to frequent change. The date after each watershed listed in item A is the publication date of the applicable table. The water-use classifications for the other listed waters in the Saint Croix River basin are as identified in items B to D. See part 7050.0415 for the classifications of waters not listed. Designated use information for water bodies can also be accessed through the agency's Environmental Data Access (http://www.pca.state.mn.us/quick-links/eda-surface-water-data).

[For text of item A, see Minnesota Rules]

B. Lakes (by eight-digit hydrologic unit code):

(1) 07030001 Upper St. Croix River (November 2025);

(2) 07030003 Kettle River (November 2025);

(3) 07030004 Snake River (November 2025); and

(4) 07030005 Lower St. Croix River (November 2025).

~~(1) *Grindstone Lake, 58-0123-00, [3/7/88R] (T.42, R.21): 1B, 2A, 3, 4A, 4B, 5, 6; and~~

~~(2) unnamed swamp, Shafer, (T.34, R.19, S.31, 32): 3, 4A, 4B, 5, 6, 7.~~

[For text of items C and D, see Minnesota Rules]

Subp. 7. **Lower Mississippi River basin (from the confluence with the St. Croix River to the Iowa border).** The water-use classifications for the stream reaches within each of the major watersheds in the lower Mississippi River basin from the confluence with the Saint Croix River to the Iowa border listed in item A are found in tables entitled "Beneficial Use Designations for Stream Reaches" published on the website of the Minnesota Pollution Control Agency at ~~www.pca.state.mn.us/regulations/incorporations-reference~~ https://www.pca.state.mn.us/get-engaged/incorporations-by-reference. The tables are incorporated by reference and are not subject to frequent change. The date after each watershed listed in item A is the publication date of the applicable table. The water-use classifications for the other listed waters in the lower Mississippi River basin from the confluence with the St. Croix River to the Iowa border are as identified in items B to D. See part 7050.0415 for the classifications of waters not listed. Designated use information for water bodies can also be accessed through the agency's Environmental Data Access (http://www.pca.state.mn.us/quick-links/eda-surface-water-data).

[For text of item A, see Minnesota Rules]

B. Lakes (by eight-digit hydrologic unit code):

(1) 07040001 Mississippi River - Lake Pepin (November 2025);

(2) 07040002 Cannon River (November 2025);

(3) 07040003 Mississippi River - Winona (November 2025);

(4) 07040004 Zumbro River (November 2025);

(5) 07040006 Mississippi River - La Crescent (November 2025);

(6) 07040008 Root River (November 2025);

(7) 07060001 Mississippi River - Reno (November 2025); and

(8) 07060002 Upper Iowa River (November 2025).

~~(1) unnamed marsh, Kilkenny, (T.110, R.23, S.22, 23): 3, 4A, 4B, 5, 6, 7; and~~

~~(2) unnamed swamp, Hampton, (T.113, R.18, S.8): 3, 4A, 4B, 5, 6, 7.~~

[For text of items C and D, see Minnesota Rules]

Subp. 8. **Cedar-Des Moines Rivers basin.** The water-use classifications for the stream reaches within each of the major watersheds in the Cedar-Des Moines Rivers basin listed in item A are found in tables entitled "Beneficial Use Designations for Stream Reaches" published on the website of the Minnesota Pollution Control Agency at ~~www.pca.state.mn.us/regulations/incorporations-reference~~ https://www.pca.state.mn.us/get-engaged/incorporations-by-reference. The tables are incorporated by reference and are not subject to frequent change. The date after each watershed listed in item A is the publication date of the applicable table. The water-use classifications for the other listed waters in the

Cedar-Des Moines Rivers basin are as identified in items B to D. See part 7050.0415 for the classifications of waters not listed. Designated use information for water bodies can also be accessed through the agency's Environmental Data Access (http://www.pca.state.mn.us/quick-links/eda-surface-water-data).

[For text of item A, see Minnesota Rules]

B. Lakes: ~~none currently listed.~~ (by eight-digit hydrologic unit code):

(1) 07080102 Upper Wapsipinicon River (November 2025);

(2) 07080201 Cedar River (November 2025);

(3) 07080202 Shell Rock River (November 2025);

(4) 07080203 Winnebago River (November 2025);

(5) 07100001 Des Moines River - Headwaters (November 2025);

(6) 07100002 Lower Des Moines River (November 2025); and

(7) 07100003 East Fork Des Moines River (November 2025).

[For text of items C and D, see Minnesota Rules]

Subp. 9. **Missouri River basin.** The water-use classifications for the stream reaches within each of the major watersheds in the Missouri River basin listed in item A are found in tables entitled "Beneficial Use Designations for Stream Reaches" published on the website of the Minnesota Pollution Control Agency at ~~www.pca.state.mn.us/regulations/incorporations-reference~~ https://www.pca.state.mn.us/get-engaged/incorporations-by-reference. The tables are incorporated by reference and are not subject to frequent change. The date after each watershed listed in item A is the publication date of the applicable table. The water-use classifications for the other listed waters in the Missouri River basin are as identified in items B to D. See part 7050.0415 for the classifications of waters not listed. Designated use information for water bodies can also be accessed through the agency's Environmental Data Access (http://www.pca.state.mn.us/quick-links/eda-surface-water-data).

[For text of item A, see Minnesota Rules]

B. Lakes~~: none currently listed.~~ (by eight-digit hydrologic unit code):

(1) 10170202 Upper Big Sioux River (November 2025);

(2) 10170203 Lower Big Sioux River (November 2025);

(3) 10170204 Rock River (November 2025); and

(4) 10230003 Little Sioux River (November 2025).

[For text of items C and D, see Minnesota Rules]

CERTIFICATE OF SENDING THE NOTICE OF HEARING TO THE RULEMAKING MAILING LIST AND CERTIFICATE OF ACCURACY OF THE MAILING LIST

Minnesota Pollution Control Agency

Proposed Amendments to Rules Governing Water Quality Standards for Lake Aquatic Life and Recreation, Minnesota Rules Chapter 7050; Revisor's ID Number R-04740; Court of Administrative Hearings docket number 23-9003-39503

I certify the following:

1. On August 24, 2026, at least 33 days before the end of the comment period, in St. Paul, Ramsey County, Minnesota, I delivered the Notice of Intent to Adopt Rules With a Hearing, Statement of Need and Reasonableness (SONAR), and proposed rule text by sending links through the GovDelivery system to all parties on the rulemaking list under Minnesota Statutes, § 14.14, subdivision 1a—a total of 2,355 recipients. A copy of the GovDelivery bulletin with recipient count is attached to this certificate.
2. The list of parties who have requested that their names be placed on the MPCA's rulemaking list under Minnesota Statutes, § 14.14, subdivision 1a, is accurate, complete, and current as of August 24, 2026.

Katie Izzo

Katie Izzo
Rule Coordinator

From: Minnesota Pollution Control Agency
To: Olson, Adam (He/Him/His) (MPCA); Andre, Paul (MPCA); Godfrey, Beverly (She/Her/Hers) (MPCA); Ruiter, Dan (MPCA); Fay, Brianna (She/Her/Hers) (MPCA); Meyer, Glenn (MPCA); Lentz, Becky (MPCA); Lamers, Kate (MPCA); Strohl, Daniel (MPCA); Izzo, Katie (She/Her/Hers) (MPCA); Lewandowski, Lauren (MPCA); Kepulis, Kathryn (MPCA); Tauchen, David (MPCA); Michels, Tanja (MPCA); Beyer, Lindsey (MPCA); Barto, Kelly (She/Her/Hers) (MPCA); Hathaway, Jennifer (She/Her/Hers) (MPCA); Held, Ted (MNIT)
Subject: Courtesy Copy: Lakes WQS Rule: Notice of Hearing
Date: Monday, August 24, 2026 11:13:40 AM

This is a courtesy copy of an email bulletin sent by Katie Izzo.

This bulletin was sent to the following groups of people:

Subscribers of Rulemaking: Lakes Water Quality Standards (2355 recipients)

Minnesota Pollution Control Agency

Notice of Intent to Adopt Rules With a Hearing published for amendments to rules governing water quality standards for lake aquatic life and recreation (Lakes WQS rule)

Pre-hearing comment period open until October 8

The MPCA has published a Notice of Intent to Adopt Rules With a Hearing regarding amendments to Minnesota Rules chapter 7050, relating to water quality standards (WQS) governing lake aquatic life and recreational uses, in the State Register; this rulemaking project is also referred to as the Lakes WQS rule (Revisor's ID #R04740, Court of Administrative Hearings docket #23-9003-39503).

The revisions proposed include three main elements:

1. adoption of eutrophication standards for shallow or mixed lakes in the northern nutrient region,
2. adoption of nutrient and oxythermal standards to protect cold-water fish habitat, and
3. adoption of a tiered aquatic life use (TALU) framework.

The rule amendments also include several housekeeping revisions, including correcting an error in the river eutrophication standards and moving lake designations in Minn. R. 7050.0470 into documents incorporated by reference. Incorporating lake use designations by reference will permit additional use designation information to be codified into rule. Correcting the errors in the

river eutrophication standards will assign the correct criteria adopted in rule and bring clarity to Minnesota's river eutrophication rules.

The Notice, proposed rule text, and Statement of Need and Reasonableness (SONAR) are available on the MPCA's Lakes WQS rule webpage as well as the eComments page for the Court of Administrative Hearings. **A pre-hearing public comment period is open until 4:30pm on October 8, 2026, with a virtual hearing to follow on November 2.** Please see the Notice for instructions on how to provide written comments or participate in the hearing.

Information about this and other MPCA rule projects is available on the public rulemaking docket.

Minnesota Pollution Control Agency [Contact us]

Unsubscribe from this list • Preferences • Help • This email sent using GovDelivery (800-439-1420)

CERTIFICATE OF GIVING ADDITIONAL NOTICE UNDER THE ADDITIONAL NOTICE PLAN

Minnesota Pollution Control Agency

Proposed Amendments to Rules Governing Water Quality Standards for Lake Aquatic Life and Recreation, Minnesota Rules Chapter 7050; Revisor's ID Number R-04740; Court of Administrative Hearings docket number 23-9003-39503

I certify that on August 24, 2026 (or another date as noted below), at St. Paul, Ramsey County, Minnesota, I gave notice according to the Additional Notice Plan approved by the Court of Administrative Hearings on August 17, 2026. I met the components of the approved plan through the following actions:

1. Provided an extended comment period by scheduling a 45-day pre-hearing comment period on the proposed rule amendments.
2. Provided specific notice to tribal authorities via email with hyperlinks to electronic copies of the Notice, Statement of Need and Reasonableness (SONAR), and proposed rule text to designated contacts for the 11 federally recognized tribes in Minnesota.
3. Provided specific notice to permittees adjacent to or upstream of a proposed use designation change to a more stringent classification (Class 2A and Exceptional Use waters) via email with hyperlinks to electronic copies of the Notice, SONAR, and proposed rule text.
4. Provided specific notice to the professional associations and other groups identified in the Additional Notice Plan via email with hyperlinks to electronic copies of the Notice, SONAR, and proposed rule text. NOTE: the list as originally published included two typos ("Clean Water Legacy" instead of Water Legacy and "Association of Minnesota Townships" instead of Minnesota Association of Townships); the MPCA regrets the error and made sure the notice went to the correct parties.
5. Provided a notification in the August 24, 2026, edition of the MPCA's Waterfront Bulletin newsletter (16,459 subscribers) with information on the open comment period and scheduled hearing, including a hyperlink to the rulemaking webpage with additional details as well as copies of the Notice, SONAR, and proposed rule text.
6. Posted ongoing rulemaking updates and associated documents—including the Notice, SONAR, and proposed rule text—on the rulemaking webpage at https://www.pca.state.mn.us/get-engaged/lake-aquatic-life-and-recreation.

Katie Izzo

Katie Izzo
Rule Coordinator

39503 Minnesota Pollution Control Agency Notice of Hearing on Lakes Water Quality Standards Rule

Closed Oct 08, 2026 · Discussion · 4 Participants · 1 Topics · 4 Answers · 0 Replies · 0 Votes

4	1	4	0	0
PARTICIPANTS	TOPICS	ANSWERS	REPLIES	VOTES

SUMMARY OF TOPICS

SUBMIT A COMMENT

4 Answers · 0 Replies

Important: All comments will be made available to the public. Please only submit information that you wish to make available publicly. The Court of Administrative Hearings does not edit or delete submissions that include personal information. We reserve the right to remove any comments we deem offensive, intimidating, belligerent, harassing, or bullying, or that contain any other inappropriate or aggressive behavior without prior notification.

Ryann Geldner · Citizen · (Postal Code: unknown) · Aug 30, 2026 12:33 am

0 Votes

I am writing in support of the Minnesota Pollution Control Agency's proposed amendments to Minnesota Rules chapter 7050 governing lake aquatic life and recreation. The proposed eutrophication standards, cold-water oxy-thermal criteria, and adoption of the Tiered Aquatic Life Use (TALU) framework represent meaningful improvements that will strengthen lake protection across the state.

I support the new eutrophication standards for shallow and mixed lakes in the northern nutrient region. These lakes behave differently than stratified systems, and updated criteria will improve accuracy and ecological relevance. I also support the addition of nutrient and oxythermal standards to protect cold-water fish habitat, which will help maintain the deep, cold, oxygenated refuges required by cisco, lake trout, and other sensitive species.

I support the adoption of the TALU framework, but I encourage MPCA to ensure that TALU does not unintentionally lower expectations for lakes that have already been degraded by shoreline alteration, nutrient loading, or repeated chemical treatments. TALU should continue to encourage restoration and improvement.

Relationship to Minn. R. 7050.0227 (Class 7: Limited Resource Value Waters)
I previously submitted a formal RFC comment on August 18, 2026 requesting full deletion of Minn. R. 7050.0227 (Class 7). My concerns remain relevant to this rulemaking because the proposed TALU framework interacts with existing beneficial use categories. As stated in my prior comment, Class 7 designations allow intentional degradation, contradict watershed science, and undermine cumulative protection of downstream

39503 Minnesota Pollution Control Agency Notice of Hearing on Lakes Water Quality Standards Rule

Closed Oct 08, 2026 · Discussion · 4 Participants · 1 Topics · 4 Answers · 0 Replies · 0 Votes

waters. I continue to request that MPCA remove Class 7 entirely and classify all waters under protective Classes 1–6.

Recommendations for strengthening the rule:

Incorporate macroinvertebrate monitoring into lake assessments.
Macroinvertebrates are foundational to lake food webs and are sensitive indicators of eutrophication, sediment oxygen depletion, and chemical disturbance. Including benthic macroinvertebrate metrics would greatly improve biological condition assessments under TALU.

Add protections or scoring incentives for lakes with intact native plant shorelines.
Native littoral vegetation supports fish spawning, amphibians, macroinvertebrates, and water quality. TALU tiers should recognize and reward lakes with high-quality shoreline habitat.

Require ecological monitoring after aquatic herbicide treatments.
Chemical treatments can affect dissolved oxygen, sediment chemistry, macroinvertebrates, and amphibians. Minnesota does not currently require post-treatment biological monitoring. Adding this requirement would align lake management with the rule's aquatic life protection goals.

Improve oversight of cumulative chemical applications.
A single lake can receive multiple herbicide permits from individuals, associations, and contractors. MPCA should track cumulative chemical load to ensure aquatic life standards are not unintentionally compromised.

Create a public, searchable database of all aquatic herbicide permits and quantities.
Transparency is essential for public trust and scientific evaluation. A centralized database would allow citizens, researchers, and local governments to understand how much chemical treatment is occurring and where.

Ensure TALU does not unintentionally reduce protection for modified or degraded lakes.
TALU should continue to encourage restoration and improvement. Lakes with intact native plant shorelines should receive higher protection, and lakes with degraded littoral zones should not be permanently assigned lower expectations.

Thank you for the opportunity to comment. I appreciate MPCA's work.

Robert Sip · Citizen · (Postal Code: unknown) · Oct 07, 2026 12:49 pm
0 Votes

Please accept comments from the Red River Watershed Management Board on the MPCA Proposed Coldwater Lakes Rule.

Cooper Silburn · Citizen · (Postal Code: unknown) · Oct 08, 2026 1:28 pm
0 Votes

On behalf of the Minnesota Environmental Science and Economic Review Board, please see the attached prehearing comments for this matter. Thank you for the opportunity to provide comment and for your consideration.

39503 Minnesota Pollution Control Agency Notice of Hearing on Lakes Water Quality Standards Rule

Closed Oct 08, 2026 · Discussion · 4 Participants · 1 Topics · 4 Answers · 0 Replies · 0 Votes

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Colin Jefferis · Citizen · (Postal Code: unknown) · Oct 08, 2026 3:44 pm

0 Votes

Please find the attached comments from the Great Lakes Indian Fish and Wildlife Commission. Thank you for the opportunity to comment.

Robert Sip Attachment
Lakes WQS Hearing Exhibit I-1: Notice commer
RECEIVED BY CAH
10/7/2026

October 7, 2026
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155

RE: Red River Watershed Management Board Comments on the Proposed Revisions of Rules Governing Water Quality Standards for Lake Aquatic Life and Recreation, *Minnesota Rules*, Chapter 7050; Revisor's ID Number R-04740

Dear Commissioner and Rulemaking Staff:

On behalf of the Red River Watershed Management Board (RRWMB), we appreciate the opportunity to provide comments regarding the Minnesota Pollution Control Agency's (MPCA) Proposed Revisions of Rules Governing Water Quality Standards for Lake Aquatic Life and Recreation, *Minnesota Rules*, Chapter 7050; Revisor's ID Number R-04740.

The RRWMB represents watershed management interests throughout the Minnesota portion of the Red River of the North Basin. The Board and its member Watershed Districts (WD) have decades of experience addressing flood damage reduction, drainage, water quality, erosion and sediment control, habitat, wetland restoration, watershed planning, and multipurpose water-management projects.

The RRWMB supports the protection and improvement of Minnesota's lakes, rivers, streams, wetlands, and other surface waters. We also support the use of sound science to establish water quality standards that are protective of aquatic life, recreation, and other designated uses. At the same time, the Red River Basin (RRB) is hydrologically, geographically, and biologically different from many other regions of Minnesota. These differences must be fully reflected in both the final rules and their subsequent implementation. It also amplifies the need for engaging local experts in processes and procedures associated with the Clean Water Act implementation.

The RRWMB is particularly concerned that standards, biological criteria, lake classifications, reference conditions, and impairment methodologies developed on a statewide basis could produce unintended consequences when applied to the naturally shallow, highly variable, wetland influenced, low gradient waters of Northwest Minnesota. Although it is unlikely these rule changes will add restrictions relative to construction of WD projects, the RRWMB is opposed to any additional restrictive rules with no basis for the classification changes. Accordingly, the RRWMB requests that MPCA incorporate the following considerations into the final rule and its implementation.

1. The Unique Characteristics of the RRB Must Be Explicitly Recognized and Local Experts Engaged: The Minnesota portion of the RRB encompasses a remarkably diverse landscape extending from the Lake Agassiz Plain eastward into lake, forest, and wetland dominated portions of Northwest Minnesota. Local WD staff have decades of experience working in these unique conditions. As such, we strongly encourage the State of Minnesota to increase its level of engagement with local stakeholders when making policies, rules, or implementing Clean Water Act activities in the RRB.

The proposed rule specifically recognizes 17 HUC-8 watersheds within the Red River of the North Basin. However, these watersheds do not represent a uniform aquatic environment. The RRB is the bed of former Glacial Lake Agassiz and is characterized by extremely low gradients, extensive agricultural drainage, naturally fine soils, high sediment mobility, wetland complexes, shallow water bodies, and highly variable hydrology. Farther east, the basin transitions into landscapes containing numerous natural lakes, forests, wetlands, coldwater resources, and substantially different soils and watershed characteristics.

The final rule should expressly recognize that the attainable biological and chemical condition of a water body must be evaluated in the context of its natural watershed, geomorphic, hydrologic, and ecological setting. Again, local practitioners like staff at WD's and Soil and Water Conservation Districts (SWCD) have decades of firsthand boots-on-the-ground experience in addressing this natural variation.

During the 1St cycle of the watershed approach in Minnesota, local expertise had more direct engagement with the MPCA before, during, and after processes like the proposed rules. We strongly encourage the MPCA to reinstitute stronger stakeholder engagement with local stakeholders before, during, and after the implementation of processes like the proposed rule changes. The RRWMB is available to discuss effective strategies for engaging stakeholders within the RRB.

For example, it is not uncommon for an intense rainfall event to impact a localized area within a watershed. Typically, local WD and SWCD staff will be aware of these events and familiar with the specific impacts. Without local coordination, it would be difficult for regionally based state agency staff to recognize this type of impact if monitoring towards the proposed rule was scheduled to occur a few days after the event. Local stakeholder coordination could help to resolve this issue. As such, the RRWMB strongly recommends development of a clear and accessible process through which WD's and other affected parties can be collaboratively engaged before, during and after the application of Clean Water Act procedures to waters in the RRB.

2. Natural Background Conditions Must Be Distinguished from Human Caused Pollution: Perhaps the most important issue for the RRWMB is the treatment of natural background conditions. Natural watershed characteristics can contribute significant amounts of phosphorus to lakes. The MPCA's analysis acknowledges that natural watershed sources of nutrients can be substantial in RRB.

Elevated phosphorus concentration does not necessarily demonstrate anthropogenic pollution, and reduced water transparency does not necessarily demonstrate human caused degradation. Naturally productive shallow lakes, wetland dominated watersheds, peatlands, organic soils, internal nutrient cycling, wind driven sediment resuspension, fish communities, drought, flooding, and natural hydrologic variability can substantially affect observed water quality. Alternatively, the elevated phosphorus concentrations maybe be significantly impacted by human activities such as stormwater, historical direct disposal of sewage, historical creamery waste disposal, historical mortuary waste disposal, historical sawmill waste disposal, or un-managed water from rural settings. It is just as important as the natural causes to understand the human causes.

Before determining that a water body is impaired or requiring additional nutrient reductions, MPCA should demonstrate that the observed condition represents a departure from the reasonably attainable natural condition of that water body. Local knowledge and insights should help inform these decisions. WD's and landowners should not be required to implement costly restoration measures intended to achieve conditions that are naturally unattainable. The RRWMB recommends that the final rule or associated implementation guidance explicitly establish a process for separating:

- Natural background loading.
- Internal loading and natural nutrient cycling.
- Wetland derived nutrients and organic matter.
- Naturally occurring turbidity and sediment conditions.
- Climate and hydrologic variability.
- Anthropogenic pollutant loading.

3. Lake Classification Decisions Must Be Transparent and Reviewable: The proposed framework places increased importance on determining the appropriate lake category, especially in the Lake Agassiz Plain ecoregion that does not have a unique set of Lake Eutrophication Standards (LES) and relies on professional judgment to assign a set of standards based on how the lake compares to lakes in ecoregions with LES. Lake classification can involve depth, littoral area, thermal stratification, fish communities, and other characteristics that some lakes do not fit neatly within established categories. In such cases, professional judgment may be necessary.

Professional judgment is necessary in the RRB, and the classification decisions can have significant regulatory consequences. A lake classification determines the appropriate water quality standards, which can in turn determine whether a lake is considered impaired. The Lake Agassiz Plain contains water bodies that may naturally exhibit high nutrient concentrations, turbidity, limited transparency, shallow depths, wetland influence, and other characteristics that could be unusual in recreational lakes elsewhere in Minnesota. The RRWMB therefore recommends that MPCA establish, or continue using, a transparent classification process that:

- Identifies the data supporting the classification.
- Identifies the criteria used.
- Documents the scientific rationale.
- Allows consideration of locally collected data.
- Provides notice to affected watershed districts and local governments.
- Establishes a meaningful process for reviewing or challenging an incorrect classification.

Classification should not become an administrative determination that is effectively unreviewable once incorporated into an impairment assessment. But rather, it should include local feedback and insights to help determine the correct classification and application of water quality standards. For mixing type classification, it is important to incorporate temperature and dissolved oxygen profile data, when available. Discissions on mixing classification should go beyond the use of the geometric ratio alone, to ensure the most appropriate standards are applied to the lake.

Local flexibility when classifying a lake and applying a standard is important. The Lake Agassiz Plain ecoregion spans 500 miles end-to-end. Applying a single numeric standard to accommodate a wide range of conditions within the same ecoregion can lead to unattainable targets without site-specific considerations.

The RRWMB therefore requests that MPCA retains a scientifically defensible mechanism for establishing site-specific expectations for Lake Agassiz Plain waters rather than applying standards developed from substantially different lake populations. MPCA should also clearly explain the methodology that will be used to establish those site-specific standards. Local WD's and other affected local governments should have a meaningful opportunity to review the data, reference conditions, lake classification, and proposed standard before a site-specific determination becomes the basis for an impairment listing or regulatory requirement.

4. Biological Criteria Must Account for Natural Variability: The RRWMB recognizes the value of biological monitoring. Fish and other biological communities can provide important information about long-term aquatic ecosystem health that may not be apparent from individual chemical samples. However, biological communities are affected by many factors unrelated to conventional pollution. These include drought, flooding, winterkill, natural lake level fluctuations, fish stocking, invasive species, predation, natural barriers, lake connectivity, habitat changes, temperature, dissolved oxygen, and historical conditions.

The proposed rules allow biological quality to be evaluated against biological condition models or reference water bodies intended to represent natural conditions for a particular water body type and geographic region. The choice of appropriate reference conditions is therefore extremely important.

MPCA should not conclude that an observed biological difference represents anthropogenic impairment unless there is adequate evidence connecting that condition to a human caused stressor. As part of this, reference water bodies should be carefully selected, within geographically relevant proximity and be subject to public feedback. Consistent with previous comments, this should also include a local stakeholder coordination process that engages local stakeholders prior to, during, and after reference conditions are set.

5. Exceptional Use Designations Require Clear Criteria and Local Participation: The proposed framework establishes exceptional aquatic life classifications, including Class 2Ae, 2Bde, and Class 2Be waters. The RRWMB supports protecting genuinely exceptional aquatic resources. However, an exceptional use designation can have consequences extending beyond the water body itself, particularly if the designation influences antidegradation requirements, watershed planning, land use priorities, permitting, or projects upstream. Accordingly, exceptional use designations should be based on clear and reproducible criteria, adequate monitoring data, consideration of natural variability, and consultation with affected WD's and local governments.

6. Coldwater and Oxythermal Standards Should Reflect Site-Specific Conditions: The RRWMB recognizes the ecological importance of protecting coldwater fish communities. The MPCA proposes new oxythermal habitat criteria intended to directly measure the suitability of temperature and dissolved oxygen conditions for sensitive coldwater species. These protections may be particularly important in portions of the eastern RRB. However, MPCA should ensure that naturally occurring temperature or dissolved oxygen conditions are not interpreted as anthropogenic impairment without sufficient evidence. Climate trends, lake morphology, groundwater interaction, water levels, seasonal conditions, and natural oxygen dynamics should be considered before regulatory conclusions are reached. The oxythermal standard needs more definition in the rules. The standard states "an average TDO3 sufficient to support coldwater fish species…" Is this the summer average for the lake, the average over the water column at any given time, or the summer average at a specific depth?

7. MPCA Should Evaluate the Potential Effect on TMDLs and WRAPS: A water quality standard does not operate in isolation. Once adopted, standards become part of the framework used to determine whether waters are meeting designated uses. New or revised standards can therefore lead to additional impairment determinations that then have downstream impacts on planning and implementation efforts.

Driven by the importance of the downstream impacts of standards, the RRWMB requests that MPCA provide a RRB specific analysis estimating:

- The number of Red River Basin water bodies potentially affected by the revised standards.
- The number potentially subject to a different impairment determination.
- The number potentially receiving exceptional use classifications.
- The likely effects on future WRAPS and TMDLs.
- Additional monitoring requirements.
- Potential implementation costs.
- A use attainability analysis for the standards within the region.
- Potential costs to local governments and watershed districts.

Without this information, it is difficult for affected local governments to understand the full fiscal and operational consequences of the proposed rules.

8. Flood Damage Reduction and Multipurpose Water Management Projects Must Remain Feasible: Flood damage reduction is an essential public responsibility within the RRB. The exceptionally flat topography of the RRB, historical wetland alterations, extensive drainage infrastructure, severe spring flooding, intense summer rainfall events, and international and interstate drainage characteristics require active water management. The RRWMB and its member WD's have invested substantial resources in projects that reduce flood damage while increasingly incorporating water quality, habitat, erosion control, wetland restoration, and other environmental benefits. The final rules should not unintentionally create barriers to properly designed multipurpose water management projects.

Projects involving flood impoundments, diversions, channel restoration, grade control structures, wetland restoration, floodwater storage, drainage improvements, and other hydrologic modifications should be evaluated according to their overall environmental and public benefits. The MPCA should coordinate with WD's early in project development rather than allowing biological or water quality standards to become an obstacle late in permitting.

9. Climate and Extreme Hydrologic Conditions Must Be Considered: The RRB experiences extraordinary hydrologic variability. A water body may experience drought, extreme spring runoff, prolonged flooding, intense rainfall, low flow conditions, winterkill, or substantial year-to-year water level fluctuations. These conditions can dramatically alter nutrient concentrations, sediment transport, dissolved oxygen, temperature, biological communities, and water clarity. The proposed standards should therefore be implemented using sufficiently long periods of record and appropriate hydrologic context so that temporary or extreme conditions are not mistaken for permanent anthropogenic degradation. The process by which these decisions are made and incorporated into associated work should be clearly documented and communicated.

10. Are Shallow Lakes now Excluded From LES on Purpose? Are LES no longer applied to shallow lakes? The proposed changes to the rules are written, under the definitions and water quality standard, in a way to exclude shallow lakes from the LES. Per the proposed changes to MN Rule 7050.0150, subp. 4 (definitions):

- S. “Lake" means an enclosed basin filled or partially filled with standing fresh water with a maximum depth greater than 15 feet. Lakes may have no inlet or outlet, an inlet or outlet, or both an inlet and outlet. This definition to lake means any reference to “lake” in the rules refers to an enclosed basin with standing fresh water with a maximum depth greater than 15 feet. In addition, shallow lakes are explicitly defined:
    - MM. "Shallow lake" means an enclosed basin filled or partially filled with standing fresh water with a maximum depth of 15 feet or less or with 80 percent or more of the lake area shallow enough to support emergent and submerged rooted aquatic plants (the littoral zone). It is uncommon for shallow lakes to thermally stratify during the summer. The quality of shallow lakes will permit the propagation and maintenance of a healthy indigenous aquatic community, and they will be suitable for boating and other forms of aquatic recreation for which they may be usable. Shallow lakes are differentiated from wetlands and lakes on a case-by-case basis.

      Under these definitions, any reference to a “lake” means a lake with a maximum depth greater than 15 feet and any reference to a lake with less than a maximum depth of 15 feet is referred to as a “shallow lake”.

      Under the proposed changes to lake eutrophication standards for class 2Bd (starting on line 30.33 of the draft rules) and Class 2B (starting on line 49.28 of the draft rules), it states, “Eutrophication standards for class 2Bd/2B lakes, shallow lakes, and reservoirs”. By removing shallow lakes here with the current definition of lakes appears to mean that shallow lakes no longer have a LES and the LES only covers lakes and reservoirs, where the lakes have a maximum depth greater than 15 feet.

      It continues under the various LES by ecoregion, polymictic and dimictic have been added to distinguish between the former lakes and shallow lakes differing standards under each ecoregion and “shallow” has been removed for the new, “polymictic” lakes LES for each ecoregion. However, under the definitions,

    - K. "Dimictic Lake" means a lake that mixes twice a year, in the spring and fall, and is stratified during the summer and winter.

    - DD. "Polymictic lake" means a lake with frequent mixing of the water column during the ice-free period.

  Reference to only “lake”, meaning an enclosed basin with a maximum depth greater than 15 feet with no reference to “shallow lakes”. Therefore, since “lakes” and “shallow lakes” are explicitly defined it can be interpreted as applying to only lakes with a maximum depth greater than 15 feet, i.e., not applying to shallow lakes, per the definitions of the rules. Assuming this is not the intended outcome, the rules could use additional clarification around shallow lakes.

In addition, under the narrative eutrophication standards (Subp. 3a (Class 2Bd) and Subp 4a (Class 2)) it is proposed to remove the references to “shallow lakes”. Since only reference to lakes is “lakes” remain, only lakes with a maximum depth greater than 15 feet are covered under the narrative. It is unclear if this is intentional or an unintended consequence of removing “shallow lakes” from the standards without adjusting the definition of lakes to account for both deep and shallow lakes. We suggest that the MPCA review edits around shallow lakes to ensure that the rules are in line with the protections being prioritized by Minnesota.

11. Are Only Class 2A Lakes Being Assigned Biological Criteria UDraft MN Rules 7050.0222? Under subpart 3d for Class 2Bd waters (starting on line 43.4) and subpart 4d. for Class 2B waters (starting on line 63.22), there are no biological criteria for Class 2Bd and Class 2B lakes. The biological criteria listed in the tables for Deep, complex lakes; Deep, moderately complex lakes, Moderately deep lakes, and Shallow lakes list either “2Ae” for exceptional or “2Ag” for general under “Class”. Why are Class 2Ae and 2Ag lakes listed under Class 2Bd (subp. 3) and Class 2B (subp. 4)? Are all lakes going to be classified as Class 2A for biological criteria? The same biological criterion is used for each class (2A, 2Bd, and 2B), is this correct? We suspect this is a drafting error that should be corrected before the proposed changes are accepted. If it is not a drafting error, can you provide clarity to why Class 2A lakes WQS are listed under Class 2Bd and 2B?

12. Differing Lake Classification System Between Lake Eutrophication Standards and Biological Criteria for Lakes: Why is the lake classification system under the biological criteria different from the eutrophication standards? The proposed classification system for LES is mixing type (dimictic or polymictic) and ecoregion. The LES of the biological criteria uses Deep, complex lakes; Deep, moderately complex lakes; Moderately deep lakes, and Shallow lakes. Due to the switch of lake type under the classification for LES, would it make sense to use mixing type (dimictic or polymictic) instead of reverting back to the current system of depth type (deep and shallow)? It would result in less confusion.

In addition, how are Deep, complex lakes; Deep, moderately complex lakes; Moderately deep lakes classified? What criteria are used to determine a lake’s complexity? When and who determines it? This information is not easily accessible, laid out in the supplemental material or found when searched for “complex”. The rules can be improved by clearly defining these classifications in the rule to increase the accessibility of information to general readers in understanding the rules.

13. Are Polymictic and Dimictic Determined Solely on Geometric Ratio? Is geometric ratio, i.e. as the fourth root of lake surface area (m^2) divided by maximum depth (m) ($A_0^{0.25}/Z_{max}$, where A_0 is lake surface area and Z_{max} is maximum depth), the sole indictor that is going to be used to for determining mixing type, or is it going to be a starting point and final determination be made during professional judgement? What about lakes with a littoral area of greater than 80%?

If a lake has a large littoral area where most of the lake acts like a polymictic lake but has a small deep area with a maximum deep above 15 feet and the geometric ration identifies it as a dimictic lake, would it be still considered a dimictic lake? If profile data is available, will it be used over the geometric ratio? It is important to use all available profile data when determining the mixing state of a lake. This was not clear under the materials provided. Please clarify.

14. Why no "Modified" TALU Class for Lakes? Unlike streams, there is no "modified" designation for lakes. Are there any future plans to investigate if a "modified" designation may be needed for lakes that historically have not supported a healthy fish and macroinvertebrate community?

Conclusion: The RRWMB supports the goal of protecting Minnesota's water resources and recognizes the substantial technical work MPCA has undertaken in developing the proposed standards. The RRWMB respectfully requests that MPCA incorporate the following safeguards into the final rule or binding implementation procedures:

1. Explicitly recognize the unique hydrologic and ecological characteristics of the RRB and Lake Agassiz Plain.

2. Preserve appropriate site-specific standards for water bodies for which statewide criteria are not scientifically representative.

3. Require consideration of natural background conditions before determining anthropogenic impairment.

4. Establish transparent and reviewable procedures for lake classification.

5. Require biological impairment determinations to consider natural variability and demonstrate a scientifically supportable relationship to anthropogenic stress.

6. Provide local governments with an opportunity to review proposed exceptional use designations.

7. Evaluate the effect of the proposed standards on future TMDLs, WRAPS, permits, and local watershed plans.

8. Ensure that flood damage reduction and multipurpose water management projects remain feasible.

9. Establish clear procedures for site-specific standards and natural condition determinations.

10. Avoid requiring restoration to conditions that are naturally unattainable.

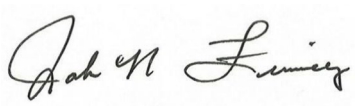
11. Provide meaningful consultation with affected WD's before new classifications or impairment determinations are finalized.

12. Phase implementation where necessary to allow adequate monitoring, scientific review, planning, and budgeting.

13. Review proposed draft language in the rules update to ensure proposed changes do not have any unintended consequences highlighted in these comments.

The RRWMB welcomes continued dialogue with MPCA regarding implementation of the proposed standards within the RRB and encourages the MPCA to work directly with the RRWMB and its member WD's before finalizing implementation procedures that could substantially affect Northwest Minnesota. Thank you for considering these comments.

Sincerely,



John Finney
Board Chair, RRWMB

Sincerely,



Robert L. Sip
Executive Director, RRWMB

CC: RRWMB Membership

Cooper Silburn Attachment
Lakes WQS Hearing Exhibit I-1: Notice comm
RECEIVED BY CAH
10/8/2026

MESERB
Minnesota Environmental Science and Economic Review Board
Using science and economics to improve environmental regulations

October 8, 2026

VIA CAH eCOMMENTS

The Honorable Suzanne Todnem
Administrative Law Judge
Court of Administrative Hearings
600 North Robert Street
P.O. Box 64620
Saint Paul, MN 55164-0620

RE: Proposed Amendments to Minnesota Rules Chapter 7050 Governing Water Quality Standards for Lake Aquatic Life and Recreation; Revisor ID No. R-04740; CAH Docket No. 23-9003-39503

The Minnesota Environmental Science and Economic Review Board ("MESERB") is a joint powers organization of more than 60 member cities, sanitary districts, and public utilities commissions that own and operate wastewater treatment facilities and hold NPDES/SDS permits. MESERB has worked since 1997 to ensure that regulations affecting wastewater treatment are reasonable, effective, and based on sound science. Thank you for the opportunity to provide comments on this rulemaking effort. MESERB's prehearing comments are below:

First, we appreciate MPCA's effort, as demonstrated in the Statement of Need and Reasonableness ("SONAR"), to provide an assessment of the quantity and type of permit holders that will be impacted by the various proposed rule amendments at issue. MESERB members are among the permit holders that may be affected by these amendments. Based on MPCA's assessment, MESERB requests that MPCA provide the following additional information and clarifications:

- Please provide a list of the three NPDES/SDS facilities upstream of proposed exceptional use lakes.[1]

- Please provide a list of the 12 permit holders identified as potentially impacted by the revised eutrophication standards for northern lakes.[2]
    - Please also provide the list of the 7 lakes identified that would likely be considered assessed as impaired under the proposed northern dimictic standards but not under the existing standards.

[1] Minn. Pollution Control Agency, Statement of Need and Reasonableness, Minn. R. ch. 7050, at 54 (Aug. 2026) (Doc. No. wq-rule4-27d) [hereinafter SONAR].
[2] See SONAR p. 55.

- Please provide a list of the 15 wastewater permits located upstream or adjacent to lakes that MPCA determined could become impaired based on the proposed coldwater aquatic life and habitat standards and designations.[3]
    - Please confirm that when the agency identified the above-referenced 15 wastewater treatment facilities, MPCA evaluated all new chemical and physical standards that come with the proposed new Class 2A and 1B designations. Specifically, MESERB requests that MPCA confirm whether it evaluated the potential impacts to wastewater facilities that will result from the application of new and more stringent standards for ammonia, nitrate, sulfate, and TDS, in addition to the new eutrophication standards.

Second, we request that MPCA address the following questions with greater specificity during the rulemaking hearing and in response to comments:

- The SONAR states that the rule is not "a change to any use class other than Class 2."[4] However, in operation, it appears that it is. Under Minn. R. 7050.0420, a Class 2A designation carries Class 1B, and the Agency acknowledges that Class 1B adds standards for sulfate, total dissolved solids, fluoride, nitrate plus nitrite, and several metals.[5] The proposal designates 410 lakes as Class 2A, which then results in many, if not all, of those lakes becoming subject to drinking water standards as well.[6]

    - Please provide more information on how many lakes will receive a new Class 1 designation because of the proposed rule amendments.

    - Based on our review, it appears that MPCA is proposing to designate these lakes as Class 1 waters (many for the first time) without specifically evaluating or confirming whether the Class 1 designation is appropriate for those Lakes.[7]
        - Please confirm whether MPCA has specifically evaluated the appropriateness of the Class 1 designation for the lakes at issue?
        - If not, why?

- As part of this rulemaking, beneficial use designations for lakes will be listed in tables incorporated by reference into Minn. R. 7050.0470. We request that MPCA confirm whether it is required to conduct rulemaking before changing or adding waters or new beneficial use designations to waterbodies on the lists incorporated by reference into that rule.

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[3] See SONAR p. 58.
[4] SONAR at 13 & n.3.
[5] Minn. R. 7050.0420; SONAR, supra note 1, at 51, 56, 58.
[6] SONAR, supra note 1, at 27-28 (Table 5).
[7] SONAR at 13 n.3 ("Class 1 designations are not reviewed as part of the scope of this rule.")

Thank you for your consideration of our prehearing comments and questions. We appreciate the MPCA's leadership on these issues and its commitment to evaluating and applying the best available science related to the protection and restoration of Minnesota's natural resources.

Sincerely,

MINNESOTA ENVIRONMENTAL SCIENCE AND ECONOMIC REVIEW BOARD



Scott Gilbertson
MESERB president
Executive Director, Alexandria Lake Area Sanitary District

Colin Jefferis Attachment

GREAT LAKES INDIAN FISH & WILDLIFE COMMISSION
P.O. Box 9 • Odanah, WI 54861 • 715-682-6619 • FAX 715-682-9294
www.glifwc.org

Lakes WQS Hearing Exhibit I-1: Notice comments
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10/8/2026

• MEMBER TRIBES •

MICHIGAN
Bay Mills Community
Keweenaw Bay Community
Lac Vieux Desert Band

WISCONSIN
Bad River Band
Lac Courte Oreilles Band
Lac du Flambeau Band
Red Cliff Band
St. Croix Chippewa
Sokaogon Chippewa

MINNESOTA
Fond du Lac Band
Mille Lacs Band

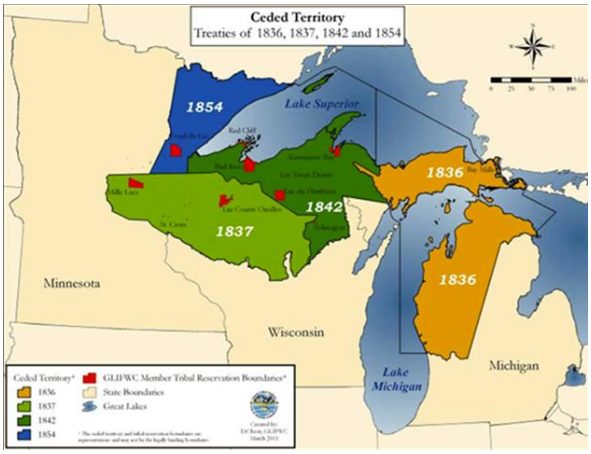
10/08/2026

Submitted via Minnesota Court of Administrative Hearings

RE: **Proposed Amendments to Rules Governing Water Quality Standards for Lake Aquatic Life and Recreation, Minnesota Rules Chapter 7050; Revisor's ID Number R-04740**

Judge Todnem,

Staff of the Great Lakes Indian Fish and Wildlife Commission ("GLIFWC" or "Commission") are submitting these comments on the proposed amendments to rules governing water quality standards for lake aquatic life and recreation.[1] The proposed lake eutrophication standards, oxythermal and eutrophication standards for cold water aquatic life uses, and Tiered Aquatic Life Use (TALU) framework are meaningful improvements that address the natural diversity of lakes throughout the Ceded Territories. However, these comments express concern about the use of oxythermal standards that only protect the minimum conditions necessary for species survival.



GLIFWC is an intertribal natural resource agency exercising delegated authority from eleven federally recognized Anishinaabe (Ojibwe or Chippewa) tribes with reservations in Michigan, Minnesota, and Wisconsin.[2] Each of GLIFWC's member tribes has

[1] Proposed Amendments to Rules Governing Water Quality Standards for Lake Aquatic Life and Recreation, Minnesota Rules Chapter 7050

[2] GLIFWC member tribes are: In Wisconsin – the Bad River Band of the Lake Superior Tribe of Chippewa Indians, Lac du Flambeau Band of Lake Superior Chippewa Indians, Lac Courte Oreilles Band of Lake Superior Chippewa Indians, St. Croix Chippewa Indians of Wisconsin, Sokaogon Chippewa Community of the Mole Lake Band, and Red Cliff Band of Lake Superior Chippewa Indians; in Minnesota – Fond du Lac Band of Lake Superior Chippewa, and Mille

entered one or more treaties with the United States,[3] wherein these tribes retained reserved hunting, fishing, and gathering rights on lands and waters in territories ceded to the United States ("Ceded Territories").

GLIFWC's delegated authority is exercised within these Ceded Territories and it is from that perspective that these comments are submitted. Accordingly, these comments should not be construed as precluding comments by individual GLIFWC member tribes from their own sovereign and on-reservation perspectives.

Specific comments related to each category of amendment are below

I. Lake Eutrophication Standards

The proposed amendments create two different standards for total phosphorus (TP), chlorophyll-a, and Secchi depth for northern lakes. These standards vary based on whether the lake is characterized as polymictic or dimictic in its patterns of mixing. As noted by the Minnesota Pollution Control Agency ("MCPA" or "Agency"), variation of TP, chlorophyll-a, and Secchi depth standards by shallow lake type is reflected in the Fond du Lac Band of Lake Superior Chippewa's water quality standards[4]. This variation supports the need for amended statewide rules that better incorporate the natural differences between northern shallow lakes. These standards will be more stringent in practice and more site-specific, encouraging continued improvement in northern lakes[5].

II. Oxythermal and Eutrophication Standards for Cold Water Aquatic Life Uses

Commission staff support the addition of oxythermal and eutrophication habitat standards specific to the requirements of cold water fish species, including cisco, lake whitefish, lake trout, and stream trout.[6]

However, in a technical support document for the draft amendments, the authors write that the criteria of the amendments "do not necessarily reflect optimal conditions for these fish species but rather are minimal conditions for their protection."[7] While these standards do maintain aquatic conditions for species protection as required by MN R 7050.0250 (a), this comment encourages the promulgated standards to reflect the optimal conditions for the growth of non-human being populations. Maintaining the populations of cold water fishes at replacement levels provides no resilience for the species to demographic or environmental disturbance. GLIFWC encourages the state to adopt standards that would allow for cold water fish populations to thrive.

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[3] Treaty of 1836, 7 Stat. 491; Treaty of 1837, 7 Stat. 491; Treaty of 1842, 7 Stat. 591; and Treaty of 1854, 10 Stat. 1109.
[4] Exhibit SO3 at 56
[5] Exhibit SO3 at 63
[6] Exhibit SO4 at 2
[7] Exhibit SO4 at 36

Abundant, thriving, genetically diverse populations of cold water fish are more likely to be able to adapt to a changing environment.

III. TALU

Staff of the Commission support the use of a TALU scale as it is more representative of the diversity of non-human beings throughout the 1854 and 1837 Ceded Territories and creates more stringent criteria for exceptional waters. GLIFWC appreciates the Agency's care in following proper procedures to determine that this TALU did not lead to degradation or water quality backsliding as prohibited by the Clean Water Act[8] and Minnesota antidegradation rules. [9]

Please do not hesitate to contact my staff, Colin Jefferis at cjefferis@glifwc.org if you have any questions.

Sincerely,



Jason Schlender

Manidoo Noodin

Executive Administrator

[8] 40 CFR 131.12(a)(1)
[9] R7050.02500(a)

RECEIVED BY CAH
10/5/2026

Judge Todnem (Docket Number 23-9003-39503)
P.O. Box 64620
Saint Paul, MN 55164-0620
Email Submission: https://minnesotaoah.granicusideas.com/

October 5, 2026

Dear Judge Todnem:

This letter is in regards to the proposed Lakes Water Quality Standards (WQS) rulemaking which will benefit efforts to protect and manage coldwater lakes.

Northern Waters Land Trust (NWLT) is a nonprofit organization working to protect the waters of northern Minnesota. Since 2014, NWLT has received State of Minnesota Outdoor Heritage Fund grants to protect land for the benefit of northern coldwater lakes, their habitats and the species dependent on those healthy habitats.

As air temperatures rise and watershed development increases, many coldwater lakes are losing the cold, oxygen-rich conditions necessary to sustain coldwater fisheries. The proposed amendments to Minnesota Rules (Minn. R.) chapter 7050 will benefit public and private efforts to identify and prioritize coldwater lakes and protect their watersheds. The coldwater lake protection needs far exceed funding available and strategic planning based on the proposed revised standards and designations will be crucial for future protection efforts. We appreciate having been able to collaborate with the Minnesota Pollution Control Agency and Department of Natural Resources since 2025 to consider the proposed standards and available data on oxythermal conditions to prioritize NWLT's protection efforts for coldwater lakes four northern Counties.

NWLT strongly supports the proposed rulemaking which will (1) revise the eutrophication standards by recognizing two types of cool/warm water lakes (i.e., mixed or shallow and stratified or deep lakes), (2) add an oxythermal standard to cold-water lake habitats and (3) add cold-water species designators to the listed lakes.

We appreciate the Minnesota Pollution Control Agency's efforts to revise and update the current standards and designations to reflect the nearly 900 coldwater lakes in Minnesota – a resource unique to only a few northern midwestern states.

Sincerely,

Katherine DonCarlos

Kathy DonCarlos, Land Conservation Program

KathyD@nwlt-mn.org
Office (218) 547-4510

c.: Ally Mazurek, Acting NWLT Executive Director; Peter Jacobson, Science Consultant

Response to Pre-Hearing Comments

Minnesota Pollution Control Agency

Pre-hearing responses to public comments received during the Notice of Intent to Adopt comment period regarding proposed amendments to Minnesota Rules, chapter 7050, governing water quality standards for lake aquatic life and recreation (Lakes WQS rule); Revisor's ID R-04740; CAH docket #23-9003-39503

This document contains the Minnesota Pollution Control Agency's (MPCA or Agency) responses to public questions on the proposed amendments submitted during the pre-hearing comment period (August 24 - October 8, 2026). This document does not respond to all comments submitted during this period and is only focused on comments seeking clarification on specific aspects of the proposed rule. A full response to comments from the pre-hearing period and the hearing will be submitted by the MPCA after the public hearing to be held on November 2, 2026. All comments received during the pre-hearing comment period are posted in their entirety on the MPCA webpage for this rulemaking: https://www.pca.state.mn.us/get-engaged/lake-aquatic-life-and-recreation.

1. Please provide a list of the three NPDES/SDS facilities upstream of proposed exceptional use lakes. [MPCA SONAR, Minn. R. ch. 7050, at 54 (Aug. 2026)]

Submitted by Cooper Silburn submitting for Scott Gilbertson, Minnesota Environmental Science and Economic Review Board

Agency Response: The following table includes the requested permit list.

Facility Name	Agency interest ID
Dan's Prize	34521
Jennie-O Long Prairie Shavings	127760
La Grande Sanitary Landfill	4297

2. Please provide a list of the 12 permit holders identified as potentially impacted by the revised eutrophication standards for northern lakes. [See SONAR p. 55]

Submitted by Cooper Silburn submitting for Scott Gilbertson, Minnesota Environmental Science and Economic Review Board

Agency Response: The following table includes the requested permit list.

Facility Name	Agency interest ID
MDNR Spire Valley Hatchery	121128
Premier Horticulture Inc - Black Lake and Wright Bogs - Plant Site	1003
Anderson Contracting Inc	5998
Cass County Longville-Remer Sanitary Landfill	1798

Fehrs Pit	250627
Dave Barrett Construction	64071
Aitkin Area Sanitary Landfill	4300
Waste Management - Oak Ridge Landfill	35895
Bemidji Aviation Services, Inc.	39592
MN Bioenergy Park	34332
UPS - Bemidji	38200
Veit - Bemidji Shop	125546

3. Please also provide the list of the 7 lakes identified that would likely be considered assessed as impaired under the proposed northern dimictic standards but not under the existing standards.

Submitted by Cooper Silburn submitting for Scott Gilbertson, Minnesota Environmental Science and Economic Review Board

Agency Response: The following table includes the requested list of lakes.

Lake name	Waterbody ID
Daggett	18-0271
Mitchell	18-0294
Upper (North) Island	09-0060
Grace	29-0071
Fifth Crow Wing	29-0092
Hanging Kettle	01-0170
Turtle River	04-0111

4. Please provide a list of the 15 wastewater permits located upstream or adjacent to lakes that MPCA determined could become impaired based on the proposed coldwater aquatic life and habitat standards and designations. [See SONAR p. 58]

Submitted by Cooper Silburn submitting for Scott Gilbertson, Minnesota Environmental Science and Economic Review Board

Agency Response: The following table includes the requested permit list.

Facility Name	Agency interest ID
Osakis WWTP	1618
Detroit Lakes Water Reclamation Facility	1746
Bemidji WWTP	2320
Grey Eagle WWTP	1623

Facility Name	Agency interest ID
Vergas WWTP	1615
Southern Minnesota Beet Sugar Coop	1682
AMPI - Paynesville	1263
Belgrade WWTP	3499
Great Lakes Gas Transmission LP	2298
Forest Hills Golf & RV Resort WWTP	1748
Xcel Energy - Rice Street Service Center	4458
Cormorant Park Place Estates	87231
Brooten WWTP	13811
Vergas WTP	4346
Becker County Sanitary Landfill - Closed	90412

5. Please confirm that when the agency identified the above-referenced 15 wastewater treatment facilities, MPCA evaluated all new chemical and physical standards that come with the proposed new Class 2A and 1B designations. Specifically, MESERB requests that MPCA confirm whether it evaluated the potential impacts to wastewater facilities that will result from the application of new and more stringent standards for ammonia, nitrate, sulfate, and TDS, in addition to the new eutrophication standards.

Submitted by Cooper Silburn submitting for Scott Gilbertson, Minnesota Environmental Science and Economic Review Board

Agency Response: The Agency can confirm that it reviewed all parameters that would be new or more stringent when Classes 1B and 2A are proposed for waters currently classified as Class 2B.

6. Please provide more information on how many lakes will receive a new Class 1 designation because of the proposed rule amendments. Based on our review, it appears that MPCA is proposing to designate these lakes as Class 1 waters (many for the first time) without specifically evaluating or confirming whether the Class 1 designation is appropriate for those Lakes. [SONAR at 13 n.3 ("Class 1 designations are not reviewed as part of the scope of this rule.")]

- **Please confirm whether MPCA has specifically evaluated the appropriateness of the Class 1 designation for the lakes at issue?**
- **If not, why?**

Submitted by Cooper Silburn submitting for Scott Gilbertson, Minnesota Environmental Science and Economic Review Board

Agency Response: There are 346 lakes which are proposed to go from Class 2B to Class 2A which carries with it the Class 1B designation. Class 1B is automatically assigned to Class 2A waters (see Minn. R. 7050.0420, Item D) regardless of any actual domestic consumption use of the water and the Agency is

following this rule. The Agency has not specifically reviewed these lakes for domestic consumption uses because that task is outside the scope of this rule.

7. As part of this rulemaking, beneficial use designations for lakes will be listed in tables incorporated by reference into Minn. R. 7050.0470. We request that MPCA confirm whether it is required to conduct rulemaking before changing or adding waters or new beneficial use designations to waterbodies on the lists incorporated by reference into that rule.

Submitted by Cooper Silburn submitting for Scott Gilbertson, Minnesota Environmental Science and Economic Review Board

Agency Response: The process for designating uses to waters will be unchanged and will require a rule making to change a designated beneficial use. This is currently the case for stream designations which are listed in documents incorporated by reference (see https://www.pca.state.mn.us/get-engaged/incorporations-by-reference).

8. The standard states "an average T_{DO3} sufficient to support coldwater fish species…" Is this the summer average for the lake, the average over the water column at any given time, or the summer average at a specific depth?

Submitted by Robert Sip & John Finney, Red River Watershed Management Board

Agency Response: The calculation of T_{DO3} is not from a specific depth. This metric is calculated by interpolating the temperature (°C) where dissolved oxygen equals 3 mg/L from temperature and dissolved oxygen profiles. A detailed description of metric is provided in the Statement of Need and Reasonableness (SONAR) Exhibit S-4, pp. 13-14.

For assessments, T_{DO3} must be measured from a lake for at least 3 years within a 10-year period and measured within the period of maximum oxythermal stress (July 26 through August 24). These measurements are averaged for assessment. Some data collected outside of the period of maximum oxythermal stress may be used as supplemental data. A detailed description of data processing and assessment requirements are provided in SONAR Exhibit S-4, pp. 42-43.

9. Driven by the importance of the downstream impacts of standards, the RRWMB requests that MPCA provide a RRB specific analysis estimating:

- **The number of Red River Basin water bodies potentially affected by the revised standards.**
- **The number potentially subject to a different impairment determination.**
- **The number potentially receiving exceptional use classifications.**
- **The likely effects on future WRAPS and TMDLs.**
- **Additional monitoring requirements.**
- **Potential implementation costs.**
- **A use attainability analysis for the standards within the region.**
- **Potential costs to local governments and watershed districts.**

Submitted by Robert Sip & John Finney, Red River Watershed Management Board

Agency Response: Each question is answered in order below.

The number of Red River Basin water bodies potentially affected by the revised standards.

Categories and numbers of affected lakes in the Red River Basin:

- New Class 2A lakes (44 lakes): New oxythermal standard for all 44 lakes; TP, chlorophyll-a, and Secchi depth standards more stringent for 3 lakes and TP standard more stringent, Secchi depth standard less stringent for 41 lakes
- Existing Class 2A lakes (3 lakes): TP standard more stringent, Secchi depth standard less stringent
- Dimictic lakes in the North region (~ 58 lakes[1]): TP standard more stringent, Secchi depth standard less stringent
- Polymictic (shallow) lakes in the North region (~ 36 lakes): Lake eutrophication standards (i.e., total phosphorus, chlorophyll-*a*, and Secchi depth) less stringent
- Class 2B/2Bd lakes in the South and Central regions: Not affected

The number potentially subject to a different impairment determination.

The exact number cannot be determined as assessment determinations undergo a rigorous process which reviews available and relevant data and includes collaboration with other state and local groups/organizations. Based on a preliminary comparison of available data against the proposed standards, there are 3 lakes in the Red River basin that possibly exceed the new and revised standards. This includes 2 coldwater lakes that possibly exceed the T_{DO3} standard and 1 dimictic lake that possibly exceeds new standards but meets old standards.

The number potentially receiving exceptional use classifications.

As part of the analysis for this rule, no Exceptional Use lakes were identified in the Red River Basin. However, not all major watersheds in the Red River Basin been reviewed for lake Exceptional Uses. It is likely use designation reviews could identify Exceptional Use lakes in the Red River Basin when those watersheds are reviewed. There are fish data from some lakes in the Upper/Lower Red Lake, Clearwater River, Buffalo River, and Otter Tail River watersheds which indicate potential for Exceptional Use designations. However, these lakes will need to undergo a full use designation review to determine if they will be proposed for Exceptional Use designation in a future rule. If the Exceptional Use is recommended for some of these lakes, these use changes will be part of outreach to local partners in the watershed.

The likely effects on future WRAPS and TMDLs.

The effects of these rules are broadly discussed in the SONAR (pp. 49-62). Specific impacts cannot be determined without full and detailed assessments, development of Watershed Restoration and Protection Strategies (WRAPS), and the development of Total Maximum Daily Loads (TDML). However, based on the small number of lakes in the Red River Basin potentially impacted by the revised standards, the effects on WRAPS and TMDLs are likely to be small.

Additional monitoring requirements.

Most of the proposed revisions impact existing parameters (i.e., lake eutrophication, fish community) and do not change monitoring requirements for assessments. The only new parameter is T_{DO3} and this measure is calculated from lake profiles. Lake profiles are currently sampled from lakes as part of Intensive Watershed Monitoring efforts. However, the currently monitoring framework includes 2 years

[1] The number of dimitic and polymictic lakes are approximate because determination of lake type requires detailed review of stratification status and other lake characteristics. In addition, some lentic waters could be reviewed and categorized as a wetlands.

of sampling and the assessment of T_{DO3} requires a minimum of 3 years of data. This means that for the assessment of oxythermal habitat in coldwater lakes, an additional year of lake profile data are required.

Potential implementation costs.

The potential implementation costs are discussed in the SONAR (pp. 49-62). Specific costs cannot be determined without full and detailed assessments and subsequent WRAPS and TDMLs if needed. Again, given the small number of lakes in the Red River Basin potentially impacted by the revised standards, the costs are likely to be small.

A use attainability analysis for the standards within the region.

The request by the commenter is not clear but use attainability analyses are implemented when needed. Through the process of developing the revised lake standards, there was no indication that any of the lakes in the Red River Basin require a UAA. All of the new coldwater lakes were reviewed in detail in collaboration with the Minnesota Department of Natural Resources and it was determined that coldwater uses are existing uses in these lakes.

Potential costs to local governments and watershed districts.

The potential implementation costs are assessed in the SONAR (pp. 49-62). The specific costs to local governments and watershed districts cannot be determined without full and detailed assessments and subsequent WRAPS and TDMLs if needed. Again, given the small number of lakes in the Red River Basin potentially impacted by the revised standards, the costs are likely to be small.

10. Are Shallow Lakes now Excluded From LES on Purpose? Are LES no longer applied to shallow lakes? The proposed changes to the rules are written, under the definitions and water quality standard, in a way to exclude shallow lakes from the LES. Per the proposed changes to MN Rule 7050.0150, subp. 4 (definitions):

It continues under the various LES by ecoregion, polymictic and dimictic have been added to distinguish between the former lakes and shallow lakes differing standards under each ecoregion and "shallow" has been removed for the new, "polymictic" lakes LES for each ecoregion. However, under the definitions,

In addition, under the narrative eutrophication standards (Subp. 3a (Class 2Bd) and Subp 4a (Class 2)) it is proposed to remove the references to "shallow lakes". Since only reference to lakes is "lakes" remain, only lakes with a maximum depth greater than 15 feet are covered under the narrative. It is unclear if this is intentional or an unintended consequence of removing "shallow lakes" from the standards without adjusting the definition of lakes to account for both deep and shallow lakes. We suggest that the MPCA review edits around shallow lakes to ensure that the rules are in line with the protections being prioritized by Minnesota.

Submitted by Robert Sip & John Finney, Red River Watershed Management Board

Agency Response: The rule language is being revised to be more clear and to follow better defined scientific terms. The term "polymictic lake" replaces "shallow lake" and they can largely be used interchangeably. However, since the term "shallow lake" is no longer used in rule, it is reasonable to remove this definition. The Agency will propose to remove this definition from Minn. R. 7050.0150 for clarity.

11. Are Only Class 2A Lakes Being Assigned Biological Criteria UDraft MN Rules 7050.0222? Under subpart 3d for Class 2Bd waters (starting on line 43.4) and subpart 4d. for Class 2B waters (starting on

line 63.22), there are no biological criteria for Class 2Bd and Class 2B lakes. The biological criteria listed in the tables for Deep, complex lakes; Deep, moderately complex lakes, Moderately deep lakes, and Shallow lakes list either "2Ae" for exceptional or "2Ag" for general under "Class". Why are Class 2Ae and 2Ag lakes listed under Class 2Bd (subp. 3) and Class 2B (subp. 4)? Are all lakes going to be classified as Class 2A for biological criteria? The same biological criterion is used for each class (2A, 2Bd, and 2B), is this correct? We suspect this is a drafting error that should be corrected before the proposed changes are accepted. If it is not a drafting error, can you provide clarity to why Class 2A lakes WQS are listed under Class 2Bd and 2B?

Submitted by Robert Sip & John Finney, Red River Watershed Management Board

Agency Response: This is a drafting error. The uses listed for lake biocriteria under 7050.0470, subp. 3d should be "2Bd" and not "2A." The uses listed for lake biocriteria under 7050.0470, subp. 4d should be "2B" and not "2A." The Agency will make this change to the rule.

12. Differing Lake Classification System Between Lake Eutrophication Standards and Biological Criteria for Lakes: Why is the lake classification system under the biological criteria different from the eutrophication standards? The proposed classification system for LES is mixing type (dimictic or polymictic) and ecoregion. The LES of the biological criteria uses Deep, complex lakes; Deep, moderately complex lakes; Moderately deep lakes, and Shallow lakes. Due to the switch of lake type under the classification for LES, would it make sense to use mixing type (dimictic or polymictic) instead of reverting back to the current system of depth type (deep and shallow)? It would result in less confusion.

In addition, how are Deep, complex lakes; Deep, moderately complex lakes; Moderately deep lakes classified? What criteria are used to determine a lake's complexity? When and who determines it? This information is not easily accessible, laid out in the supplemental material or found when searched for "complex". The rules can be improved by clearly defining these classifications in the rule to increase the accessibility of information to general readers in understanding the rules.

Submitted by Robert Sip & John Finney, Red River Watershed Management Board

Agency Response: The two classification systems (i.e., lake eutrophication and lake indices of biological criteria) differ as a result of natural factors which influence how these indicators of lake health respond to anthropogenic disturbance. Although it would be administratively more simple if these classifications were aligned, this would increase assessment errors resulting from natural factors. The Agency will consider revisions to rule language or supporting technical documentation incorporated by rule to provide additional clarity.

13. Are Polymictic and Dimictic Determined Solely on Geometric Ratio? Is geometric ratio, i.e. as the fourth root of lake surface area (m2) divided by maximum depth (m) (A00.25/Zmax, where A0 is lake surface area and Zmax is maximum depth), the sole indictor that is going to be used to for determining mixing type, or is it going to be a starting point and final determination be made during professional judgement? What about lakes with a littoral area of greater than 80%?

If a lake has a large littoral area where most of the lake acts like a polymictic lake but has a small deep area with a maximum deep above 15 feet and the geometric ration identifies it as a dimictic lake, would it be still considered a dimictic lake? If profile data is available, will it be used over the geometric ratio? It is important to use all available profile data when determining the mixing state of a lake. This was not clear under the materials provided. Please clarify.

Submitted by Robert Sip & John Finney, Red River Watershed Management Board

Agency Response: The determination of lake type does not rely solely on geometry ratio. The MPCA is updating nomenclature and refining the process for determining lake type. This means adopting language and methods that follow basic principles in limnology for categorizing lakes. Specifically, this is a focus on lake mixing type for determining which eutrophication standards are appropriate. Review of temperature profiles is the preferred method for determining lake mixing type, but other measures are also useful including geometry ratio, depth, percent littoral zone, etc. The MPCA is currently updating guidance for this review process to clarify how these determinations will be made. However, the updated process will largely result in similar determinations because there is a large amount of overlap between shallow lakes (as currently defined in Minn. R. 7050.0150 subp. 4, Item HH) and polymictic lakes.

14. Why no "Modified" TALU Class for Lakes? Unlike streams, there is no "modified" designation for lakes. Are there any future plans to investigate if a "modified" designation may be needed for lakes that historically have not supported a healthy fish and macroinvertebrate community?

Submitted by Robert Sip & John Finney, Red River Watershed Management Board

Agency Response: A Modified Use tier is not included in the proposed TALU framework for lakes because it does not represent a large population of lakes that necessitates a separate designated use. The physical modifications to lakes are typically not as extensive as modifications to lotic systems. In addition, many modifications to lakes are not allowable reasons for the removal of uses from a lake under the Clean Water Act. Alterations to the physical habitat in lakes are more commonly the result of modifications to shorelines and littoral zones by landowners. However, such modifications are not an allowable reason for the removal of a use under the Clean Water Act (see 40 CFR 131.10(g)) and therefore cannot form the basis for the implementation of a Modified Use for lakes. Allowable reasons for the removal of a designated use could include legal physical modifications to the hydrology of lakes (e.g., through damming), but these are relatively uncommon statewide and can be addressed through site-specific standards if needed.

From: Izzo, Katie (She/Her/Hers) (MPCA)
To: Schoonover, Garrett (He/Him/His) (MMB)
Subject: Lakes WQS rule (R04740): Notice package for MMB review
Date: Friday, July 24, 2026 9:51:00 AM
Attachments: R04740 Lakes WQS Gov Proposed Rule Form with Comm sig.pdf
image001.png
R04740 Lakes WQS SONAR DRAFT - PST reviewed wq-rule4-27d.docx
R04740 Lakes WQS CERTIFIED Revisor draft.pdf
R04740 Lakes WQS Letter to MMB.docx

Good morning! As required by Minnesota Statutes, section 14.131, I am sending you a package of documents for MMB review related to the Notice of Intent to Adopt for the Lakes Water Quality Standards (WQS) rulemaking project—Revisor's ID R04740). Please let me know if you need anything else from me.

Best,
Katie

Katie Izzo
Rule Coordinator | Resource Management and Assistance Division
Pronouns: she/her/hers

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Our mission is to protect and improve the environment and human health. | pca.state.mn.us

MINNESOTA POLLUTION CONTROL AGENCY

MANAGEMENT AND BUDGET

Date: October 6, 2026

To: Katie Izzo
Rule Coordinator
Minnesota Pollution Control Agency

From: Garrett Schoonover
Executive Budget Officer
Minnesota Management and Budget

Subject: M.S. 14.131 Review of Proposed Rules Governing Water Quality Standards, Minnesota Rules, Chapter 7050

RE: Water Quality Standards

Background

The Minnesota Pollution Control Agency (MPCA) proposes to revise Minnesota Rules, Chapter 7050, to refine water quality standards for lakes across the state. This rulemaking process was directed by the MPCA's responsibilities under M.S. 115.03, M.S. 115.44, and the federal Clean Water Act. Pursuant to M.S. 14.131, MPCA has requested Minnesota Management and Budget evaluate the proposed amendments for fiscal impacts on and/or benefits to units of local government.

Evaluation

On behalf of the Commissioner of Minnesota Management and Budget, I have reviewed the proposed changes and the draft of the Statement of Need and Reasonableness (SONAR) to evaluate the fiscal impact these changes may have on local governments.

The proposed rules would revise eutrophication standards for lakes in the northern portion of the state, revise water quality standards for lakes that support coldwater fish populations, adopt a tiered aquatic life uses (TALU) framework for lake water quality standards, and revise use designations for a subset of lakes. These changes would expand the variety of lake classifications based on temperature and the species of fish they support, refining water quality standards according to the revised classifications.

MPCA would have the primary responsibility for enforcing the proposed rules. However, some local governments may be required to develop local ordinances to enforce standards for new coldwater habitat and exceptional use standards. It is possible that some local governments will have costs associated with complying with the proposed rules if adopted, if they own a regulated facility near a lake that will have more stringent water quality standards. Based on the draft SONAR, the number of local governments with higher costs is likely

minimal and the costs of compliance would likely be low, but neither the number of affected governments nor the costs can be quantified at this time as it will take time for MPCA to evaluate the relevant lakes and modify permits.

In cases where water quality is improved by the proposed rules, it is possible that some local governments will see increased revenues from property taxes if waterfront property values increase, or from sales taxes if local tourism and recreation industries see more business. However, these revenues are hypothetical and cannot be estimated based on the available information. There may also be savings in cases where the revised standards are less stringent and less effort is required to maintain water quality. The level of savings cannot be determined until MPCA completes a more detailed analysis of impacted waters that was not completed for the SONAR. Both increased revenues and savings are likely to affect a small number of local governments, if any.

This rule change may have an impact on a small number of local units of government in Minnesota, but the material impact cannot be determined with certainty based on the information available in the draft SONAR. These changes would be in line with MPCA's regulatory authority under state statute and the federal Clean Water Act.

Sincerely,



Garrett Schoonover
Executive Budget Officer (MMB)

Cc: Nick Lardinois, Director of Budget Policy and Analysis

From: Izzo, Katie (She/Her/Hers) (MPCA)
To: sen.foung.hawj@mnsenate.gov; sen.jennifer.mcewen@mnsenate.gov; sen.steve.green@mnsenate.gov; rep.peter.fischer@house.mn.gov; rep.josh.heintzeman@house.mn.gov; rep.john.burkel@house.mn.gov; rep.kristi.pursell@house.mn.gov
Cc: lcc@lcc.leg.mn; Johnson, Tom (MPCA); Donath, Alexis (MPCA)
Subject: Lakes WQS rule: Notice of Intent published
Date: Monday, August 24, 2026 11:49:00 AM
Attachments: R04740 Lakes WQS Letter to legislators & LCC.docx
image001.png
R04740 Lakes WQS NOIA.pdf
R04740 Lakes WQS proposed rule.pdf
R04740 Lakes WQS SONAR.pdf

Good morning! The Minnesota Pollution Control Agency has published a Notice regarding its Lakes Water Quality Standards rulemaking (Revisor's ID #R-04740) in today's edition of the *State Register*. Please see attached.

Best,
Katie

Katie Izzo
Rule Coordinator | Resource Management and Assistance Division
Pronouns: she/her/hers

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