

Chapter NR 102

WATER QUALITY STANDARDS FOR WISCONSIN SURFACE WATERS

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Note: Chapter NR 102 as it existed on September 30, 1973 was repealed and a new chapter NR 102 was created, effective October 1, 1973. Corrections made under s. 13.93 c2md cbd 7., Stats., Register, August, 1997, No. 500.

Subchapter I — General

NR 102.01 Purpose. c1d The purpose of this chapter is to establish, in conjunction with chs. NR 103 to 105, water quality standards for surface waters of the state pursuant to s. 281.15, Stats. This chapter describes the designated use categories for such waters and the water quality criteria necessary to support these uses. This chapter, chs. NR 103 to 105, and ch. NR 119 constitute the water quality standards for the surface waters of Wisconsin.

c2d The long-range goal of Wisconsin water quality standards is to protect the use of water resources for all lawful purposes. Water quality standards shall protect the public interest, which includes the protection of public health and welfare and the present and prospective uses of all waters of the state for public and private water supplies, propagation of fish and other aquatic life and wild and domestic animals, domestic and recreational purposes, and agricultural, commercial, industrial, and other legitimate uses. In all cases where the potential uses are in conflict, water quality standards shall protect the general public interest.

c3d Water quality standards serve as a basis for developing and implementing control strategies to achieve legislative policies and goals. Water quality standards are the basis for deriving water quality based effluent limitations and the limitations shall be determined to attain and maintain uses and criteria, unless more stringent effluent limitations are established to protect downstream waters. Water quality standards also serve as a basis for decisions in other regulatory, permitting or funding activities that impact water quality.

History: Cr. Register, February, 1989, No. 398, eff. 3-1-89; CR 07-111: am. c1d, c2d and c3d Register September 2010 No. 657, eff. 10-1-10; CR 19-093: am. c1d Register September 2022 No. 801, eff. 10-1-22.

NR 102.02 Applicability. The provisions of this chapter are applicable to surface waters of Wisconsin.

History: Cr. Register, February, 1989, No. 398, eff. 3-1-89.

NR 102.03 Definitions. In this chapter, the following definitions apply:

c1d XAmbient temperatureY means the typical existing temperature of a surface water outside the direct influence of any point source discharge, which may include daily and seasonal changes.

c1cd XBenthicY means relating to the ecological zone at the bottom of a body of water, including the sediment surface and subsurface layers.

c1ed XBiological assessment thresholdY means a numeric value or condition description used to measure the quality of a waterbody[s biological community and to determine attainment of its designated uses.

c1gd XChlorophyll aY means a green pigment present in all green plants and in cyanobacteria, responsible for the absorption of light to provide energy for photosynthesis.

c1id XClean Water ActY means the federal Clean Water Act of 1972 and amendments.

c1kd XConfidence intervalY means a range within which the true value of a parameter is likely to occur, with a specified level of confidence.

c1md XDiatomY means a common and diverse group of unicellular algae of the phylum Chrysophyta, having cell walls containing silica.

c1od XDrainage lakeY means a lake with an outlet stream that continually flows under average summer conditions based on the past 30 years.

c1qd XImpounded flowing waterY means a waterbody impounded by a constructed outlet structure on a river or stream that is not a reservoir as defined in sub. c4sd.

c1vd XMacrophyteY means an aquatic plant large enough to be seen without the use of a microscope.

c2d XMixing zoneY means a region in which a discharge of different characteristics than the receiving water is in transit and progressively diluted from the source to the receiving system.

c3d XNatural conditionsY means the normal daily and seasonal variations in climatic and atmospheric conditions, and the existing physical and chemical characteristics of a water or the course in which it flows.

c4d XNatural temperatureY means the normal existing temperature of a surface water including daily and seasonal changes outside the zone of influence of any artificial inputs.

c4ed XPFOAY means perfluorooctanoic acid in its anionic, cationic, and acidic forms as well as any salts of perfluorooctanoic acid.

c4md XPFOSY means perfluorooctane sulfonate, including its anionic, cationic, and acidic forms as well as any salts of perfluorooctane sulfonate.

c4sd XReservoirY means a waterbody with a constructed outlet structure intended to impound water and raise the depth of the water by more than two times relative to the conditions prior to construction of the dam, and that has a mean water residence time of 14 days or more under summer mean flow conditions using information collected over or derived for a 30 year period.

c5d XResource managementY means the application of control techniques to enhance or preserve a surface water in accordance with statutory provisions and in the general public interest.

c6d XSection 303 cdd listY means a list of waters that do not attain water quality standards and require a total maximum daily load analysis, as specified under section 303 cdd of the Clean Water Act, [33 USC 1313 cdd](#).

c6ed XSeepage lakeY means a lake that does not have an outlet stream that continually flows under average summer conditions based on the past 30 years.

c6md XStratified lake or reservoirY means a lake or reservoir where sufficient field data demonstrate that the lake is dimictic or, in absence of sufficient field data, the following equation results in a value of greater than 3.8:

Maximum Depth cimetersd - 0.1

$\text{Log}_{10}\text{Lake Area c hectaresd}$

c6sd XStratified two-story fishery lakeY or Xtwo-story fishery lakeY means a lake greater than 5 acres in size that is typically stratified in the summer, with the potential for an oxygenated hypolimnion, that has documentation at any time since 1975 of a population of cold water fish species such as cisco, whitefish, or trout that is sustained through natural reproduction or long-term active stocking with year-to-year survival.

Note: A list of two-story fishery lakes that contain naturally reproducing lake trout, whitefish, or cisco, or are stocked and managed by the department for brook, brown, rainbow, or lake trout, is available on the department's designated uses website at <https://dnr.wi.gov/topic/SurfaceWater/usedesignations.html>.

c7d XSurface watersY means all natural and artificial named and unnamed lakes and all naturally flowing streams within the boundaries of the state, but not including cooling lakes, farm ponds and facilities constructed for the treatment of wastewaters the term waters as used in this chapter means surface watersd.

c7md XTotal phosphorusY means all of the phosphorus in a water sample analyzed using the methods identified under the provisions of s. [NR 219.04 c1d](#).

c8d XUnauthorized concentrations of substancesY means pollutants or other chemicals introduced into surface waters without prior permit or knowledge of the department, but not including accidental or unintentional spills.

c9d XU.S. EPAY means the United States environmental protection agency.

History: Cr. [Register, September, 1973, No. 213](#), eff. 10-1-73; r. c1d, renum. from NR 102.01, [Register, February, 1989, No. 398](#), eff. 3-1-89; cr. c10d, [Register, May, 1993, No. 449](#), eff. 6-1-93; [CR 07-111](#): cr. cintro.d and c1d, r. c8d to c10d, renum. c1d to c7d to be c2d to c8d [Register September 2010 No. 657](#), eff. 10-1-10; [CR 19-014](#): renum. c6d to NR 210.03 c10md, cr. c9d [Register April 2020 No. 772](#), eff. 5-1-20; [CR 21-083](#): cr. c4ed, c4md [Register July 2022 No. 799](#), eff. 8-1-22; [CR 19-094](#): am. cintro.d, cr. c1cd to c1md, renum. c1od from NR 102.06 c2d cad, cr. c1qd, c1vd, renum. c4sd from NR 102.06 c2d cfd, cr. c6d, renum. c6ed, c6md, c6sd, c7md from NR 102.06 c2d cfmd, cgd, cid, cjd and am. c6md, c6sd [Register September 2022 No. 801](#), eff. 10-1-22; correction in c1qd made under s. [13.92 c4d cbd 7](#), Stats., [Register September 2022 No. 801](#).

NR 102.04 Categories of surface water uses and criteria. **c1d** GENERAL. To preserve and enhance the quality of waters, surface water uses and criteria are established to govern water management decisions. Practices attributable to municipal, industrial, commercial, domestic, agricultural, land development or other activities shall be controlled so that all surface waters including the mixing zone meet the following conditions at all times and under all flow and water level conditions:

cad Substances that will cause objectionable deposits on the shore or in the bed of a body of water, shall not be present in such amounts as to interfere with public rights in waters of the state.

cbd Floating or submerged debris, oil, scum or other material shall not be present in such amounts as to interfere with public rights in waters of the state.

ccd Materials producing color, odor, taste or unsightliness shall not be present in such amounts as to interfere with public rights in waters of the state.

cdd Substances in concentrations or combinations which are toxic or harmful to humans shall not be present in amounts found to be of public health significance, nor shall substances be present in amounts which are acutely harmful to animal, plant or aquatic life.

Note: For levels of public health significance for PFOA and PFOS, see s. [NR 102.04 c8d cdd 1](#).

c2d REVISED USES AND CRITERIA. The following uses and criteria may be revised as new information or advancing technology indicate that revisions are in the public interest. Water used for hydropower and commercial shipping depends mainly on quantity, depth and elevation; consequently, no specific quality criteria for these uses have been prepared.

c3d FISH AND OTHER AQUATIC LIFE USES. All surface waters shall belong in one of the fish and other aquatic life subcategories described in this subsection. Only those use subcategories identified in pars. cad to ccd shall be considered suitable for the protection and propagation of a balanced fish and other aquatic life community as provided in the federal water pollution control act amendments of 1972, P.L. [92-500](#); [33 USC 1251](#) et seq.

cad *Cold water communities*. This subcategory includes surface waters capable of supporting a community of cold water fish and other aquatic life, or serving as a spawning area for cold water fish species. This subcategory includes, but is not restricted to, surface waters identified as trout water by the department of natural resources cWisconsin Trout Streams, publication 6-3600 c80dd.

cbd *Warm water sport fish communities*. This subcategory includes surface waters capable of supporting a community of warm water sport fish or serving as a spawning area for warm water sport fish.

ccd *Warm water forage fish communities*. This subcategory includes surface waters capable of supporting an abundant diverse community of forage fish and other aquatic life.

cdd *Limited forage fish communities*. cIntermediate surface watersd. This subcategory includes surface waters of limited capacity and naturally poor water quality or habitat. These surface waters are capable of supporting only a limited community of forage fish and other aquatic life.

ced *Limited aquatic life*. cMarginal surface watersd. This subcategory includes surface waters of severely limited capacity and naturally poor water quality or habitat. These surface waters are capable of supporting only a limited community of aquatic life.

c4d CRITERIA FOR FISH AND AQUATIC LIFE. Except for natural conditions, all waters classified for fish and aquatic life shall meet the following criteria:

cad *Dissolved oxygen*. 1. For streams, rivers, and impounded flowing waters, dissolved oxygen criteria apply to samples taken from the main channel near the area with greatest flow. For lakes or reservoirs, the dissolved oxygen criteria in this paragraph apply to the epilimnion of stratified lakes and to all but the deepest one meter of the water column of unstratified lakes.

2. Except as provided in subds. 3. to 7. and par. camd, surface waters shall attain a minimum dissolved oxygen concentration of 5 mg{L at all times.

3. A waterbody classified by the department as a trout class I or II water under s. NR 1.02 c7d, a cold water community that is not a two-story fishery lake covered under par. camd, or a great lakes tributary used by salmonids for spawning during the period of habitation, shall attain all of the following:

a. A minimum dissolved oxygen concentration of 6.0 mg{L at all times.

b. A minimum dissolved oxygen concentration of 7.0 mg{L when cold water fish are spawning through fry emergence from their redds, or gravel nests.

Note: The period from spawning through fry emergence from their gravel nests is approximately mid-October through April, but varies depending on water temperature and location in the state.

c. Dissolved oxygen concentrations and diurnal patterns may not be altered from natural background levels to such an extent that cold water populations are adversely affected.

4. A waterbody classified by the department as trout class III under s. NR 1.02 c7d shall attain a minimum dissolved oxygen concentration of 6.0 mg{L at all times.

5. A waterbody for which a use attainability analysis under 40 CFR 131.10 cgd c1d to c6d demonstrates that its otherwise applicable designated use category is unattainable shall attain the following:

a. For a coldwater community with an approved use attainability analysis that redesignates it as warmwater, a minimum dissolved oxygen concentration of 5 mg{L at all times.

b. For any other community except those under subd. 7., a minimum dissolved oxygen concentration of 3 mg{L at all times to protect aquatic life.

Note: Waterbodies described in subd. 5. are also known as altered waters.

6. A waterbody designated by the department as limited forage fish shall attain a minimum dissolved oxygen concentration of 3 mg{L at all times.

7. A waterbody designated by the department as limited aquatic life or wetlands, or classified as diffuse surface waters or wastewater effluent channels shall attain a minimum dissolved oxygen concentration of 1 mg{L at all times when water is present.

camd *Oxythermal layer thickness for two-story fishery lakes*.

1. ZCriteria.[A two-story fishery lake shall maintain, during its period of summer stratification, an oxythermal layer of at least 1 meter in thickness that maintains both a dissolved oxygen concentration of at least 6 mg{L and a maximum temperature of the following:

a. For a two-story fishery lake with lake trout, 57°F or less.

b. For a two-story fishery lake with whitefish but not lake trout, 66°F or less.

c. For a two-story fishery lake with cisco but not whitefish or lake trout, or that the department manages for brook, brown, or rainbow trout, 73°F or less.

d. For a two-story fishery lake with multiple coldwater fish species, the applicable criterion under subd. 1. a. to c. is that for the lake[s] species requiring the lowest temperature.

2. ZAssessment.[a. The monitoring period for the criteria under subd. 1. is June 1 to September 15. When monitoring for

assessment purposes, depth profiles of temperature and dissolved oxygen shall, whenever possible, be taken in increments of 1 meter or less near the deepest part of the lake, at least monthly July to September. Samples taken outside this time frame but during summer stratification may also be used to determine assessment.

Note: Reservoirs, multi-lobed lakes, or very large lakes may need more than one sampling station to assess the lake.

b. If at any time during a lake[s] summer stratification the applicable criterion in subd. 1. is not met, that year is an exceedance year. At least 2 years of data are needed to make an attainment determination. If any 2 or more years within the most recent 5-year period are exceedance years, the lake is not attaining the water quality criterion. If insufficient data are available from the most recent 5-year period, data from up to 10 years may be used if representative of current conditions.

ccd *pH*. The pH shall be within the range of 6.0 to 9.0, with no change greater than 0.5 units outside the estimated natural seasonal maximum and minimum.

cdd *Toxic substances*. Unauthorized concentrations of substances are not permitted that alone or in combination with other materials present are toxic to fish or other aquatic life. Surface waters shall meet the acute and chronic criteria as set forth in or developed pursuant to ss. NR 105.05 and 105.06.

ced *Temperature*. Water quality criteria for temperature shall be determined and applied pursuant to subch. II. Heated effluent shall not cause lethality, inside or outside of the mixing zone, to animal, plant or other aquatic life.

efd *Other criteria*. Surface waters shall meet all other criteria that correspond to the appropriate aquatic life subcategory for the surface water, including narrative criteria specified in sub. c1d.

c5d RECREATIONAL USE. cad *General*. All surface waters shall be suitable for supporting recreational use and shall meet the criteria specified in sub. c6d.

cbd *Exceptions*. Whenever the department determines, in accordance with the procedures specified in s. NR 210.06 c3d, that wastewater disinfection is not required to protect recreational uses, the criteria specified in sub. c6d cad and in chs. NR 103 and 104 do not apply.

c6d CRITERIA FOR RECREATIONAL USE. Bacteria criteria are established as follows to protect humans from illness caused by fecal contamination due to recreational contact with surface water:

cad *Bacteria*. 1. ZCriteria.[All of the *Escherichia coli* cE. colid criteria in Table A apply unless bacteria site-specific criteria have been adopted pursuant to subd. 2.

| Table A | |
|---|--|
| <i>E. coli</i> counts ¹ per 100 mLd | |
| Geometric Mean ² | Statistical Threshold Value ³ |
| 126 | 410 |
| 1. For determining attainment or compliance, counts are considered equivalent to either colony forming units or most probable number. 2. The geometric mean shall not be exceeded in any rolling 90-day period during the recreation season. 3. The statistical threshold value shall not be exceeded more than 10 percent of the time during any rolling 90-day period during the recreation season. | |

Note: The department developed the *E. coli* criteria in this section based on criteria developed by U.S. EPA. U.S. EPA developed the *E. coli* criteria using membrane filtration methods to count *E. coli* colony forming units. Entities wishing to use quantitative polymerase chain reaction cqPCRd and a conversion factor to compare resulting *E. coli* counts to the criteria in Table A may seek U.S. EPA and depart-

ment approval for using alternative indicators and methods as outlined in U.S. EPA technical support document EPA-820-R-14-011.

Note: Under the department's beach advisory program, a beach advisory is issued when a beach reaches the XBeach Action Value Y of 235 counts per 100 mL and a beach closure is issued at 1000 counts per 100 mL, unless site-specific conditions indicate use of an alternate metric. More information on the beach advisory program is available at <http://wibeaches.us>.

2. **ZSite-specific criteria.** a. The department may establish bacteria site-specific criteria by rule to protect a waterbody's recreational use when it is determined that the statewide *E. coli* criteria under subd. 1. are inappropriate due to site-specific conditions. Once bacteria site-specific criteria are adopted in a rule and approved by U.S. EPA, those criteria supersede the statewide *E. coli* criteria under subd. 1. for that waterbody.

b. Any interested party may submit proposed bacteria site-specific criteria for a waterbody to the department for review and consideration. Any request for bacteria site-specific criteria must include a demonstration that the proposed site-specific criteria were developed using a U.S. EPA approved method, procedure, or test, are based on sound scientific rationale, and are as protective of the recreational use as the statewide *E. coli* criteria in subd. 1. A request for a less-stringent site-specific criteria must also demonstrate that the predominant source of the bacteria is non-human or non-fecal.

c7d PUBLIC HEALTH AND WELFARE USE. cad *General.* All surface waters shall be suitable for supporting public health and welfare.

cbd *Exceptions.* Whenever the department determines a discharge of heated effluent is not exposed or situated in a manner that may pose a realistic potential for scalding of humans, the criterion specified in sub. c8d ccd does not apply.

c8d CRITERIA FOR PUBLIC HEALTH AND WELFARE USE. cad *General.* The criteria developed pursuant to ss. NR 105.08 and 105.09 shall be met regardless of whether the surface water is used for public drinking water supply or the applicable fish and aquatic life subcategory.

cbd *Taste and odor criteria.* All surface waters providing public drinking water supplies or classified as cold water or warm water sport fish communities as described in sub. c3d shall meet the taste and odor criteria specified or developed pursuant to s. NR 102.14.

ccd *Temperature criteria.* To protect humans from being scalded, the water temperature of a discharge may not exceed 120°F unless specifically authorized under provisions in subchs. V or VI of ch. NR 106.

cdd *PFOS and PFOA criteria and assessment.* 1. Surface waters shall meet all of the following criteria for PFOS and PFOA at all times and under all flow and water level conditions:

a. In order to protect against adverse public health impacts from consumption of fish taken from surface waters, concentrations of PFOS shall not be present in amounts found to be of public health significance, which is 8 parts per trillion, except in waters that cannot naturally support fish and do not have downstream waters that support fish.

b. In order to protect against adverse public health impacts from the incidental consumption of surface waters associated with recreational activities in the water, concentrations of PFOA shall not be present in amounts found to be of public health significance, which is 95 parts per trillion for surface waters not classified as public water supplies under ch. NR 104.

c. In order to protect against adverse public health impacts from consumption of drinking water supplied by surface waters, concentrations of PFOA shall not be present in amounts found to be of public health significance, which is 20 parts per trillion for

surface waters classified as public water supplies under ch. NR 104.

2. The PFOS and PFOA criteria in subd. 1. shall be met in surface waters, and a surface water shall be considered an impaired water as defined in s. NR 151.002 c16md if any of the criteria are exceeded more than once every 3 years. Permit requirements shall be implemented following the procedures under subch. VIII of ch. NR 106.

c9d WILDLIFE USE AND CRITERIA. cad *Use.* All surface waters shall be suitable for supporting wildlife.

cbd *Criteria.* The criteria specified in or developed pursuant to s. NR 105.07 shall be met.

History: Cr. Register, September, 1973, No. 213, eff. 10-1-73; am. c3d, Register, December, 1977, No. 264, eff. 1-1-78; renum. from NR 102.02, r. c3d cdd 1. to 3., and c5d, renum. c3d cintro.d to cdd cintro.d and ced and c4d to be c4d cintro.d to ced and c5d and am. c4d cad, cdd, ced cintro.d and c5d, cr. c6d and c7d, Register, February, 1989, No. 398, eff. 3-1-89; am. c3d cintro.d, c6d, c7d, r. c3d cad, renum. c3d cbd to cfd to be c3d cad to ced and am. c3d cad, Register, August, 1997, No. 500, eff. 9-1-97; CR 07-111: am. titled, c1d cintro.d, c2d, c3d cintro.d, c4d titled and cad, r. c4d cbd, ced 1. and c5d to c7d, renum. c4d ced cintro.d, 2. and 3. to be c4d cbd and am. c4d cbd cintro.d, cr. c4d ced and c5d to c9d Register September 2010 No. 657, eff. 10-1-10; correction in c8d ccd made under s. 13.92 c4d cbd 7., Stats., Register September 2010 No. 657; CR 19-014: am. c5d cad, r. and recr. c6d Register April 2020 No. 772, eff. 5-1-20; CR 21-083: cr. c8d cdd Register July 2022 No. 799, eff. 8-1-22; CR 19-094: r. and recr. c4d cad, cr. c4d camd, r. c4d cbd, am. c4d cdd, cr. c4d cfd, am. c5d cbd Register September 2022 No. 801, eff. 10-1-22.

NR 102.05 Application of standards. c1d **ANTI-DEGRADATION.** cad No waters of the state shall be lowered in quality unless it has been affirmatively demonstrated to the department that such a change is justified as a result of necessary economic and social development, provided that no new or increased effluent interferes with or becomes injurious to any assigned uses made of or presently possible in such waters.

cbd *Classification system.* For the purposes of this subsection, all surface waters of the state, or portions thereof, shall be classified as one of the following:

1. Outstanding resource waters as listed in s. NR 102.10,
2. Exceptional resource waters as listed in s. NR 102.11,
3. Great Lakes system waters as listed in s. NR 102.12 c1d,
4. Fish and aquatic life waters as described in s. NR 102.13,

or

5. Waters listed in tables 3 through 8 in ss. NR 104.05 to 104.10.

c2d STREAMFLOW. Water quality standards will not be maintained under all natural occurrences of flow, temperature, or other water quality characteristics. The determination of water quality based effluent limitations or other management practices shall be based upon the following conditions except as provided in ch. NR 106 for toxic and organoleptic substances and whole effluent toxicity:

cad The average minimum 7-day low streamflow which occurs once in 10 years c7-day Q_{10d} ; or,

cbd In the case of dissolved oxygen and wherever sufficient data on streamflow and temperature are available, by application of a 0.274% level of nonattainment. This is equivalent to an expected nonattainment of the dissolved oxygen criterion of one day per year.

c3d MIXING ZONES. Water quality standards shall be met at every point outside of a mixing zone. The size of the mixing zone shall be based on such factors as effluent quality and quantity, available dilution, temperature, current, type of outfall, channel configuration and restrictions to fish movement. For toxic and organoleptic substances with water quality criteria or secondary values specified in or developed pursuant to chs. NR 102 and 105, allowable dilution shall be determined as specified in ch. NR 106 in addition to the requirements specified in this sub-

section. As a guide to the delineation of a mixing zone, the following shall be taken into consideration:

cad Limiting mixing zones to as small an area as practicable, and conforming to the time exposure responses of aquatic life.

cbd Providing passageways for fish and other mobile aquatic organisms.

ccd Where possible, mixing zones being no larger than 25% of the cross-sectional area or volume of flow of a flowing water body and not extending more than 50% of the width.

cdd Final acute criteria and secondary values specified in or developed pursuant to s. NR 105.05 for the fish and aquatic life subcategory for which the receiving water is classified not being exceeded at any point in the mixing zone.

ced Mixing zones not exceeding 10% of an inland lake's total surface area.

ced Mixing zones not adversely impacting spawning or nursery areas, migratory routes, nor mouths of tributary streams.

cgd Mixing zones not overlapping, but where they do, taking measures to prevent adverse synergistic effects.

chd Restricting the pH to values greater than 4.0 s.u. and to values less than 11.0 s.u. at any point in the mixing zone for the protection of indigenous fish and fish food organisms.

c5d RESOURCE MANAGEMENT EXEMPTIONS. Application of chemicals for water resource management purposes in accordance with statutory provisions is not subject to the requirements of the standards except in case of water used for public water supply.

c6d ANALYTICAL PROCEDURES. cad The criteria in the Radiation Protection Code, s. DHS 157.44, shall apply to the disposal and permissible concentrations of radioactive substances.

cbd Methods used for analysis of samples shall be as set forth in ch. NR 219 unless alternative methods are specified by the department.

History: Cr. Register, September, 1973, No. 213, eff. 10-1-73; renum. c5d and c6d to be c6d and c7d, cr. c5d, Register, July, 1975, No. 235, eff. 8-1-75; r. and recr. c3d, Register, August, 1981, No. 308, eff. 9-1-81; correction in c7d made under s. 13.93 c2md cbd 7., Stats., cr. c4d chd, Register, September, 1984, No. 345, eff. 10-1-84; renum. from NR 102.03, r. c1d, cr. c1d cbd, renum. c2d to c7d to be c1d cad to c6d and am. c2d, c3d cintro.d and cdd and c6d, Register, February, 1989, No. 398, eff. 3-1-89; am. c1d cbd 3., c3d cintro.d and cdd, Register, August, 1997, No. 500, eff. 9-1-97; correction in c6d cad made under s. 13.93 c2md cbd 7., Stats. Register July 2006 No. 607, eff. 8-1-06; correction in c6d cad made under s. 13.92 c4d cbd 7., Stats., Register July 2010 No. 655; CR 07-111: am. c3d cintro.d, cbd, ccd, ced and cfd, r. c4d Register September 2010 No. 657, eff. 10-1-10.

NR 102.06 Phosphorus. c1d GENERAL. This section identifies the water quality criteria for total phosphorus that shall be met in surface waters. Assessment procedures for waterbodies are specified in ss. NR 102.07 and 102.60.

c2d DEFINITIONS. In this section, the following definitions apply:

cbd XEphemeral streamY means a channel or stream that only carries water for a few days during and after a rainfall or snowmelt event and does not exhibit a flow during other periods, and includes, but is not limited to, grassed waterways, grassed swales, and areas of channelized flow as defined in s. NR 243.03 c7d.

ccd XMean water residence timeY means the amount of time that a volume of water entering a waterbody will reside in that waterbody.

cdd XNearshore watersY means all waters of Lake Michigan or Lake Superior within the jurisdiction of the State of Wisconsin in the zone extending from the shore to a depth of 10 meters, based on the long-term mean elevation for Lake Superior of 183.4 meters c601.7 feetd and for Lake Michigan of 176.5 meters c579.0 feetd.

ced XOpen watersY mean all waters of Lake Michigan or Lake Superior within the jurisdiction of the State of Wisconsin with depths greater than nearshore waters.

c3d RIVERS, STREAMS, AND IMPOUNDED FLOWING WATERS. To protect the fish and aquatic life uses established in s. NR 102.04 c3d on rivers and streams that generally exhibit unidirectional flow, total phosphorus criteria are established as follows:

cad A total phosphorus criterion of 100 ug/L is established for the following rivers or other unidirectional flowing waters:

1. Apple River from the outlet of the Apple River Flowage in Amery to the St. Croix River, excluding Black Brook Flowage.

2. Bad River from confluence with the Marengo River within the Bad River Indian Reservation downstream to Lake Superior.

3. Baraboo River from highway 58 in La Valle to the Wisconsin River.

4. Bark River from confluence with Scuppernong River near Hebron to the Rock River.

5. Black River from confluence with Cunningham Creek near Neillsville to Mississippi River, excluding Lake Arbutus.

6. Brule River from state highway 55 in Forest County downstream to Menominee River.

7. Buffalo River from confluence with Harvey Creek near Mondovi to Mississippi River.

8. Chippewa River from Lake Chippewa in Sawyer County to Mississippi River, excluding Holcombe Flowage, Cornell Flowage, Old Abe Lake, Lake Wissota and Dells Pond.

9. Crawfish River from confluence with Beaver Dam River to Rock River.

10. East Branch Pecatonica River from confluence with Apple Branch Creek near Argyle to Pecatonica River.

11. Eau Claire River from confluence with Bridge Creek near Augusta to Chippewa River, excluding Altoona Lake.

12. Embarrass River from confluence with Pigeon River near Clintonville to Wolf River.

13. Flambeau River from outlet of Turtle-Flambeau Flowage in Iron County to Chippewa River, excluding Pixley Flowage, Crowley Flowage and Dairyland Flowage.

14. Fox River from outlet of Lake Puckaway near Princeton to Green Bay, excluding Lake Butte des Morts and Lake Winnebago.

15. Fox River from confluence with Mukwonago River near Mukwonago to state line, excluding Tichigan Lake.

16. Grant River from confluence with Rattlesnake Creek near Beetown to Mississippi River.

17. Jump River from confluence with the North Fork and the South Fork of the Jump rivers in Price County to Holcombe Flowage.

18. Kickapoo River from confluence with Weister Creek near La Farge to Wisconsin River.

19. Kinnickinnic River from confluence with Wilson Park Creek in Milwaukee to Milwaukee River.

20. La Crosse River from confluence with Fish Creek near Bangor to Mississippi River, excluding Neshonoc Lake.

21. Lemonweir River from outlet of New Lisbon Lake in New Lisbon to Wisconsin River, excluding Decorah Lake.

22. Little Wolf River from confluence with South Branch Little Wolf River near Royalton to Wolf River.

23. Manitowoc River from confluence of North Branch and South Branch Manitowoc rivers to the opening at the end of the piers at Lake Michigan.

24. Menominee River from confluence with Brule River to the opening at the end of the piers at Green Bay.

25. Menomonee River from confluence with Little Menomonee River to Milwaukee River.

26. Milwaukee River from confluence with Cedar Creek downstream to the openings of the breakwaters at Lake Michigan.

27. Mississippi River main channels and side channels.

28. Namekagon River from outlet of Trego Lake near Trego to St. Croix River.

29. Oconto River from confluence with Peshtigo Brook to the opening at the end of the piers at Green Bay.

30. Pecatonica River from confluence with Vinegar Branch near Darlington to state line.

31. Pelican River from confluence with Slaughterhouse Creek near Rhinelander to Wisconsin River.

32. Peshtigo River from confluence with Brandywine Creek downstream to Green Bay, excluding Cauldron Falls Flowage and High Falls Flowage.

33. Pine River from confluence with Popple River in Florence County to Menominee River, excluding Pine River Flowage.

34. Red Cedar River from confluence with Brill River to Chippewa River, excluding Rice Lake, Tainter Lake and Lake Menomin.

35. Rock River from outlet of Sinissippi Lake downstream to the state line, excluding Lake Koshkonong.

36. St. Croix River from confluence with Namekagon River downstream to Mississippi River, excluding Lake St. Croix near Hudson.

37. St. Louis River from state line to the opening between Minnesota Point and Wisconsin Point at Lake Superior.

38. Sheboygan River from outlet of Sheboygan Marsh to the opening at the end of the piers at Lake Michigan.

39. South Fork of Flambeau River from state highway 13 near Fifield to Flambeau River.

40. Sugar River from outlet of Albany Lake to state line, excluding Decatur Lake.

41. Tomahawk River from outlet of Willow Reservoir to Lake Nokomis.

42. Trempealeau River from confluence with Pigeon Creek near Whitehall to Mississippi River.

43. White River from outlet of White River Flowage in Ashland County to Bad River.

44. Wisconsin River from the Rhinelander Dam to Mississippi River, excluding Lake Alice, Lake Mohawksin, Alexander Lake, Lake Wausau, Mosinee Flowage, Lake Dubay, Wisconsin River Flowage, Biron Flowage, Petenwell Flowage, Castle Rock Flowage and Lake Wisconsin.

45. Wolf River from confluence with Hunting Creek in Langlade County to Lake Poygan.

46. Yahara River from outlet of Lake Kegonsa to Rock River.

cbd Except as provided in subs. [c6d](#) and [c7d](#), all other surface waters generally exhibiting unidirectional flow that are not listed in par. [cad](#) are considered streams and shall meet a total phosphorus criterion of 75 ug{L.

ccd An impounded flowing water shall meet the river or stream criterion in par. [cad](#) or [cbd](#) that applies to the primary stream or river entering the impounded water.

c4d RESERVOIRS AND LAKES. Except as provided in subs. [c6d](#) and [c7d](#), to protect fish and aquatic life uses established in s. [NR 102.04 c3d](#) and recreational uses established in s. [NR 102.04 c5d](#), total phosphorus criteria are established for reservoirs and lakes as follows:

cad For stratified reservoirs, total phosphorus criterion is 30

ug{L. For reservoirs that are not stratified, total phosphorus criterion is 40 ug{L.

cbd For the following lakes that do not exhibit unidirectional flow, the following total phosphorus criteria are established:

1. For stratified, two-story fishery lakes, 15 ug{L.

2. For lakes that are both drainage and stratified lakes, 30 ug{L.

3. For lakes that are drainage lakes, but are not stratified lakes, 40 ug{L.

4. For lakes that are both seepage and stratified lakes, 20 ug{L.

5. For lakes that are seepage lakes, but are not stratified lakes, 40 ug{L.

c5d GREAT LAKES. To protect fish and aquatic life uses established in s. [NR 102.04 c3d](#) and recreational uses established in s. [NR 102.04 c5d](#) on the Great Lakes, total phosphorus criteria are established as follows:

cad For both open and nearshore waters of Lake Superior, 5 ug{L.

cbd For both open and nearshore waters of Lake Michigan, excluding waters identified in par. [ccd](#), 7 ug{L.

ccd For the portion of Green Bay from the mouth of the Fox River to a line from Long Tail Point to Point au Sable, the water clarity and other phosphorus-related conditions that are suitable for support of a diverse biological community, including a robust and sustainable area of submersed aquatic vegetation in shallow water areas.

c6d EXCLUSIONS. The following waters are excluded from subs. [c3d cbd](#), [c4d](#) and [c5d](#):

cad Ephemeral streams.

cbd Lakes and reservoirs of less than 5 acres in surface area.

ccd Wetlands, including bogs.

cdd Waters identified as limited aquatic life waters in ch. [NR 104](#). Limited aquatic life waters are those subject to the criteria in s. [NR 104.02 c3d cbd c2d](#).

c7d SITE-SPECIFIC CRITERIA. cad A criterion contained within this section may be modified by rule for a specific surface water segment or waterbody. A site-specific criterion may be adopted in place of the generally applicable criteria in this section where site-specific data and analysis using scientifically defensible methods and sound scientific rationale demonstrate a different criterion is protective of the designated use of the specific surface water segment or waterbody. Procedures for developing site-specific criteria for phosphorus are established in ch. [NR 119](#).

Note: Assessment procedures for site-specific phosphorus criteria are the same as those for statewide phosphorus criteria under s. [NR 102.07](#), unless otherwise specified.

cbd Site-specific criteria apply to the following waterbodies to protect fish and aquatic life uses and recreational uses:

1. For Castle Rock Lake, the total phosphorus criterion is 55 ug{L.

2. For Petenwell Lake, the total phosphorus criterion is 53 ug{L.

3. For Lake Wisconsin, the total phosphorus criterion is 47 ug{L.

4. For Lac Courte Oreilles, a stratified two-story fishery lake, the total phosphorus criterion is 10 ug{L. Attainment of the criterion is determined by taking samples within 2 meters of the surface at the deepest points of the lake[s two-story fishery basins: East, Central, and West Basins. If the criterion is not attained at any one of the 3 deep points, then the lake as a whole, including the bays, is not attaining the criterion.

Note: Reservoirs, two-story fishery lakes and water bodies with high natural background phosphorus concentrations are the most appropriate water bodies for site-specific criteria.

History: Cr. Register, July, 1975, No. 235, eff. 8-1-75; am. Register, October, 1986, No. 370, eff. 11-1-86; renum. from NR 102.04, Register, February, 1989, No. 398, eff. 3-1-89; am. Register, November, 1992, No. 443, eff. 12-1-92; CR 10-035: r. and recr. Register November 2010 No. 659, eff. 12-1-10; renumbering of c2d cfm made under s. 13.92 c4d cbd 1., Stats., Register November 2010 No. 659; CR 19-083: am. c4d cintro.d, renum. c7d to c7d cad, cr. c7d cbd Register May 2020 No. 773, eff. 6-1-20; CR 10-093: am. c7d cad Register September 2022 No. 801, eff. 10-1-22; CR 19-094: am. c1d, c2d cintro.d, renum. c2d cad, cfd, cfmd, cgd, cid, cjd to NR 102.03 c1od, c4sd, c6ed, c6md, c6sd, c7md and, as renumbered, am. c6md, c6sd, r. and recr. c3d cttled, renum. c4d ccd to c3d ccd and am. Register September 2022 No. 801, eff. 10-1-22; CR 22-082: cr. c7d cbd 4. Register January 2024 No. 817, eff. 2-1-24.

NR 102.07 Assessing phosphorus concentration.

c1d DATA REQUIREMENTS. cad *Lakes and reservoirs.* The total phosphorus criteria specified in s. NR 102.06 c4d apply to samples taken near a lake or reservoir[s] deepest point, within 2 meters of the surface. For assessment purposes samples shall, whenever possible, be taken at least once per month for 3 months during the sampling period of June 1 to September 15. The department shall calculate a lake or reservoir[s] arithmetic mean total phosphorus concentration using at least 2 years of data from the sampling period.

Note: Reservoirs, multi-lobed lakes, or very large lakes may need more than one sampling station to assess the lake.

cbd *Flowing waters.* The total phosphorus criteria specified in s. NR 102.06 c3d apply to samples taken from the main channel near the area with greatest flow. For assessment purposes samples shall, whenever possible, be taken at least once per month for 6 months during the sampling period of May 1 to October 31. The department shall calculate the median total phosphorus concentration for a stream, river, or impounded flowing water using at least one year of data from the sampling period.

ccd *Assessment timeframe for lakes, reservoirs and flowing waters.* 1. In this paragraph, Xweather-controlled total phosphorus concentrationY means a waterbody[s] mean or median total phosphorus concentration during the applicable assessment period, estimated from measured data while controlling for weather variability using a method such as the department[s] Phosphorus Mixed Effects Regression calculation method.

2. All representative data from the most recent 5 years shall be used for assessments, but data from the most recent 10 years may be used if representative of current conditions. If fewer than the recommended number of samples in par. cad or cbd are available, the department may be able to make an assessment determination on a case-by-case basis. The department may calculate a site[s] weather-controlled total phosphorus concentration to correct for weather variability and use this value to make an assessment determination in place of the mean or median calculated under par. cad or cbd.

Note: A mean total phosphorus concentration is used for lakes or reservoirs; a median concentration is used for streams, rivers, or impounded flowing waters. Total phosphorus data may be submitted and weather-controlled concentrations can be obtained by contacting the department at DNRSWIMS@wisconsin.gov for access to the department[s] SWIMS database. The statistical computer programming script to run the Phosphorus Mixed Effects Regression calculation can be obtained through the department[s] Water Evaluation Section by contacting the department[s] call center at 1-888-WDRINFO c1-888-936-7463d or using options provided on its website at <https://dnr.wi.gov/contact/>.

Note: The procedures in pars. cbd to ccd are also used for determining upstream concentrations of phosphorus under s. NR 217.13 c2d cdd for purposes of calculating a water-quality based effluent limit for a Wisconsin pollutant discharge elimination system cWPDESd permit.

c2d EXCEEDANCE DETERMINATION. The department shall compare the mean or median calculated under sub. c1d to the waterbody[s] applicable total phosphorus criterion specified in s. NR 102.06 to determine whether the waterbody is exceeding the criterion. To determine whether additional data are needed to make an attainment decision for section 303 cdd listing purposes, the department shall apply the confidence interval approach in s. NR

102.52 c2d cbd to ccd. If application of those methods indicates that the waterbody is exceeding the phosphorus criterion, the department shall propose to include the waterbody on the section 303 cdd list as impaired for total phosphorus unless the department determines the waterbody is not exhibiting a biological response to phosphorus as specified in s. NR 102.60.

History: CR 19-094: cr. Register September 2022 No. 801, eff. 10-1-22.

NR 102.10 Outstanding resource waters. c1d The following surface waters are designated as outstanding resource waters:

cad *National wild and scenic rivers.* All rivers designated under the national wild and scenic rivers act, as amended, 16 USC 1271 to 1287, except those portions flowing through Indian reservations, including:

1. St. Croix river between the northern boundary of the Hudson city limits and the St. Croix flowage dam in Douglas county except that the portion of the St. Croix river from the northern boundary of the St. Croix Falls city limits to a distance one mile below the STH 243 bridge at Osceola shall be classified exceptional resource waters under s. NR 102.11.

2. Namekagon river between its confluence with the St. Croix river and the outlet of Lake Namekagon in Bayfield county.

cbd *State wild and scenic rivers.* All state wild and scenic rivers designated under s. 30.26, Stats., including:

1. Pike river and its headwater branches in Marinette county.

2. Pine river and its headwater branches in Florence and Forest counties.

3. Popple River and its headwater branches in Florence and Forest counties.

4. The portion of the Brunsweler River cMartin Hanson Wild Riverd from the point in Ashland County at which it leaves T44N R4W S22 QSW QQSW downstream to the point at which it crosses the boundary of the Chequamegon-Nicolet National Forest at T45N R4W S22 QNW.

5. Portions of the Totogatic River in Bayfield, Sawyer, Washburn, Douglas, and Burnett Counties as described in the following table:

SEG 1: From the outlet of Totogatic Lake located in Bayfield County to the upstream end of Nelson Lake at the southern edge of the walleye spawning refuge located in Sawyer County.

SEG 2: From a point 500 feet below the dam in the Totogatic Wildlife Area located in Washburn County to the upstream end of the Colton Flowage located in Washburn County.

SEG 3: From a point 500 feet below the dam that forms the Colton Flowage located in Washburn County to the point where the river crosses the Washburn-Douglas County line immediately above the upstream end of the Minong Flowage.

SEG 4: From the bridge on CTH XIY that crosses the river located in Washburn County to the confluence of the river with the Namekagon River located in Burnett County.

Note: Section NR 302.02 c1d contains a detailed description of the extent of the Pike, Pine, and Popple river systems designated as Wild Rivers.

ccd Wolf river upstream of the northern Menominee county line.

cdd The following Class I trout waters:

1. Adams county — Big Roche-a-Cri creek
2. Barron county — Yellow river
3. Bayfield county — Flag river, Sioux river
4. Burnett county — North Fork Clam river, South Fork Clam river
5. Chippewa county — Duncan creek, Elk creek, McCann creek

- 6. Dane county — Black Earth creek above the easternmost CTY KP crossing
- 7. Door county — Logan creek
- 8. Douglas county — Bois Brule river and its tributaries including the waters of Lake Superior within a mile semi-circular arc centered at the middle of the river mouth
- 9. Dunn county — Elk creek
- 10. Florence county — Brule river including Montagne creek and Riley creek tributaries; tributaries to the Pine-Popple rivers including Chipmunk, Cody, Haley, Haymarsh, Lamon Tangué, Lepage, Lunds, Martin, Olson, Patten, Pine, Riley, Rock, Simpson, Seven Mile, Wakefield and Woods creeks; Little Popple river cT38N R19E S3d
- 11. Forest county — Brule river
- 13. Kewaunee county — Little Scarboro creek
- 14. Langlade county — Clearwater creek, Drew creek, Evergreen river, South Branch Oconto river
- 15. Lincoln county — Center fork New Wood creek, Little Pine creek, Prairie river
- 16. Marathon county — Holt creek, Spranger creek, Plover river
- 17. Marinette county — Cedarville creek, Otter creek, Holmes creek, East Thunder creek, North fork Thunder river, Eagle creek, Little Eagle creek, Plumadore creek, Meadow brook, Upper Middle Inlet creek, Middle Inlet creek, Wausaukee river, Little Wausaukee creek, Coldwater brook, Medicine brook, South Branch Miscauno creek, Miscauno creek, Swede John creek, South Branch Pemebonwon river, Spikehorn creek, Silver creek, Little Silver creek, Sullivan creek; tributaries to the Pike river including Little South Branch Pike river, Camp D creek, Camp F creek, Camp 9 creek, Cole creek, Glen creek, Harvey creek, North Branch Harvey creek, South Branch Harvey creek, Hemlock creek, Holloway creek, K.C. creek, Little Harvey creek, Lost creek, MacIntire creek, Phillips creek, Sackerson creek, Shinns branch, Sidney creek, Smeesters creek, Springdale brook, Whiskey creek
- 18. Marquette county — Chaffee creek, Lawrence creek, Tagatz creek
- 19. Monroe county — Rullands Coulee creek
- 20. Oconto county — First South Branch Oconto river, Second South Branch Oconto river, South Branch Oconto river, Hills Pond creek
- 21. Polk county — Clam river, McKenzie creek
- 22. Portage county — Emmons creek, Radley creek, Sannes creek, Tomorrow river, Nace cTroutd creek
- 23. Richland county — Camp creek
- 24. Sheboygan county — Nichols creek
- 25. St. Croix county — Kinnickinnic river above STH X35Y
- 26. Vernon county — Rullands Coulee creek, Spring Coulee creek, Timber Coulee creek
- 27. Vilas county — Deerskin river, Plum creek
- 28. Walworth county — Bluff creek, Potawatomi creek, Van Slyke creek
- 29. Waupaca county — Emmons creek, Griffin creek, Jackson creek, Leers creek, Peterson creek, Radley creek, Sannes creek, Spaulding creek, Trout creek, Whitcomb creek, Little Wolf river cNorth Branch Little Wolf riverd
- 30. Waushara county — Chaffee creek, Willow creek north of Redgranite, Mekan river north of Richford, Little Pine creek, West Branch White river

ced The following Class II trout waters:

- 1. Barron county — Yellow river
- 2. Burnett county — North Fork Clam river
- 3. Forest county — Brule river, Peshtigo river
- 4. Grant county — Big Green river, Castle Rock creek
- 5. Marinette county — Peshtigo river
- 6. Polk county — McKenzie creek
- 7. Vilas county — Plum creek

cf d The following cold or warm water streams and rivers or portions thereof:

| | | | |
|-----|--------------------|------------------------|--|
| 1d. | Ashland | Bad River | SEG 1: Origin to Outfall in Mellen at NW SW S6 T44N R2W |
| | | Brunsweler River | SEG 1: Origin to Inlet of Spider Lake SEG 2: Outlet of Moquah Lake to origin of Wild River designation under par. cbd 4. at T44N R4W S22 SW of SW SEG 3: All portions included as Wild River under par. cbd 4. SEG 4: End of Wild River segment under par. cbd 4. at the boundary of the Chequamegon-Nicolet National Forest cT45N R4W S22 NWd to the Bad River Indian Reservation Boundary |
| 1h. | Ashland & Bayfield | Marengo River | SEG 1: Origin to Inlet of Marengo Lake SEG 2: Outlet of Marengo Lake to Bad River Indian Reservation Boundary |
| 1p. | Ashland & Sawyer | E. Fork Chippewa River | SEG1: T42N R1E S17{18 Line to Ashland County Highway XNY in Glidden SEG 6: Outlet of Barker Lake to Confluence with Chippewa Flowage SEG 3: Outlet of Pelican Lake to Inlet of Blaisdell Lake SEG 4: Outlet of Blaisdell Lake to Inlet of Hunter Lake SEG 5: Outlet of Hunter Lake to Inlet of Barker Lake |

| | | | | | | | | | |
|-----|---------|--|--|--|--|-----------|-------------------------|--|--|
| | | | SEG 2: All portions included as Wild River under SEG 2 of par. cbd 5., and the 500 feet immediately downstream of the dam in the Totagatic Wildlife Area in Washburn County | | | 6m. | Forest & Langlade | Otter Creek cT37N R14E S23, North Otter Creekd Swamp Creek | All |
| | | | SEG 3: All portions included as Wild River under SEG 3 of par. cbd 5., the 500 feet immediately downstream of the dam that forms the Colton Flowage, and from the end of the Wild River designation at the Douglas{Washburn County line to the inlet of Minong Flowage | | | 7. 7m. | Grant Iron & Ashland | Little Green River Tyler Forks | SEG 1: Outlet of Lake Lucerne to Mole Lake Indian Reservation Boundary SEG 3: All below Mole Lake Indian Reservation Boundary to Confluence of Wolf River |
| | | | SEG 4: All portions included as Wild River under SEG 4 of par. cbd 5. County Highway XHY to Confluence with Clam River | | | | | Potato River | All |
| 3. | Burnett | North Fork Clam River | All-Class I & II Portions | | | 8. | Iron, Ashland & Price | Flambeau River | SEG 1: Origin in Iron County to Bad River Indian Reservation Eastern Boundary in Ashland County SEG 3: From Bad River Indian Reservation Southern Boundary to Confluence with Bad River SEG 1: Origin to Bad River Indian Reservation Boundary |
| | | Tributaries to the N. & S. Forks of the Clam River | | | | | | | SEG 1: Turtle-Flambeau Flowage cOutlet @ Turtle-Flambeau Damd to Inlet of Upper Park Falls Flowage |
| 4. | Dane | Mt. Vernon Creek | All-Class I Portion | | | | | | |
| 5. | Door | Mink River | All | | | 9. | LaCrosse | Berge Coulee Creek | All |
| 5m. | Douglas | Amnicon River | SEG 1: Origin cOutlet of Amnicon Laked to Inlet of Lyman Lake | | | 10. | Langlade | Elton Creek Evergreen Creek Mayking Creek Michelson Creek Mid Branch Embarrass River | Class I Portion All All All Class I Portion |
| | | | SEG 2: Outlet of Lyman Lake to mouth at Lake Superior, including the waters of Lake Superior within a mile semi-circular arc centered at the middle of the river mouth. | | | 10m. | Lincoln | New Wood River | Origin cT33N R4E S14d to Confluence with Wisconsin River |
| | | Moose River | All | | | 11. | Marathon | Falstad Creek So. Branch Embarrass River | Class II Portion Class I Portion |
| | | Spruce River | All | | | 12. | Marinette | No. Branch Beaver Creek | Entire River & tributaries |
| | | St. Croix River | SEG 1: Outlet of Upper St. Croix Lake to Inlet of St. Croix Flowage | | | 13. | Oneida | Noisy Creek Squirrel River | Class II Portion Outlet of Squirrel Lake to Confluence with Tomahawk River |
| 6. | Forest | Allen Creek | All | | | | | Tomahawk River | SEG 2: Outlet of Willow Flowage Dam to Inlet of Lake Nokomis |
| | | Brule Creek | All | | | | | | |
| | | Elvoy Creek | All | | | | | | |
| | | Jones Creek | Class I & II portions | | | | | | |

| | | | | | | | |
|------|----------------------|--------------------------------|---|------|-------------------|---|--|
| 14. | Pierce | Kinnickinnic River | From Powell Dam to St. Croix River | | | McDermott Brook Mosquito Brook Teal River | All All-Class I Portion Outlet of Teal Lake to Confluence with West Fork Chippewa River |
| 15. | Polk | Sand Creek & Tribs | All-Class I & II Portions | | | | SEG 1: Outlet of Clam Falls Flowage to Inlet of Clam Lake |
| 15e. | Polk & Burnett | Clam River | SEG 2: Outlet of Lower Clam Lake to Section Line @ T39N R16W S21{22 | 20m. | Sawyer & Rusk | Thornapple River Chippewa River | SEG 1: Origin to Rusk County Highway XJY SEG 1: Dam at Chippewa Flowage to Inlet of Radisson Flowage cT38N R7W S13d |
| 15m. | Price | Elk River | SEG 1: Headwaters to Inlet of Musser Lake | 21. | Shawano | Middle Br. Embarrass R. No. Br. Embarrass R. So. Br. Embarrass R. | Origin to but not including Homme Pond Origin to CTH J Origin to but not including Tigerton Pond |
| | Price & Lincoln | Spirit River | Outlet of Spirit Lake to Inlet of Spirit River Flowage | | | | |
| 16. | Price, Rusk & Sawyer | So. Fork Flambeau River | All-Round L. Dam downstream to Jxn with No. Fork Flambeau R. | 21g. | Taylor & Chippewa | Yellow River | SEG 1: Confluence with South Fork Yellow River to Inlet of Chequamegon Waters Flowage |
| 17. | Richland | Elk Creek | All | | | | SEG 2: Outlet of Chequamegon Waters Flowage cat Miller Damd to State Highway 64{73 |
| 18. | Rusk | Devils Creek | All-Class I & II Portions | | | | SEG 1: Origin to Westboro Sanitary District Outfall |
| | | Soft Maple Creek | SEG 1: Origin to Rusk County Highway XFY | | | | |
| | | So. Fork Main Creek | Class I & II Portions cT35N R3W S28 downstream to T34N R4W S11d | 21r. | Taylor & Price | Silver Creek | Class I & II Portions |
| | | Swift Creek | Outlet of Island Lake to Inlet of Fireside Lake | | | | |
| 19. | Sauk | Otter Creek | From headwaters to southern section line of T11N R6E S33 | 22. | Vilas | Allequash Creek & Springs Brule Creek East Br. Blackjack Cr. Elvoy Creek & Springs Manitowish River | All All Class I & II Portions |
| | | Parfrey[s Glen | From headwaters to CTH DL | | | | |
| 20. | Sawyer | Benson Creek Couderay River | All-Class I Portion SEG 1: Origin at Outlet of Billy Boy Flowage to Inlet of Grimh Flowage cIn-cluding Waters within Lac Courte Oreilles Indian Reservationd | | | | SEG 1: Adjacent to Dam Road Downstream to Inlet of Boulder Lake SEG 2: Outlet of Boulder Lake to Inlet of Island Lake |
| | | Eddy Creek | All-Class I Portion | | | Mishonagon Creek Siphon Creek Spring Meadow Creek Tamarack Creek Trout River | Class I & II Portions All Class I Portion All |
| | | Grindstone Creek | All-Class I Portion | | | | |
| | | Knuteson Creek | SEG 1: Outlet of Wise Lake to Inlet of Knuteson Lake SEG 2: Outlet of Knuteson Lake to Inlet of Lake Chetek | | | | SEG 1: Outlet of Trout Lake to Lac Du Flambeau Indian Reservation Eastern Boundary |
| | | Little Weirgor Creek & Tribs | All-Class I & II Portions | | | | |

| | | | | | | |
|---|-------------------|---|--|-----|-----------|--|
| 22m. | Vilas & Oneida | Wisconsin River | SEG 1: Origin cOutlet of Lac Vieux Desertd to Inlet of Watersmeet Lake | 7. | Florence | Upper St. Croix Lake Edith Lake Keyes Lake Lost Lake Perch Lake Riley Lake, South |
| 23. | Washburn | Beaver Brook Sawyer Creek So. Fork Bean Brook Stuntz Brook | All-Class I Portion All-Class I & II Portions All-Class I Portion Origin to Confluence with Namekagon River | 8. | Forest | Butternut Lake Franklin Lake Lucerne Lake cStoned Metonga Lake Catherine Lake Cedar Lake Gile Flowage Hewitt Lake Owl Lake Trude Lake Turtle-Flambeau Flowage |
| 23m. | Washburn & Barron | Bear Creek | SEG 1: Outlet of Kekegama Lake to Inlet of Bear Lake SEG 2: Outlet of Bear Lake to Inlet at Stump Lake | 9m. | Iron | Caldron Falls Flowage calso in Oconto Countyd Archibald Lake Bass Lake cT32N R15E S9d Bear Paw Lake Boot Lake Caldron Falls Flowage calso in Marinette Countyd Chain Lake Big Carr Lake Clear Lake cT39N R7E S16d Little Tomahawk Lake Tomahawk Lake Two Sisters Lake Willow Flowage Pipe Lake Cochran Lake Tucker Lake Bass Lake cT34N R9W S16d Fish Lake Island Chains of Lakes cChain {also in Chippewa County}, Clear, McCann, and Island Lakesd Three Lakes No. 1 cT36N R9W S25d Bass Lake cT30N R19W S23d Perch Lake Devils Lake Barker Lake Blaisdell Lake Evergreen Lake Grindstone Lake Lac Court Oreilles Lake Chippewa cChippewa Flowaged Nelson Lake Osgood Lake Perch Lake cT42N R6W S25d Round Lake cBig Roundd Sand Lake Smith Lake Spider Lake Teal Lake Whitefish Lake Black Oak Lake |
| <p>c1md cad The following lakes are designated as outstanding resource waters:</p> | | | | | | |
| 1. | Ashland | Bad River Slough Kakagon Slough Lake Superior within mile of the shoreline of the islands within the Apostle Island National Lakeshore | | | | |
| 2. | Barron | Bear Lake cT36N R12W S2; also in Washburn Countyd Red Cedar Lake calso in Washburn Countyd Sand Lake Silver Lake | | 11. | Oneida | |
| 3. | Bayfield | Bark Bay Slough Diamond Lake Lake Owen Lake Superior within mile of the shoreline of the islands within the Apostle Island National Lakeshore Lower Eau Claire Lake calso in Douglas Countyd Middle Eau Claire Lake Namekagon Lake Pike Chain of Lakes cPike, Millicent, Buskey Bay, Hart, Twin Bear, Eagle, Flynn and Hildur Lakesd Star Lake Upper Eau Claire Lake | | 12. | Polk | |
| 4. | Burnett | Big Sand Lake McKenzie Lake calso in Washburn Countyd Middle McKenzie Lake calso in Washburn Countyd Sand Lake cT40N R15W S25d | | 13. | Price | |
| 4m. | Chippewa | Chain Lake calso in Rusk Countyd | | 14. | Rusk | |
| 5. | Columbia | Crystal Lake cT12N R10E S1d | | 15. | St. Croix | |
| 6. | Douglas | Bardon Lake cWhitefish Laked Bond Lake Lake Nebagamon Lower Eau Claire Lake calso in Bayfield Countyd St. Croix cGordond Flowage | | 16. | Sauk | |
| | | | | 17. | Sawyer | |

- Crab Lake
 Crystal Lake cT41N R7E S27d
 Lac Vieux Desert
 North Twin Lake
 Palette Lake cCleard
 Partridge Lake
 Plum Lake
 South Twin Lake
 Star Lake
 Stormy Lake
 Trout Lake
 White Sand Lake cT42N R7E S26d
19. Walworth Lulu Lake
20. Washburn Bass Lake cT40N R10W S17d
 Bear Lake cT36N R12W S2; also in Barron Countyd
 Long Lake
 McKenzie Lake also in Burnett Countyd
 Middle McKenzie Lake also in Burnett Countyd
 Red Cedar Lake also in Barron Countyd
 Shell Lake
 Stone Lake cT39N R10W S24d
21. Waukesha Spring Lake cT5N R18E S9d
22. Waupaca Graham Lake cNelsond
 North Lake
23. Waushara Gilbert Lake
 Lucerne Lake cEgansd
 Norwegian Lake
 Pine Lake cSpringwaterd

c2d The waters in sub. **c1d** and **c1md** may not be lowered in quality.

c3d Surface waters, or portions thereof, may be added to, or deleted from, the outstanding resource waters designation through the rule making process under the provisions of ch. 227, Stats., and s. NR 2.03.

History: Cr. Register, February, 1989, No. 398, eff. 3-1-89; am. c1d cdd, cr. c1d ced, Register, July, 1989, No. 403, eff. 8-1-89; cr. c1d cfd and c1md, am. c2d, Register, May, 1993, No. 449, eff. 6-1-93; am. c1md 6., 9. and 11., cr. c1md 9m., Register, February, 1998, No. 506, eff. 3-1-98; CR 05-089: am. c1d cdd 8., cfd 2., c1md 1. and 3. Register July 2006 No. 607, eff. 8-1-06; CR 05-105: renum. c1d cfd 1. to be 1t. and am., cr. c1d cfd 1d., 1h., 1p., 2d., 2h., 2p., 5m., 6m., 7m., 10m., 15e., 15m., 15s., 20m., 21g., 21r., 22m., and 23m., am. c1d cfd 3., 8. 13., 18., 20., 22., and 23., Register November 2006 No. 611, eff. 12-1-06; reprinted to correct error in c1d cdd 6. Register March 2008 No. 627; CR 09-123: am. c1d cbd 1., 2., cdd 10., 17., 22., 29., 30., cfd 1d., 2p., 6., 8., 10., 20., 22., 22m., c1md cad 2. to 6., 9m., 10., 13., 14., 17., 18., 20., cr. c1d cbd 3. to 5. and c1md cad 4m. Register July 2010 No. 655, eff. 8-1-10; renumber of c1md to c1md cad made under s. 13.92 c4d cbd 1., Stats., Register July 2010 No. 655.

NR 102.11 Exceptional resource waters. c1d Surface waters which provide valuable fisheries, hydrologically or geologically unique features, outstanding recreational opportunities, unique environmental settings, and which are not significantly impacted by human activities may be classified as exceptional resource waters. All the following surface waters are designated as exceptional resource waters:

cad Class I trout waters listed in Wisconsin Trout Streams publication 6-3600 c80d that are not listed in s. NR 102.10.

cbd Other Class I trout waters:

1. Abraham Coulee creek in section 29, township 20 north, range 8 west from its headwaters to the upstream crossing of Oak Ridge Drive in Trempealeau county.
2. Bear creek originating in section 3, township 20 north, range 7 west in Trempealeau county.

3. Biser creek originating in section 19, township 12 north, range 3 west in Sauk county.

4. Bostwick creek from CTH M upstream 6.2 miles to the headwaters in LaCrosse county.

5. Bufton Hollow creek originating in section 19, township 12 north, range 2 west in Richland county.

6. Columbus creek originating in section 29, township 20 north, range 6 west in Jackson county.

7. Dutch creek originating in section 12, township 19 north, range 8 west in Trempealeau county.

8. Joe Coulee creek originating in section 1, township 20 north, range 7 west in Trempealeau county.

9. Little creek originating in section 21, township 20 north, range 6 west in Jackson county.

10. Marble creek originating in section 30, township 10 north, range 3 east in Sauk county.

11. Marshall creek originating in section 4, township 11 north, range 1 west in Richland county.

12. Martin creek originating in section 23, township 6 north, range 2 east in Iowa county.

13. South Bear creek originating in section 2, township 12 north, range 2 west in Richland county.

14. Spring brook downstream from CTH Y south of Antigo to its confluence with the Eau Claire river in Marathon county.

15. Spring Valley creek from the headwaters to SE 1{4, SE 1{4, section 33, township 16 north, range 1 east in Monroe county.

16. Unnamed creek 2-12 originating in section 36, township 20 north, range 7 west in Trempealeau county.

17. Unnamed creek 4-9 originating in section 4, township 11 north, range 1 west in Richland county.

18. Unnamed creek 5-6 originating in section 6, township 19 north, range 8 west in Trempealeau county.

19. Unnamed creek 7-4 originating in section 6, township 20 north, range 7 west in Trempealeau county.

20. Unnamed creek 8-9 originating in section 5, township 20 north, range 7 west in Trempealeau county.

21. Unnamed creek 8-14 originating in section 1, township 20 north, range 8 west in Trempealeau county.

22. Unnamed creek 9-13 originating in section 4, township 20 north, range 6 west in Jackson county.

23. Unnamed creek 10-8 originating in section 3, township 11 north, range 1 west in Richland county.

24. Unnamed creek 10-10 originating in section 14, township 20 north, range 6 west in Jackson county.

25. Unnamed creek 11-4 originating in section 1, township 20 north, range 7 west in Trempealeau county.

26. Unnamed creek 11-7 originating in section 2, township 20 north, range 7 west in Trempealeau county.

27. Unnamed creek 13-3a originating in section 19, township 20 north, range 6 west in Jackson county.

28. Unnamed creek 13-3b originating in section 6, township 20 north, range 6 west in Trempealeau county.

29. Unnamed creek 15-13 originating in section 1, township 20 north, range 8 west in Trempealeau county.

30. Unnamed creek 15-4 originating in section 3, township 20 north, range 6 west in Trempealeau county.

31. Unnamed creek 16-2 originating in section 22, township 20 north, range 6 west in Jackson county.

32. Unnamed creek 17-5 originating in SE 1{4, section 5, township 20 north, range 6 west in Jackson county.

33. Unnamed creek 24-3a originating in section 18, township 11 north, range 1 west in Richland county.

34. Unnamed creek 26-7 originating in section 2, township 21 north, range 5 west in Jackson county.

35. Unnamed creek 34-2 originating in section 17, township 20 north, range 8 west in Trempealeau county.

36. Unnamed creek 34-15 originating in section 27, township 20 north, range 7 west in Trempealeau county.

37. Unnamed stream originating in section 33, township 10 north, range 3 east in Sauk county.

38. Washington Coulee creek originating in section 29, township 20 north, range 6 west in Jackson county.

ccd The following Class II trout waters:

1. Ashland county — White river above the Bad River Indian reservation

2. Bayfield county — White river

3. Dane county — Mt. Vernon creek

4. Forest county — North Branch Oconto river

5. Grant county — Blue river

6. Iowa county — Blue river

7. Langlade county — Prairie river, South Branch Oconto river

8. Lincoln county — Prairie river

9. Marquette county — Mecan river

10. Oconto county — North Branch Oconto river, South Branch Oconto river

11. Pierce county — Rush river

12. Portage county — Tomorrow river

13. Richland county — Willow creek

14. St. Croix county — Willow river, Race Branch

15. Waushara county — Mecan river

cdd The following cold or warm water streams and rivers or portions thereof:

| | | | |
|-----|------------------|---|--|
| 1g. | Ashland | Bad River | SEG 2: Outfall in Mellen at NE SW S6 T44N R2W to Bad River Indian Reservation Boundary |
| 1r. | Ashland & Sawyer | East Fork Chippewa River | SEG 2: Ashland County Highway XNY to Confluence of Rocky Run Creek cIncludes Glidden POTWd |
| 1t. | Barron | Brill River | All-Class II Portion |
| 2. | Crawford | Copper Creek Plum Creek Sugar Creek Tainter Creek | All All From headwaters to T10N R6W S10 From Vernon County Line to CTH B |
| 3. | Dane | Blue Mounds Branch Deer Creek Dunlap Creek Elvers Creek cBohn Cr.d Flynn Creek | All All All All All |

| | | | |
|-----|---|--|---|
| | | Fryes Feeder Creek | All |
| | | Garfoot Creek | All |
| | | Milum Creek | All |
| | | Rutland Branch | All |
| | | Ryan Creek | All |
| | | Schalpbach Creek | All |
| | | Sixmile Creek | All |
| | | Spring Creek | All |
| | | cLodid | |
| 4. | Dane, Sauk, Iowa, Grant, Richland, Crawford | Wisconsin River | From below Prairie du Sac to Prairie du Chien |
| 5. | Dane & Green | Little Sugar River | Above New Glarus |
| | | Story Creek | All |
| | | cTipperaryd | |
| | | Sugar River | All |
| 6. | Dunn | Sand Creek | From Chippewa County Line to mouth |
| 7. | Eau Claire | Lowes Creek | From Hwy 37 & 85 upstream to headwaters |
| 8. | Fond du Lac | Feldner[s] Creek | From headwaters to Mischo[s] Millpond |
| | | Auburn Lake Creek cLake Fifteen Creekd | Entire Creek above & below Auburn Lake |
| 9. | Forest | Armstrong Creek | All |
| | | Middle Br. | All |
| | | Peshtigo R. | All |
| | | North Br. Peshtigo R. | All |
| | | North Br. Popple R. | All |
| | | West Br. Armstrong Creek | Class II Portion |
| 10. | Grant | Doc Smith Branch | All |
| | | Little Platte River | From Arthur downstream to Platte River |
| 11. | Grant & Iowa | Big Spring Branch | From Springhead to Blue River |
| 12. | Green | Burgy Creek | All |
| | | Gill Creek | All |
| | | Hefty Creek, | All |
| | | North Branch | |
| | | Hefty Cr., Center Branch | All |
| | | Liberty Creek | All |
| | | Norwegian Creek | All |
| | | Richland Creek | All |
| | | Ross Crossing | All |
| | | Sylvester Creek | All |
| | | Spring Valley Creek | All |
| | | Ward Creek | All |
| 13. | Green & Rock | Allen Creek | Below Evansville |

| | | | | | | | |
|------|------------------|------------------------------|--|------|----------------------|-----------------------|---|
| 14. | Iowa | Harker-Lee-Martin System | From headwaters to T6N R2ES10 | 26c. | Polk & Burnett | Clam River | SEG 3: Section Line @ T39N R16W S21{22 to Inlet of Clam River Flowage |
| 15. | Iron | Manitowish River | All | | | | SEG 4: Outlet of Clam River Flowage to Confluence with St. Croix River |
| 15m. | Iron & Ashland | Vaughn Creek | SEG 1: Origin to Bad River Indian Reservation Boundary | | | | SEG 1: Origin outlet of Cranberry Laked to Inlet of Spring Creek Flowage |
| 16. | Jackson | Trempealeau River | From STH 95 at Hixton to CTHP at Taylor | | | | SEG 2: Outlet of Spring Creek Flowage to Confluence with South Fork Jump River |
| 17. | Jefferson & Rock | Allen Creek | All | 26g. | Price | North Fork Jump River | SEG 1: Confluence of the North Fork Jump River and South Fork Jump River to the Village of Jump River |
| 18. | Kewaunee | Casco Creek | From T24N R24E S19 downstream of Rock Ledge to Kewaunee River | | | | SEG 2: Crowley Dam to Inlet of Big Falls Flowage |
| 19. | La Crosse | Bostwick Creek | From headwaters to County Hwy [O] | | | | Origin to Confluence with North Fork Jump River |
| | | Coon Creek | All | 26n. | Price, Rusk & Taylor | Jump River | All-Trib to Mill Creek |
| | | Dutch Creek | From headwaters to Russian Coulee Road csection 8d | | | | All-Trib to Melancthon Cr. |
| 20. | Lafayette | Galena River | From headwaters to Buncombe Road | | | | Class II Section All-Trib to Mill Creek |
| 21. | Langlade | East Br. Eau Claire R. | From STH 64 upstream to firelane crossing in T33N R11E S35 SW1{4 | 26r. | Price, Sawyer, Rusk | Flambeau River | All |
| | | Hunting River | From Fitzgerald Dam Road downstream to T33N R11E S1 | 26w. | Price & Taylor | South Fork Jump River | All-Trib to Willow Creek |
| 22. | Lincoln | North Br. Prairie River | From headwaters to CTHJ to T33N R8E | 27. | Richland | Babb Hollow | All-Trib to Mill Creek |
| | | Silver Creek | All | | | Hanzel Creek | All-Trib to Mill Creek |
| 23. | Manitowoc | Branch River | All | | | cHanseld | All-Trib to Mill Creek |
| 24. | Monroe | Big Creek | From headwaters to Acorn Rd cS7d | | | Melancthon Creek | All-Trib to Mill Creek |
| | | Farmers Valley Creek & Tribs | From headwaters to I-90 cS19d | | | Coulter Hollow | All |
| | | Soper Creek | All | | | E. Branch Mill Creek | All-Trib to Willow Creek |
| 25. | Oneida | Bearskin Creek | From Tomahawk River to Little Bearskin Lake | | | Happy Hollow Creek | All-Trib to Mill Creek |
| 25m. | Oneida & Lincoln | Wisconsin River | SEG 2: Hat Rapids Dam to Lincoln County A crossing | | | Higgins Creek | All-Trib to Mill Creek |
| | | | SEG 4: Grandfather Dam to Inlet of Alexander Lake | | | Hood Hollow Creek | All-Trib to Mill Creek |
| 26. | Pierce | Big River | Class I Portion | | | Jacquish Hollow Creek | All-Trib to Willow Creek |
| | | Cady Creek | From CTH P upstream | | | Kepler Branch | All-Trib to Mill Creek |
| | | Trimbelle River | All | | | Mill Creek | From headwaters to above Boaz |
| 26b. | Polk | St. Croix River | From the northern boundary of the St. Croix Falls city limits to a distance one mile below the STH 243 bridge at Osceola | | | Miller Branch | All-Trib to Mill Creek |
| | | | | | | Pine Valley Creek | All-Trib to Mill Creek |
| | | | | | | Ryan Hollow | All-Trib to West Branch Mill Creek |
| | | | | | | Wheat Hollow Creek | All |
| | | | | | | W. Branch Mill Creek | All |

| | | | | | | | |
|------|-------------------------------------|--|---|--|--|--|--|
| 28. | Rock | Bass Creek East Fork Raccoon Cr. Little Turtle Creek Raccoon Creek Spring Brook cT2N R14E S27d Turtle Creek Unnamed Creek T2N R14E S31 | All All All All All All All | | | | |
| 29. | Rusk | Big Weirgor Creek Main Creek Soft Maple Creek | All-Class III Portion Rusk County Highway P to Inlet of Holcombe Flowage SEG 2: Rusk County Highway XFY to Conflu- ence with Chippewa River | | | | |
| 30. | Rusk, Taylor & Chippewa | Jump River | From Village of Jump River down- stream to Hol- combe Flowage | | | | From Rest Lake Dam downstream to Iron County line SEG 2: State High- way 70 to Inlet at Rainbow Flowage cOneida County Lined SEG 3: Outlet of Rainbow Flowage cOneida County Highway XDY to Inlet of Rhineland Flowage cT37N R8E S8 SE NE d |
| 31. | Sauk | Beaver Creek cTrib to Dell Creekd Camels Creek cTrib to Dell Creekd Dell Creek | All All All | | | | From Long Lake outlet to STH 28 |
| 31m. | Sawyer | Couderay River | SEG 2: Dam at Grimh Flowage to Confluence with Chippewa River | | | | Above STH 59 From Eagle Springs Lake to Upper Phantom Lake |
| 32. | Shawano | Kroenke Creek Red River West Br. Red River | Class II Portion From Lower Red Lake Dam to Wolf River Class II Portion | | | | From below North Lake to Okauchee Lake Class II Portion |
| 33. | Sheboygan | Ben Nutt Creek | Class II Portion to Junction with Mill Creek | | | | From junction with Wolf River upstream to Man- awa Dam |
| 34. | St. Croix | Apple River Cady Creek Willow River | From NSP plant below CTH I to Mouth All Extend Class II Portion into Delta in Lake Mallilieu | | | | Class II portion From Wolf River upstream to dam at Pella |
| 35. | St. Croix & Pierce | St. Croix River | From No. Bound- ary of Hudson City limits to the river mouth in Pierce Co. | | | | From below Wild Rose Mill pond to dam at Poy Sippi |
| 35m. | Taylor & Price | Silver Creek | SEG 2: Westboro Sanitary District Outfall to Conflu- ence with South Fork Jump River | | | | |
| 36. | Trempealea u | Buffalo River | From Hwy 53 to Strum Pond | | | | |
| 37. | Vernon | Bishop Branch Cheyenne Valley Creek Coon Creek | All All From La Crosse county line to Chaseburg | | | | |
| | | | | | | | All |
| | | | | | | | All |
| | | | | | | | All |
| | | | | | | | All |
| | | | | | | | All |
| 38. | Vilas | Manitowish River | From Rest Lake Dam downstream to Iron County line | | | | |
| 38m. | Vilas & Oneida | Wisconsin River | SEG 2: State High- way 70 to Inlet at Rainbow Flowage cOneida County Lined SEG 3: Outlet of Rainbow Flowage cOneida County Highway XDY to Inlet of Rhineland Flowage cT37N R8E S8 SE NE d | | | | |
| 39. | Washington & Fond du Lac | E. Branch Milwau- kee R. | | | | | |
| 40. | Waukesha | Genesee Creek Mukwonago River | | | | | |
| | | Oconomowoc River | | | | | |
| 41. | Waupaca | Blake Brook & Branches Little Wolf River | | | | | |
| 42. | Waupaca, Outagamie, & Shawano | Waupaca River Embarrass River | | | | | |
| 43. | Waushara | Lower Pine River | | | | | |

c2d The waters identified in sub. **c1d** may not be lowered in quality except as provided in ch. **NR 207**.

c3d Surface waters, or portions thereof, may be added to, or deleted from, the exceptional resource waters designation through the rule making process under the provisions of ch. **227**, Stats., and s. **NR 2.03**.

History: Cr. Register, February, 1989, No. 398, eff. 3-1-89; cr. c1d ccd, Register, July, 1989, No. 403, eff. 8-1-89; cr. c1d cdd, Register, May, 1993, No. 449, eff. 6-1-93; CR 05-105: renum. c1d cdd 1. to be 1t., cr. 1g., 1r., 15m., 25m., 26c., 26n., 26r., 26w., 31m., 35m., and 38m., am. 29., Register November 2006 No. 611, eff. 12-1-06; CR 09-123: am. c1d cbd 1., 5., 12., 15., 16., 23., 27., 33., 34., 37., cdd 5., 8., 15., 17., 28., 34., 39. and 42., cr. c1d cdd 26b. Register July 2010 No. 655, eff. 8-1-10.

NR 102.12 Great Lakes system. c1d The Great Lakes system includes all the surface waters within the drainage basin of the Great Lakes.

c2d For the purpose of administering ch. NR 207 and consistent with chs. NR 105 and 106, the waters identified in sub. c1d are to be protected from the impacts of persistent, bioaccumulating toxic substances by avoiding or limiting to the maximum extent practicable increases in these substances.

c3d The waters of the Lake Superior basin shall be managed to prevent any new or increased discharges of the following pollutants: DDT, DDE and metabolites, chlordane, toxaphene, hexachlorobenzene, 2,3,7,8 TCDD, octachlorostyrene, mercury and PCB[s]. For purposes of administering ch. NR 207, new or increased discharges of these pollutants shall be prohibited unless the applicant certifies at time of application, that the new or increased discharge is necessary after utilization of best technology in process or control using waste minimization, pollution prevention, municipal pretreatment programs, material substitution or other means of commercially available technologies which have demonstrated capability for similar applications.

History: Cr. Register, February, 1989, No. 398, eff. 3-1-89; r. and recr. c1d, am. c2d, Register, August, 1997, No. 500, eff. 9-1-97; CR 05-089: cr. c3d Register July 2006 No. 607, eff. 8-1-06.

NR 102.13 Fish and aquatic life waters. All surface waters not included in s. NR 102.05 c1d cbd 1., 2., 3. or 5. are fish and aquatic life waters.

History: Cr. Register, February, 1989, No. 398, eff. 3-1-89.

NR 102.14 Taste and odor criteria. c1d At certain concentrations, substances may not be toxic to humans, but may impart undesirable taste or odor to water or aquatic organisms ingested by humans. The taste and odor criterion is derived to prevent substances from concentrating in surface waters or accumulating in aquatic organisms to a level which results in undesirable tastes or odors to human consumers.

c2d The taste and odor criterion is derived as follows:

cad For substances which impart tastes and odors to waters, the taste and odor criterion shall equal that threshold concentration $cTC_{w,d}$ below which objectionable tastes or odors to human consumers do not occur. Threshold concentrations for substances imparting tastes and odors to water are listed in Table 1.

Table 1
Threshold Concentrations $cTC_{w,d}$ for Substances
Causing Taste and Odor in Water

| Substance | Threshold Concentration $cug\{Ld1$ |
|--------------------------------|------------------------------------|
| Acenaphthene..... | 20 |
| Chlorobenzene..... | 20 |
| 2-Chlorophenol..... | 0.1 |
| 3-Chlorophenol..... | 0.1 |
| 4-Chlorophenol..... | 0.1 |
| Copper..... | 1000 |
| 2,3-Dichlorophenol..... | 0.04 |
| 2,4-Dichlorophenol..... | 0.3 |
| 2,5-Dichlorophenol..... | 0.5 |
| 2,6-Dichlorophenol..... | 0.2 |
| 3,4-Dichlorophenol..... | 0.3 |
| 2,4-Dimethylphenol..... | 400 |
| Hexachlorocyclopentadiene..... | 1 |
| 2-Methyl-4-Chlorophenol..... | 1800 |
| 3-Methyl-4-Chlorophenol..... | 3000 |
| 3-Methyl-6-Chlorophenol..... | 20 |
| Nitrobenzene..... | 30 |
| Pentachlorophenol..... | 30 |
| Phenol..... | 300 |
| 2,3,4,6-Tetrachlorophenol..... | 1 |
| 2,4,5-Trichlorophenol..... | 1 |
| 2,4,6-Trichlorophenol..... | 2 |
| Zinc..... | 5000 |

¹ A threshold concentration expressed in micrograms per liter $cug\{Ld$ can be converted to milligrams per liter $cmg\{Ld$ by dividing the threshold concentration by 1000.

cbd For substances which impart tastes or odors to aquatic organisms, the taste and odor criterion shall be calculated as follows:

$$\text{TOC} = \frac{\text{TC}^1}{\text{BAF}}$$

Where:

| | | |
|-----|---|---|
| TOC | = | Taste and odor criterion in milligrams per liter cmg{Ld. |
| TC | = | Threshold concentration in milligrams of substance per kilogram of wet tissue weight cmg{kgd of the aquatic organism being consumed below which undesirable taste and odor is not detectable to human consumers as derived in par. cdd. |
| BAF | = | Aquatic life bioaccumulation factor with units of liter per kilogram cL{kgd as derived in s. NR 105.10. |

ccd The lower of the taste and odor criteria derived as specified in pars. cad and cbd is applicable to surface waters classified as public water supplies. The taste and odor criteria derived as specified in par. cbd are applicable to cold water and warm water sport fish communities.

cdd Threshold concentrations for substances imparting tastes or odors to water cTC_wd other than those listed in Table 1 and threshold concentrations for substances imparting tastes or odors to aquatic organisms cTC_dd shall be selected by the department using its best professional judgment.

History: Cr. Register, February, 1989, No. 398, eff. 3-1-89; am. c2d cbd and ccd, Register, August, 1997, No. 500, eff. 9-1-97.

Subchapter II — Water Quality Standards for Temperature

NR 102.20 Purpose. The purpose of this subchapter is to establish water quality standards for temperature pursuant to s. 281.15 c1d, Stats. Water quality standards for temperature shall protect fish and other aquatic life from mortality, immobilization, loss of equilibrium, impaired growth, adverse reproductive effects, and other sub-lethal effects.

History: CR 07-111: cr. Register September 2010 No. 657, eff. 10-1-10.

NR 102.22 Definitions. In this subchapter, the following definitions are applicable to terms used:

c1d XAcute effectsY means any effect resulting in death or immobilization. For temperature, the acute criteria of this subchapter are based on Upper Incipient Lethal Temperature cUILTd values that are not representative of immediate lethality.

c2d XcfsY means cubic feet per second, usually pertaining to stream or effluent flow.

c3d XCold shockY means exposure of aquatic organisms to a rapid decrease in temperature and a sustained exposure to low temperature that induces abnormal behavioral or physiological performance and may lead to death.

c4d XDaily maximum temperatureY means the highest allowed water temperature for a calendar day, outside a mixing zone allowed in this subchapter.

c5d XGreat LakesY means the open Wisconsin waters of Lake Superior, Lake Michigan, Green Bay and Chequamegon Bay, as well as adjoining open waters that exhibit characteristics of Lake Superior, Lake Michigan, Green Bay or Chequamegon Bay, or in other ways are determined by the department to be equivalent to these waters.

c6d XMaximum weekly average temperatureY means the highest allowed arithmetic mean of all daily maximum temperatures during a calendar week, outside mixing zone allowed in this subchapter.

c7d XmgdY means million gallons per day.

c8d XSub-lethal effectsY means effects resulting in inadequate gonad development, gamete production and viability, spawning or growth.

History: CR 07-111: cr. Register September 2010 No. 657, eff. 10-1-10.

NR 102.23 Categories of standards applicable to temperature. The department shall establish water quality standards for temperature to protect the following:

c1d Public health and welfare uses, as established in s. NR 102.04 c7d and c8d.

c2d Fish and other aquatic life uses as established in s. NR 102.04 c3d. For exclusive purpose of the application of water quality standards for temperature, the warm water sport fish and warm water forage fish communities, as defined in s. NR 102.04 c3d cbd and ccd, are treated together as warm water communities.

c3d Great Lakes communities as defined in s. NR 102.22 c6d. This use exists only for the regulation of discharges of heat.

History: CR 07-111: cr. Register September 2010 No. 657, eff. 10-1-10.

NR 102.24 General water quality criteria for temperature. **c1d** There may be no temperature changes that may adversely affect aquatic life.

c2d Natural daily and seasonal temperature fluctuations shall be maintained.

History: CR 07-111: cr. Register September 2010 No. 657, eff. 10-1-10.

NR 102.245 Temperature criteria for limited aquatic life communities. **c1d** For the purposes of temperature criteria, all surface waters classified as diffused surface waters, wetlands and wastewater effluent channels, as defined in s. NR 104.02 c1d, shall be characterized as limited aquatic life communities.

c2d The department may, as appropriate, characterize other surface waters not identified in sub. c1d as limited aquatic life communities.

c3d The temperature in waters classified as limited aquatic life shall be restricted as follows:

cad Temperatures at any point in waters classified as wastewater effluent channels may not exceed 120°F.

cbd Temperatures at any point in waters classified as wetlands shall not exceed the standards in ch. NR 103.

ccd Temperatures at any point in waters not identified in par. cad or cbd may not exceed 86°F. Additionally, all conditions of ch. NR 103 shall be met.

Note: The department recognizes there are legitimate concerns that not all wetlands and ephemeral streams are the biological equivalents of other limited aquatic life waters, and is in the process of re-evaluating the wetland and ephemeral stream classifications to determine if and when full fish and aquatic life conditions should be applied.

History: CR 07-111: cr. Register September 2010 No. 657, eff. 10-1-10.

NR 102.25 Ambient temperatures and water quality criteria for the protection of fish and other aquatic life.

c1d GENERAL. In the absence of site-specific ambient temperature data or water quality criteria as determined in s. NR 102.26 or 102.27, respectively, the applicable ambient temperatures, sub-lethal water quality criteria, and acute water quality criteria shall be as specified in subs. c2d to c5d. For determinations made in subs. c2d to c5d, all of the following conditions shall apply:

cad The ambient temperature, sub-lethal water quality criterion, and acute water quality criterion specified for any calendar

month shall be applied simultaneously to establish the protection needed for each identified fish and other aquatic life use.

cbd Sub-lethal water quality criteria are to be applied as maximum weekly average temperatures.

ccd Acute water quality criteria are to be applied as daily maximum temperatures.

cdd Water quality criteria for temperature shall be applied in accordance with the mixing zone provisions of s. NR 102.05 c3d.

ced Final acute and sub-lethal water quality criteria for tem-

perature specified in or developed pursuant to ss. NR 102.24 to 102.26 shall not be exceeded at any point outside the mixing zone. Additionally, site-specific mixing zone studies may be required when deemed appropriate by the department.

c2d NON-SPECIFIC WATERS. The values listed in Table 2 shall be the applicable ambient temperatures, sub-lethal and acute water quality criteria for temperature for the protection of fish and aquatic life unless other values specified in subs. c3d to c5d are applicable or approved by the department pursuant to s. NR 102.26 or 102.27.

Table 2
Ambient Temperatures and Water Quality Criteria for Temperature for Non-Specific Waters

cAll values are expressed as degrees Fahrenheitd

| Month | Cold ⁴ | | | Warm — Large ⁵ | | | Warm — Small ⁶ | | | LFF ⁷ | | |
|-------|-------------------|-----------------|----------------|---------------------------|----|----|---------------------------|----|----|------------------|----|----|
| | Ta ¹ | SL ² | A ³ | Ta | SL | A | Ta | SL | A | Ta | SL | A |
| JAN | 35 | 47 | 68 | 33 | 49 | 76 | 33 | 49 | 76 | 37 | 54 | 78 |
| FEB | 36 | 47 | 68 | 33 | 50 | 76 | 34 | 50 | 76 | 39 | 54 | 79 |
| MAR | 39 | 51 | 69 | 36 | 52 | 76 | 38 | 52 | 77 | 43 | 57 | 80 |
| APR | 47 | 57 | 70 | 46 | 55 | 79 | 48 | 55 | 79 | 50 | 63 | 81 |
| MAY | 56 | 63 | 72 | 60 | 65 | 82 | 58 | 65 | 82 | 59 | 70 | 84 |
| JUN | 62 | 67 | 72 | 71 | 75 | 85 | 66 | 76 | 84 | 64 | 77 | 85 |
| JUL | 64 | 67 | 73 | 75 | 80 | 86 | 69 | 81 | 85 | 69 | 81 | 86 |
| AUG | 63 | 65 | 73 | 74 | 79 | 86 | 67 | 81 | 84 | 68 | 79 | 86 |
| SEP | 57 | 60 | 72 | 65 | 72 | 84 | 60 | 73 | 82 | 63 | 73 | 85 |
| OCT | 49 | 53 | 70 | 52 | 61 | 80 | 50 | 61 | 80 | 55 | 63 | 83 |
| NOV | 41 | 48 | 69 | 39 | 50 | 77 | 40 | 49 | 77 | 46 | 54 | 80 |
| DEC | 37 | 47 | 69 | 33 | 49 | 76 | 35 | 49 | 76 | 40 | 54 | 79 |

- 1 Ta = ambient temperature
- 2 SL = sub-lethal criteria
- 3 A = acute criteria
- 4 Cold = waters with a fish and aquatic life use designation of Xcold water communityY
- 5 Warm - Large = waters with a fish and aquatic life use designation of Xwarm water sport fish communityY or Xwarm water forage fish communityY and unidirectional 7Q10 flows > 200 cfs c129 mgdd
- 6 Warm - Small = waters with a fish and aquatic life use designation of Xwarm sport fish communityY or Xwarm water forage fish communityY and unidirectional 7Q10 flows < 200 cfs c129 mgdd
- 7 LFF = waters with a fish and aquatic life use designation of Xlimited forage fish communityY

c3d SPECIFIC LARGE RIVERS. The values listed in Table 3 shall be the applicable ambient temperatures, sub-lethal and acute water quality criteria for temperature for the protection of fish and aquatic life for the identified water segments unless other values are approved by the department pursuant to s. NR 102.26 or 102.27.

Table 3
Ambient Temperatures and Water Quality Criteria for Temperature for Specific Large Rivers

cAll values are expressed as degrees Fahrenheitd

| Month | Mississippi River ⁴ | | | Rock River ⁵ | | | Upper Wisconsin River ⁶ | | | Lower Wisconsin River ⁷ | | | Lower Fox River ⁸ | | |
|-------|--------------------------------|-----------------|----------------|-------------------------|----|----|------------------------------------|----|----|------------------------------------|----|----|------------------------------|----|----|
| | Ta ¹ | SL ² | A ³ | Ta | SL | A | Ta | SL | A | Ta | SL | A | Ta | SL | A |
| JAN | 32 | 49 | 75 | 33 | 49 | 76 | 33 | 49 | 76 | 32 | 49 | 75 | 35 | 49 | 76 |
| FEB | 33 | 50 | 76 | 35 | 50 | 76 | 33 | 50 | 76 | 32 | 50 | 75 | 35 | 50 | 76 |
| MAR | 36 | 52 | 76 | 38 | 52 | 77 | 35 | 52 | 76 | 37 | 52 | 77 | 38 | 52 | 77 |
| APR | 47 | 55 | 79 | 49 | 55 | 79 | 44 | 55 | 78 | 48 | 55 | 79 | 50 | 55 | 80 |
| MAY | 60 | 65 | 82 | 64 | 65 | 84 | 60 | 65 | 82 | 61 | 65 | 83 | 62 | 65 | 83 |
| JUN | 72 | 75 | 85 | 71 | 75 | 85 | 70 | 75 | 85 | 71 | 75 | 85 | 73 | 76 | 85 |
| JUL | 76 | 80 | 86 | 74 | 79 | 86 | 75 | 80 | 86 | 75 | 80 | 86 | 77 | 81 | 87 |
| AUG | 76 | 79 | 86 | 73 | 79 | 85 | 73 | 79 | 85 | 74 | 79 | 86 | 76 | 80 | 86 |
| SEP | 67 | 73 | 84 | 66 | 72 | 84 | 65 | 72 | 84 | 67 | 72 | 84 | 68 | 73 | 85 |
| OCT | 54 | 61 | 81 | 54 | 61 | 81 | 51 | 61 | 80 | 53 | 61 | 80 | 53 | 61 | 80 |
| NOV | 40 | 50 | 77 | 40 | 50 | 77 | 39 | 50 | 77 | 40 | 50 | 77 | 42 | 50 | 78 |
| DEC | 33 | 49 | 76 | 34 | 49 | 76 | 33 | 49 | 76 | 33 | 49 | 76 | 35 | 49 | 76 |

- 1 Ta = ambient temperature
- 2 SL = sub-lethal criteria
- 3 A = acute criteria
- 4 Mississippi River = applies to any portion of Wisconsin[s Mississippi River reach
- 5 Rock River = applies to waters downstream of Lake Koshkonong

- 6 Upper Wisconsin River = applies to waters upstream of Petenwell Dam
- 7 Lower Wisconsin River = applies to waters downstream of Petenwell Dam to the confluence with the Mississippi River
- 8 Lower Fox River = applies to waters downstream of the Lake Winnebago outlet

c4d INLAND LAKES AND IMPOUNDMENTS. The values listed in Table 4 shall be the applicable ambient temperatures, sub-lethal and acute water quality criteria for temperature for the protection of fish and aquatic life for inland lakes and impoundments unless other values are approved by the department pursuant to s. NR 102.26 or 102.27.

Table 4
Ambient Temperatures and Water Quality Criteria for Temperature for Inland Lakes and Impoundments
 cAll values are expressed as degrees Fahrenheitd

| Month | Northern ⁴ | | | Southern ⁵ | | |
|-------|-----------------------|-----------------|----------------|-----------------------|----|----|
| | Ta ¹ | SL ² | A ³ | Ta | SL | A |
| JAN | 35 | 49 | 76 | 35 | 49 | 77 |
| FEB | 34 | 52 | 76 | 39 | 52 | 78 |
| MAR | 35 | 55 | 76 | 41 | 55 | 78 |
| APR | 41 | 60 | 78 | 49 | 60 | 80 |
| MAY | 55 | 67 | 81 | 58 | 68 | 82 |
| JUN | 67 | 75 | 85 | 70 | 75 | 86 |
| JUL | 72 | 79 | 86 | 77 | 80 | 87 |
| AUG | 71 | 79 | 86 | 76 | 80 | 87 |
| SEP | 63 | 72 | 84 | 67 | 73 | 85 |
| OCT | 52 | 61 | 80 | 54 | 61 | 81 |
| NOV | 43 | 50 | 78 | 42 | 50 | 78 |
| DEC | 35 | 49 | 76 | 35 | 49 | 77 |

- 1 Ta = ambient temperature
- 2 SL = sub-lethal criteria
- 3 A = acute criteria
- 4 Northern = applicable for those lakes and impoundments north of State Highway 10
- 5 Southern = applicable for those lakes and impoundments south of State Highway 10

c5d GREAT LAKES WATERS. The values listed in Table 5 shall be the applicable ambient temperatures, sub-lethal and acute water quality criteria for the protection of fish and aquatic life for Great Lakes waters identified in s. NR 102.22 c5d unless other values are approved by the department pursuant to s. NR 102.26 or 102.27.

Table 5
Ambient Temperatures and Water Quality Criteria for Temperature for Great Lakes Waters of Wisconsin
 cAll values are expressed as degrees Fahrenheitd

| Month | Green Bay | | | Lake Michigan | | | | | | Lake Superior ⁸ | | | Chequamegon Bay ⁹ | | | | | |
|-------|-----------------------|-----------------|----------------|-----------------------|----|----|-----------------------|----|----|----------------------------|----|----|------------------------------|----|----|----|----|----|
| | Southern ⁴ | | | Northern ⁵ | | | Northern ⁶ | | | Southern ⁷ | | | Ta | SL | A | Ta | SL | A |
| | Ta ¹ | SL ² | A ³ | Ta | SL | A | Ta | SL | A | Ta | SL | A | Ta | SL | A | Ta | SL | A |
| JAN | 35 | 49 | 75 | 35 | 43 | 69 | 34 | 43 | 69 | 35 | 43 | 69 | 35 | 41 | 69 | 35 | 41 | 69 |
| FEB | 35 | 52 | 75 | 35 | 47 | 69 | 33 | 47 | 69 | 34 | 46 | 69 | 34 | 46 | 69 | 35 | 46 | 69 |
| MAR | 41 | 54 | 77 | 36 | 52 | 70 | 35 | 52 | 69 | 37 | 52 | 70 | 34 | 51 | 69 | 35 | 51 | 69 |
| APR | 47 | 58 | 79 | 40 | 57 | 71 | 39 | 58 | 70 | 43 | 59 | 70 | 35 | 57 | 69 | 38 | 57 | 69 |
| MAY | 56 | 64 | 81 | 48 | 63 | 72 | 44 | 64 | 71 | 48 | 65 | 72 | 41 | 63 | 70 | 50 | 63 | 72 |
| JUN | 66 | 70 | 83 | 57 | 68 | 75 | 48 | 69 | 72 | 54 | 70 | 73 | 49 | 69 | 72 | 59 | 69 | 74 |
| JUL | 70 | 75 | 83 | 62 | 71 | 77 | 53 | 71 | 73 | 59 | 71 | 74 | 55 | 72 | 73 | 62 | 72 | 75 |
| AUG | 70 | 75 | 83 | 64 | 71 | 78 | 56 | 69 | 73 | 63 | 70 | 76 | 57 | 71 | 73 | 64 | 71 | 76 |
| SEP | 65 | 70 | 83 | 61 | 66 | 77 | 53 | 64 | 73 | 60 | 64 | 74 | 57 | 64 | 73 | 60 | 66 | 74 |
| OCT | 54 | 60 | 80 | 54 | 58 | 74 | 48 | 55 | 72 | 53 | 57 | 73 | 50 | 55 | 72 | 49 | 57 | 72 |
| NOV | 39 | 49 | 76 | 44 | 49 | 71 | 42 | 47 | 70 | 45 | 49 | 71 | 43 | 45 | 70 | 39 | 48 | 70 |
| DEC | 37 | 46 | 75 | 37 | 44 | 70 | 36 | 44 | 69 | 38 | 44 | 70 | 38 | 42 | 69 | 35 | 43 | 69 |

- 1 Ta = ambient temperature
 - 2 SL = sub-lethal criteria
 - 3 A = acute criteria
 - 4 Southern Green Bay = waters south of the Brown County line to the Fox River mouth
 - 5 Northern Green Bay = waters north of the Brown County line to the northernmost point on Washington Island
 - 6 Northern Lake Michigan = waters north of the Milwaukee River mouth cdowntown Milwaukeee
 - 7 Southern Lake Michigan = waters south of the Milwaukee River mouth cdowntown Milwaukeee
 - 8 Lake Superior = waters in Lake Superior except those in Chequamegon Bay
 - 9 Chequamegon Bay = waters within the region enclosed by Chequamegon Point and a straight line west to the mainland
- History:** CR 07-111: cr. Register September 2010 No. 657, eff. 10-1-10.

NR 102.26 Site-specific ambient temperatures.

c1d DEVELOPMENT OF SITE-SPECIFIC AMBIENT TEMPERATURES.

An owner or operator of a facility with a discharge subject to regulation under this chapter may submit a request to the department for the determination of a site-specific ambient temperature. The department may approve, disapprove or approve with modifications the request for the site-specific ambient temperature. The request for site-specific ambient temperatures shall include all of the following:

cad A demonstration that the data used to derive the ambient temperatures in s. NR 102.25 do not apply to the specific water segment or body in question.

cbd Site-specific water temperature that represents the ambient temperature of the site. For purposes of this paragraph, data must be:

1. Collected daily using a continuous recorder or similar device that takes measurements at least hourly, except as follows:
 - a. Monthly data sets may be missing no more than 10 days of temperature data for the months of December through February,
 - b. Monthly data sets may be missing no more than 5 days of temperature data for the months of March through November.
2. Collected for each month in which the request for site-specific ambient temperatures is requested,
3. Collected at any time since October 1987,
4. Collected for at least 2 consecutive years.

ccd Calculated daily average temperatures from the data from par. cbd.

cdd Calculated monthly average temperatures from the daily average temperatures in par. ccd for each individual month that data has been collected. Alternatively, calculated monthly average temperatures directly from the data from par. cbd for each individual month.

ced All individual monthly averages organized by month.

cfid A determination of the monthly site-specific ambient

temperatures by calculating the geometric mean of all monthly averages for each given month.

cgd Alternative methods for developing site-specific ambient temperatures, if the department approves the method as representative of ambient temperatures as those in pars. cad to cdd.

c2d USE OF SITE-SPECIFIC AMBIENT TEMPERATURES TO ESTABLISH ACUTE CRITERIA. Once site-specific ambient temperatures have been approved by the department in accordance with sub. c1d, the acute water quality criteria listed in Table 6 will be applicable for the protection of fish and other aquatic life.

c3d USE OF SITE-SPECIFIC AMBIENT TEMPERATURES TO ESTABLISH SUB-LETHAL CRITERIA. Once site-specific ambient temperatures have been approved by the department in accordance with sub. c1d, the sub-lethal water quality criteria applicable for the protection of fish and other aquatic life shall be calculated as follows:

cad Use Table 7 to determine the appropriate sub-lethal criteria for the fish and other aquatic life use.

cbd Modify the sub-lethal criteria as follows:

1. If a sub-lethal criterion from par. cad is less than the site-specific ambient temperature from sub. c1d for a given month, increase the sub-lethal criterion to be equal with the site-specific ambient temperature.
2. If a sub-lethal criterion from par. cad is greater than an acute criterion for a given month from sub. c2d decrease the sub-lethal criterion to be equal with the acute criterion.

ccd Perform a fifth order polynomial regression of the 12 monthly sub-lethal criteria resulting from par. cbd. Using the resulting equation of the regression, calculate the final sub-lethal criteria for each month by replacing the XxY variables in the equation with a numeric representation for each month, where January XxY = 1, for February XxY = 2, and for December XxY = 12.

cdd The final sub-lethal criteria from par. ccd shall be used in combination with the site-specific ambient temperatures developed in sub. c1d and the acute criteria determined in sub. c2d.

Table 6
Acute Criteria Across All Ambient Temperatures

cAll values are expressed as degrees Fahrenheit

| Inland Waters | | | | | | Great Lakes Waters | | | | | |
|---------------|-----------|-----------|----------|-------------|-------------|--------------------|----------|------------|-------------|-------------|----------|
| 1 Ta | 2 Cold | 3 Warm | 4 LFF | 5 N Lake | 6 S Lake | 7 SGB | 8 NGB | 9 NLKMI | 10 SLKMI | 11 LKSUP | 12 CB |
| 32 | 68 | 75 | 77 | 75 | 76 | 74 | 69 | 69 | 69 | 68 | 68 |
| 33 | 68 | 76 | 77 | 76 | 76 | 74 | 69 | 69 | 69 | 69 | 69 |
| 34 | 68 | 76 | 77 | 76 | 76 | 75 | 69 | 69 | 69 | 69 | 69 |
| 35 | 68 | 76 | 77 | 76 | 77 | 75 | 69 | 69 | 69 | 69 | 69 |
| 36 | 68 | 76 | 78 | 76 | 77 | 75 | 70 | 69 | 69 | 69 | 69 |
| 37 | 69 | 77 | 78 | 77 | 77 | 75 | 70 | 70 | 70 | 69 | 69 |
| 38 | 69 | 77 | 78 | 77 | 77 | 76 | 70 | 70 | 70 | 69 | 69 |
| 39 | 69 | 77 | 79 | 77 | 78 | 76 | 71 | 70 | 70 | 70 | 70 |
| 40 | 69 | 77 | 79 | 77 | 78 | 76 | 71 | 70 | 70 | 70 | 70 |
| 41 | 69 | 78 | 79 | 78 | 78 | 77 | 71 | 70 | 70 | 70 | 70 |
| 42 | 69 | 78 | 79 | 78 | 78 | 77 | 71 | 70 | 70 | 70 | 70 |
| 43 | 69 | 78 | 80 | 78 | 78 | 77 | 71 | 70 | 70 | 70 | 70 |
| 44 | 70 | 78 | 80 | 78 | 79 | 78 | 71 | 71 | 71 | 71 | 71 |
| 45 | 70 | 79 | 80 | 79 | 79 | 78 | 71 | 71 | 71 | 71 | 71 |
| 46 | 70 | 79 | 80 | 79 | 79 | 78 | 72 | 72 | 72 | 71 | 71 |
| 47 | 70 | 79 | 81 | 79 | 80 | 79 | 72 | 72 | 72 | 71 | 71 |
| 48 | 70 | 79 | 81 | 79 | 80 | 79 | 72 | 72 | 72 | 72 | 72 |
| 49 | 70 | 79 | 81 | 80 | 80 | 79 | 73 | 72 | 72 | 72 | 72 |
| 50 | 70 | 80 | 81 | 80 | 80 | 79 | 73 | 73 | 73 | 72 | 72 |
| 51 | 71 | 80 | 82 | 80 | 81 | 80 | 73 | 73 | 73 | 72 | 72 |

| Inland Waters | | | | | | Great Lakes Waters | | | | | |
|---------------|-----------|-----------|----------|-------------|-------------|--------------------|----------|------------|-------------|-------------|----------|
| 1 Ta | 2 Cold | 3 Warm | 4 LFF | 5 N Lake | 6 S Lake | 7 SGB | 8 NGB | 9 NLKMI | 10 SLKMI | 11 LKSUP | 12 CB |
| 52 | 71 | 80 | 82 | 80 | 81 | 80 | 73 | 73 | 73 | 72 | 72 |
| 53 | 71 | 80 | 82 | 81 | 81 | 80 | 74 | 73 | 73 | 72 | 72 |
| 54 | 71 | 81 | 82 | 81 | 81 | 80 | 74 | 73 | 73 | 73 | 73 |
| 55 | 71 | 81 | 83 | 81 | 82 | 81 | 74 | 73 | 73 | 73 | 73 |
| 56 | 72 | 81 | 83 | 81 | 82 | 81 | 75 | 73 | 73 | 73 | 73 |
| 57 | 72 | 82 | 83 | 82 | 82 | 81 | 75 | 73 | 73 | 73 | 73 |
| 58 | 72 | 82 | 83 | 82 | 82 | 81 | 75 | 74 | 74 | 73 | 73 |
| 59 | 72 | 82 | 84 | 83 | 83 | 81 | 76 | 74 | 74 | 74 | 74 |
| 60 | 72 | 82 | 84 | 83 | 83 | 82 | 76 | 74 | 74 | 74 | 74 |
| 61 | 72 | 83 | 84 | 83 | 83 | 82 | 77 | 75 | 75 | 74 | 74 |
| 62 | 72 | 83 | 84 | 83 | 84 | 82 | 77 | 75 | 75 | 75 | 75 |
| 63 | 73 | 83 | 85 | 84 | 84 | 82 | 78 | 76 | 76 | 75 | 75 |
| 64 | 73 | 84 | 85 | 84 | 85 | 82 | 78 | 77 | 77 | 76 | 76 |
| 65 | 73 | 84 | 85 | 84 | 85 | 83 | 78 | 77 | 77 | 76 | 76 |
| 66 | 73 | 84 | 85 | 85 | 85 | 83 | 79 | 78 | 78 | 77 | 77 |
| 67 | 74 | 84 | 86 | 85 | 85 | 83 | 79 | 78 | 78 | 77 | 77 |
| 68 | 74 | 85 | 86 | 85 | 85 | 83 | 80 | 79 | 79 | 78 | 78 |
| 69 | 74 | 85 | 86 | 85 | 86 | 83 | 80 | 79 | 79 | 78 | 78 |
| 70 | 74 | 85 | 86 | 86 | 86 | 83 | 81 | 80 | 80 | 79 | 79 |
| 71 | 74 | 85 | 87 | 86 | 86 | 84 | 81 | 81 | 81 | 79 | 79 |
| 72 | 75 | 85 | 87 | 86 | 86 | 84 | 82 | 81 | 81 | 80 | 80 |
| 73 | 75 | 85 | 87 | 86 | 86 | 84 | 82 | 82 | 82 | 80 | 80 |
| 74 | 75 | 86 | 87 | 86 | 87 | 84 | 82 | 82 | 82 | 81 | 81 |
| 75 | 75 | 86 | 88 | 87 | 87 | 85 | 83 | 83 | 83 | 81 | 81 |
| 76 | | 86 | 88 | 87 | 87 | 85 | 83 | 83 | 83 | 82 | 82 |
| 77 | | 87 | 88 | 87 | 87 | 85 | 84 | 84 | 84 | 83 | 83 |
| 78 | | 87 | 88 | 87 | 88 | 86 | 84 | 84 | 84 | 83 | 83 |
| 79 | | 87 | 89 | 88 | 88 | 86 | 84 | 84 | 84 | 83 | 83 |
| 80 | | 87 | 89 | 88 | 88 | 86 | 84 | 84 | 84 | 83 | 83 |
| 81 | | 88 | 89 | 88 | 88 | 86 | 84 | 84 | 84 | 83 | 83 |
| 82 | | 88 | 89 | 88 | 89 | 87 | 84 | 84 | 84 | 84 | 84 |
| 83 | | 88 | 90 | 89 | 89 | 87 | 84 | 84 | 84 | 84 | 84 |
| 84 | | 88 | 90 | 89 | 89 | 88 | 85 | 85 | 85 | 84 | 84 |
| 85 | | 89 | 90 | 89 | 89 | 88 | 85 | 85 | 85 | | |
| 86 | | 89 | 90 | 89 | 90 | 89 | | | | | |
| 87 | | 89 | 91 | 90 | 90 | 89 | | | | | |
| 88 | | 90 | 91 | 90 | 90 | 89 | | | | | |
| 89 | | 90 | 91 | 90 | 91 | 89 | | | | | |
| 90 | | 91 | 91 | 91 | 91 | | | | | | |
| 91 | | 91 | 92 | 91 | 92 | | | | | | |
| 92 | | | 92 | | 92 | | | | | | |

- 1 Ta = ambient temperature
- 2 Cold = waters with a fish and other aquatic life use designation of Xcold water communityY
- 3 Warm = waters with a fish and other aquatic life use designation of Xwarm water sport fish communityY or Xwarm water forage fish communityY
- 4 LFF = waters with a designation of Xlimited forage fish communityY
- 5 N Lake = applicable for those lakes north of State Highway 10
- 6 S Lake = applicable for those lakes south of State Highway 10
- 7 SGB = Green Bay waters south of the Brown County line to the Fox River mouth
- 8 NGB = Green Bay waters north of the Brown County line to the northernmost point on Washington Island
- 9 NLKMI = Lake Michigan waters north of the Milwaukee River mouth cdowntown Milwaukeeed
- 10 SLKMI = Lake Michigan waters south of the Milwaukee River mouth cdowntown Milwaukeeed
- 11 LKSUP = waters in Lake Superior except those in Chequamegon Bay
- 12 CB = Chequamegon Bay waters within the region enclosed by Chequamegon Point and a straight line west to the mainland

Table 7
Raw Monthly Sub-Lethal Criteria for Use In Determining Final Sub-Lethal Criteria
with Site-Specific Ambient Temperatures

cAll values are expressed as degrees Fahrenheitd

| Month | C | W-L | W-S | LFF | NIL | SIL | MR | RR | UWR |
|-----------|----|-----|-----|-----|-----|-----|----|----|-----|
| January | 47 | 50 | 50 | 54 | 50 | 50 | 50 | 50 | 50 |
| February | 45 | 50 | 50 | 54 | 50 | 50 | 50 | 50 | 50 |
| March | 53 | 54 | 54 | 54 | 54 | 54 | 54 | 54 | 54 |
| April | 59 | 65 | 65 | 64 | 63 | 64 | 65 | 65 | 65 |
| May | 59 | 70 | 70 | 75 | 70 | 70 | 70 | 70 | 70 |
| June | 67 | 72 | 72 | 75 | 72 | 72 | 72 | 72 | 72 |
| July | 68 | 74 | 74 | 75 | 75 | 74 | 74 | 74 | 74 |
| August | 68 | 78 | 78 | 77 | 77 | 77 | 78 | 78 | 78 |
| September | 52 | 87 | 87 | 92 | 87 | 87 | 87 | 87 | 87 |
| October | 52 | 54 | 54 | 54 | 54 | 54 | 54 | 54 | 54 |
| November | 50 | 50 | 50 | 54 | 50 | 50 | 50 | 50 | 50 |
| December | 46 | 50 | 50 | 54 | 50 | 50 | 50 | 50 | 50 |

| Month | LWR | LFR | SGB | NGB | SLM | NLM | LS | CB |
|-----------|-----|-----|-----|-----|-----|-----|----|----|
| January | 50 | 50 | 50 | 44 | 44 | 44 | 42 | 42 |
| February | 50 | 50 | 50 | 43 | 43 | 43 | 43 | 43 |
| March | 54 | 54 | 54 | 54 | 52 | 54 | 52 | 52 |
| April | 65 | 65 | 60 | 59 | 61 | 60 | 58 | 58 |
| May | 70 | 70 | 66 | 64 | 67 | 65 | 65 | 65 |
| June | 72 | 72 | 70 | 67 | 68 | 67 | 67 | 67 |
| July | 74 | 74 | 70 | 68 | 68 | 68 | 69 | 69 |
| August | 78 | 78 | 71 | 67 | 67 | 67 | 69 | 69 |
| September | 87 | 87 | 83 | 79 | 79 | 79 | 79 | 79 |
| October | 54 | 54 | 50 | 50 | 50 | 50 | 45 | 54 |
| November | 50 | 50 | 47 | 47 | 47 | 47 | 44 | 46 |
| December | 50 | 50 | 47 | 45 | 45 | 45 | 43 | 44 |

- C = Cold = waters with a fish and other aquatic life use designation of Xcold water communityY
- W-L = Warm -Large = waters with a fish and other aquatic life use designation of Xwarm water sport fish communityY or Xwarm water forage fish communityY and unidirectional 7Q10 flows > 200 cfs c129 mgdd
- W-S = Warm - Small = waters with a fish and other aquatic life use designation of Xwarm water sport fish communityY or Xwarm water forage fish communityY and unidirectional 7Q10 flows < 200 cfs c129 mgdd
- LFF = waters with a designation of Xlimited forage fish communityY
- NIL = Northern Inland Lakes = applicable for those lakes north of State Highway 10
- SIL = Southern Inland Lakes = applicable for those lakes south of State Highway 10
- MR = Mississippi River = applies to any portion of Wisconsin's Mississippi River reach
- RR = Rock River = applies to waters downstream of Lake Koshkonong
- UWR = Upper Wisconsin River = applies to waters upstream of Petenwell Dam
- LWR = Lower Wisconsin River = applies to waters downstream of Petenwell Dam to the confluence with the Mississippi River
- LFR = Lower Fox River = applies to waters downstream of the Lake Winnebago outlet
- SGB = Green Bay waters south of the Brown County line to the Fox River mouth
- NGB = Green Bay waters north of the Brown County line to the northernmost point on Washington Island
- SLM = Lake Michigan waters south of the Milwaukee River mouth cdowntown Milwaukeeed
- NLM = Lake Michigan waters north of the Milwaukee River mouth cdowntown Milwaukeeed
- LS = Lake Superior = waters in Lake Superior except those in Chequamegon Bay
- CB = Chequamegon Bay = waters within the region enclosed by Chequamegon Point and a straight line west to the mainland

History: CR 07-111: cr. Register September 2010 No. 657, eff. 10-1-10; renumbering of c1d cbd 1. a. and b. made under s. 13.92 c4d cbd 1., Stats., Register September 2010 No. 657.

NR 102.27 Site-specific water quality criteria. c1d GENERAL. A water quality criterion developed pursuant to this subchapter may be modified by the department for a particular surface water segment or waterbody. The site-specific water quality criterion shall only be applicable to the identified surface water segment or body. The development of a site-specific water quality criterion shall include all of the following:

- cad Information showing data used to derive the water quality criterion do not apply to the specific water segment or body.
- cbd Consideration of the guidance provided in Chapter 3.7 of the Water Quality Standards Handbook, Second Edition, U.S. EPA, 8{15{1994.
- ccd Information showing the site-specific water quality criterion is consistent with the guidelines provided in sub. c2d.

cdd Any additional information necessary to derive site-specific water quality criterion.

Note: Site-specific water quality criteria are subject to U.S. Environmental Protection Agency approval under federal regulations.

c2d SITE-SPECIFIC WATER QUALITY CRITERIA DEVELOPMENT. cad The department may promulgate site-specific water quality criteria for temperature when it determines that the data used to derive the water quality criteria published in this subchapter do not apply to the specific water segment or body in question. In making the determination, the same approach used to develop the water quality criteria in s. NR 102.25 may be used to develop site-specific water quality criteria by recalculating the water quality criteria based upon the actual species that are associated with the specific site.

cbd Alternative methods for developing site-specific water

quality criteria may be used if it is determined that those alternative methods will protect against sub-lethal and acute impacts in the fish and aquatic life community of a specific site.

ccd A water quality criterion developed via alternative methods shall be reviewed by the department and shall be adopted as a rule under this chapter before it can be applied on a site-specific basis.

c3d Any water quality criterion modified for site-specific conditions shall be promulgated by the department and approved by the U.S. Environmental Protection Agency before it is applied on a site-specific basis.

History: CR 07-111: cr. Register September 2010 No. 657, eff. 10-1-10.

NR 102.28 Cold shock standard. Water temperatures of discharges shall be controlled in a manner as to protect fish and aquatic life uses from the deleterious effects of cold shock.

History: CR 07-111: cr. Register September 2010 No. 657, eff. 10-1-10.

NR 102.29 Rate of temperature change standard. Temperature of a water of the state or a discharge to a water of the state may not be artificially raised or lowered at such a rate that it causes detrimental health or reproductive effects to fish or aquatic life of the water of the state.

History: CR 07-111: cr. Register September 2010 No. 657, eff. 10-1-10.

NR 102.30 Variances to water quality standards for temperature. The provisions of ss. 283.15 and 283.17, Stats., are applicable to the water quality standards in this subchapter.

History: CR 07-111: cr. Register September 2010 No. 657, eff. 10-1-10.

Subchapter III — Waterbody Assessments and Reporting

NR 102.50 Waterbody assessments and reporting. As required under sections 303 cdd and 305 cbd of the Clean Water Act, 33 USC 1313 cdd and 1315 cbd, the department shall report to U.S. EPA on the status of the state[s] waterbodies and attainment of water quality standards every two years. Waterbody assessments are used to determine the condition of the state[s] surface waters or segments thereof and whether waterbodies are attaining state and federal surface water quality standards.

History: CR 19-094: cr. Register September 2022 No. 801, eff. 10-1-22.

NR 102.51 Assessment types. The department may conduct different types of assessments to determine the status of waterbody health and attainment of water quality standards, depending on availability of data or methods used to collect the data. The department shall, at a minimum, conduct all of the following:

c1d STATEWIDE CONDITION ASSESSMENTS. As part of the biennial assessment report required under section 305 cbd of the Clean Water Act, 33 USC 1315 cbd, and 40 CFR 130.8 and 130.10 cad c1d, the department shall report on water quality status and trends at the state, regional, or watershed levels. The department shall assess the extent to which surface waters of the state provide for the protection and propagation of a balanced population of shellfish, fish, and wildlife, and allow recreational activities in and on the water. Broad-scale approaches may be used to conduct these assessments, including randomized monitoring designs or other appropriate statistical methods.

c2d INDIVIDUAL WATERBODY ASSESSMENTS AND SECTION 303 CDD LIST. cad The department shall identify and report on waters not meeting any applicable water quality standard prescribed under statute or a promulgated rule, pursuant to section 303 cdd of the Clean Water Act, 33 USC 1313 cdd, and 40 CFR 130.7 cbd and 130.10 cbd c2d. The department shall assess individual waterbodies that have sufficient and readily available

datasets, as specified in the department[s] water quality standards and assessment protocols, to determine whether a waterbody is attaining water quality standards. The department determines whether a waterbody[s] designated uses are supported by evaluating attainment of its water quality criteria and biological assessment thresholds. The department shall assess data collected from a waterbody against each applicable water quality standard or assessment threshold independently, unless a combined assessment procedure is specified in rule. The department shall report any waters not attaining applicable water quality standards to the U.S. EPA. Only water quality standards that have been promulgated via statute or rule may be considered for the purposes of listing a waterbody on the section 303 cdd list.

cbd When the department submits the section 305 cbd biennial assessment report and section 303 cdd list, it shall provide all of the following information if an assessment indicates that one or more of a waterbody[s] water quality standards are not attained:

1. A waterbody is listed on the section 303 cdd list for a pollutant if a pollutant[s] water quality criterion is not attained and it may require a total maximum daily load analysis.

2. A waterbody is reported as having an observed effect of degradation if the waterbody does not attain one or more biological assessment thresholds or water quality criteria for parameters that are not pollutants, such as dissolved oxygen. In listing observed effects, the department may not formally attribute these effects to a specific pollutant until the department conducts an evaluation of potential causes, including nonchemical stressors such as habitat degradation or hydrological modification, and identifies one or more specific pollutants as causing or contributing to biological degradation. Listing of observed effects would not require development of a total daily maximum load for a waterbody unless a specific pollutant exceeding its promulgated water quality standard is identified by the department as a cause of the observed effect.

Note: If a waterbody is not attaining water quality criteria for a pollutant, it will be listed on the section 303 cdd list regardless of attainment of biological assessment thresholds unless otherwise specified in the pollutant[s] criteria or procedures specified in those chapters cfor instance, the combined assessment approach for phosphorus under s. NR 102.60d, or if site-specific criteria are developed and attained.

Note: This subsection does not preclude other types of assessments that may be needed or required for other purposes. The department has authority to research and assess the quality and condition of the state[s] waters under s. 281.13, Stats.

Note: As required under 40 CFR 130.7 cbd c4d, waters on the section 303 cdd list may require a total maximum daily load analysis. The department prioritizes and develops total maximum daily load analyses as discussed in subch. III of ch. NR 212. In addition, if a specific pollutant is identified as contributing to biological degradation, a site-specific criterion for the pollutant may be developed through rulemaking if appropriate.

History: CR 19-094: cr. Register September 2022 No. 801, eff. 10-1-22.

NR 102.52 Assessment protocols. **c1d GENERAL.** The department[s] protocols for assessing waterbodies shall be consistent with the state[s] water quality standards and federal regulations and be based on relevant scientific information. The department[s] protocols may include components such as minimum data requirements, sampling methods, quality control, statistical analysis of data, allowable frequency of exceedance of criteria or thresholds, and use of professional judgment.

Note: When assessing waterbodies, the department uses its guidance for waterbody assessments titled XWisconsin Consolidated Assessment and Listing Methodology, Y or WisCALM. Although a description of the state[s] assessment methodology is required to be submitted to U.S. EPA, U.S. EPA does not approve or disapprove the state[s] assessment methodology under section 303 cdd of the Clean Water Act.

c2d SAMPLE VARIABILITY AND CONFIDENCE INTERVALS. cad For assessment determinations, the department may determine that multiple samples are necessary to account for variability inherent in the waterbody, sampling results, or other conditions. The department may evaluate attainment of criteria or thresholds, using assessment methodology that accounts for both

the central tendency of the data, such as the mean or median, and the variability of the samples.

cbd The department may apply a confidence interval approach to determine the number of samples needed and to increase certainty in the attainment decision. For metrics expressed as a mean or percentile of a group of samples, the department may use the two-sided 80 percent confidence interval of the mean or percentile for assessment. Other methods of calculating a confidence interval may be applied as appropriate for a specific metric, data type, or statistical goal. Once the confidence interval is determined under this paragraph, it is then compared to the criterion or threshold as specified in par. **ccd**.

ccd When applying an approach under par. **cbd**, the department shall compare the confidence interval to the applicable criterion or threshold using one of the following evaluation criteria:

1. If the entire confidence interval is attaining the criterion or threshold, no further samples are needed to make the attainment determination.
2. If the entire confidence interval is not attaining the criterion or threshold, no further samples are needed to make the non-attainment determination.
3. If the criterion or threshold is within the confidence interval, the assessment will be deferred until more data can be collected with the goal of narrowing the interval to determine whether subd. 1. or 2. applies. After further data collection, if the criterion or threshold continues to be within the confidence interval, the attainment determination shall be made by directly comparing the sample mean or percentile to the criterion or threshold.

Note: With confidence intervals calculated under par. **cbd**, there is 90 percent confidence that the attainment decision is correct because there is 80 percent confidence that the waterbody[s] true value is within the interval, 10 percent confidence that it is greater than the interval, and 10 percent confidence that it is less than the interval.

History: CR 19-094; cr. Register September 2022 No. 801, eff. 10-1-22.

NR 102.53 Reporting, public participation, and approvals. c1d REPORT DEVELOPMENT. For development of the biennial assessment report and section 303 cdd list, the department shall assemble, evaluate, and submit water quality-related data, information, and assessment protocols to U.S. EPA.

c2d PUBLIC PARTICIPATION. **cad** The department shall solicit assessment data from citizens and partner groups prior to the waterbody assessment process. Readily available data sets that meet minimum data requirements and are submitted in the department[s] specified format during the biennial data solicitation period shall be considered by the department when conducting assessments.

cbd The department shall hold a public informational hearing and a public comment period of at least 30 days on the draft list of assessments and any proposed changes to the section 303 cdd list. The department shall provide notice of the public informational hearing and information regarding where written comments may be submitted on its website and through an electronic notification system.

Note: Prior to the data solicitation period under par. **cad**, the department provides an opportunity for the public to comment on the assessment guidance. The department generally responds to comments received during the comment periods for the assessment guidance and the draft section 303 cdd list. The department will provide a template for data submittal on the department[s] waterbody assessment website. The public can subscribe to the electronic notification system for the water quality standards program on the department[s] home page at <http://{{dnr.wi.gov}}>.

c3d SUBMITTAL OF RESULTS TO U.S. EPA. After the public participation process is completed, the department shall submit waterbody assessment results to U.S. EPA Region 5 by April 1 of every even numbered year for approval. Assessment results shall be submitted in a report that integrates both statewide condition and individual waterbody assessment results to satisfy the re-

quirements of sections 305 cbd and 303 cdd of the Clean Water Act, respectively.

Note: U.S. EPA has authority to approve or disapprove the section 303 cdd list.

c4d PUBLICATION OF THE FINAL SECTION 303 CDD LIST. The U.S. EPA-approved section 303 cdd list shall be made public and available on the department[s] website.

Note: The section 303 cdd list and statewide condition assessments are available on the department[s] website at <https://{{dnr.wi.gov}}/topic/SurfaceWater/assessments.html>.

History: CR 19-094; cr. Register September 2022 No. 801, eff. 10-1-22.

NR 102.54 Biological assessment of designated uses. Biological assessments conducted under this subchapter are used to determine attainment of designated uses by documenting the health of aquatic biological communities and any observed effects of degradation as described under s. NR 102.51 c2d **cbd** 2. If a biological assessment threshold under this subchapter is not attained, the waterbody may be considered as not attaining the applicable designated use.

History: CR 19-094; cr. Register September 2022 No. 801, eff. 10-1-22.

NR 102.55 Narrative biological assessment thresholds for aquatic life uses. c1d GENERAL. This section establishes narrative biological assessment thresholds that characterize the biological community condition and that are used to measure attainment of aquatic life designated uses specified in s. NR 102.04 c3d for surface waters. This section also establishes methods for evaluating attainment of narrative assessment thresholds.

c2d NARRATIVE BIOLOGICAL ASSESSMENT THRESHOLDS. **cad** The aquatic life uses under s. NR 102.04 c3d, except for those specified in s. NR 102.04 c3d **cdd** to **ced**, shall be considered suitable for the protection and propagation of a balanced aquatic life community. Those uses are intended to support the growth, development, reproduction, and life cycle of the aquatic life communities for their designated aquatic life use categories, although such waters may exhibit moderate changes in aquatic life community structure due to loss of some rare native taxa or shifts in relative abundance. In determining attainment of a waterbody[s] designated uses, the department may compare its biological quality to the range of quality found in similar waterbodies under natural conditions. A waterbody with distinct natural characteristics that result in an aquatic life community different from or less diverse than other waters in the same use category may be considered attaining its aquatic life use if those differences are clearly related to natural characteristics.

cbd A surface water that does not support a balanced aquatic life community as designated under s. NR 102.04 c3d **cdd** to **ced** shall support its highest attainable use given its habitat and potential.

ccd A surface water shall maintain at least the highest biological condition it has achieved since 1975.

Note: Paragraphs **cbd** and **ccd** reflect federal requirements under 40 CFR s. 131.10 **cgd**, pertaining to highest attainable uses, and 40 CFR s. 131.3 **ced**, specifying November 28, 1975 as the benchmark date from which to determine Xexisting usesY for aquatic life.

Note: Examples of waterbodies with distinct natural characteristics are wetland-dominated streams, naturally acidic bog lakes, and ephemeral streams with only small areas of short-term refugia. Biological condition assessments should not be conducted during periods when there is insufficient water due to natural conditions to support aquatic life.

c3d ASSESSMENT METHODS FOR NARRATIVE BIOLOGICAL THRESHOLDS. Biological assessments for determining attainment of designated uses may be conducted in accordance with the assessment protocols specified in s. NR 102.52 and may include any of the following:

cad *Biological community assessments.* To conduct biological community assessments, the department shall use docu-

mented methods that have undergone technical review and produce consistent, objective, and repeatable results that account for methodological uncertainty and natural environmental variability. Such methods include indices of biological integrity or similar tools calculated from measured attributes of resident fish, aquatic invertebrates, aquatic plants, or other aquatic communities. Such indices or tools may include measures of species composition, diversity, and abundance; feeding and reproduction characteristics; condition of individual organisms; or other scientifically objective, credible, and supportable factors. Historic records of native species may also be used to assess whether a waterbody exhibits loss of native species.

cbd Biological integrity trends. All surface waters shall maintain existing biological integrity, such that no waterbody or portion thereof shall experience a significant declining trend since 1975 using indicators under par. **cad** or other indicators of biological condition, as demonstrated through scientifically-based documentation.

Note: An example of methods the department uses for assessing biological health of surface waters are those found in the department's guidance for waterbody assessments, XWisconsin Consolidated Assessment and Listing Methodology, Y or WisCALM. Protocols for assessing attainment of biological assessment thresholds using metrics such as fish or macroinvertebrate indices of biotic integrity or the macrophyte assessment of condition are contained in, or referenced in, WisCALM. WisCALM is available on the department's surface water assessment website at <https://dnr.wi.gov/topic/SurfaceWater/assessments.html> and is updated every 2 years with public input.

History: CR 19-094: cr. Register September 2022 No. 801, eff. 10-1-22.

NR 102.56 Numeric biological assessment thresholds for lakes, reservoirs and impounded flowing waters. This section contains numeric biological assessment thresholds for evaluating the biological condition of lakes, reservoirs, and impounded flowing waters and determining whether applicable designated uses are being attained. Numeric biological assessment thresholds used to assess attainment of designated uses include all of the following:

c1d AQUATIC LIFE USE THRESHOLDS. **cad Chlorophyll a.** 1. ZAssessment thresholds. [a. A lake or reservoir other than a stratified two-story fishery lake is not attaining its aquatic life use if its arithmetic mean suspended chlorophyll a concentration exceeds 27 ug/L.

b. A two-story fishery lake is not attaining its aquatic life use if its arithmetic mean suspended chlorophyll a concentration exceeds 8 ug/L.

2. ZAssessment methods. [Data requirements for chlorophyll a are the same as those specified for phosphorus in s. NR 102.07 c1d cad, except that the sampling period for chlorophyll a is July 15 to September 15. To determine attainment of the chlorophyll a threshold under subd. 1., the department shall compare the waterbody's mean suspended chlorophyll a concentration during the sampling period to the threshold, using the confidence interval approach described under s. NR 102.52 c2d cbd to **ccd** to determine if additional samples are needed.

Note: The aquatic life chlorophyll a thresholds do not apply to streams, rivers, or impounded flowing waters, as they were established based on lake trophic status levels.

cbd Aquatic plants. 1. ZAssessment thresholds. [Thresholds for evaluating the general health of an aquatic plant community in a lake or reservoir to determine whether its aquatic life use is attained are shown in Table 8. Thresholds used in the macrophyte assessment of condition indicate the acceptable percentage of a lake or reservoir's vegetated area supporting species that are in each of three tolerance categories. The tolerance categories specify whether a plant species is sensitive to, moderately tolerant of, or tolerant of disturbance.

Table 8
Aquatic plant community thresholds for lakes and reservoirs

| Lake subcategory ¹ | Macrophyte assessment of condition is attained if: |
|-------------------------------|--|
| Northern seepage | Moderately tolerant ≤ 64% |
| Northern drainage | Tolerant ≤ 73% |
| Southern seepage | Sensitive > 15% |
| Southern drainage | Tolerant ≤ 50% |

¹In Table 8, northern lakes are those north of 44.84707°N latitude, and southern lakes are those south of that latitude. These thresholds do not apply to the Great Lakes or lakes less than 5 acres in surface area.

2. ZAssessment methods. [The percentage of a lake or reservoir's vegetated area supporting each tolerance category shall be determined using department-approved protocols for assessing macrophyte condition. The sampling period for southern lakes is June 15 to September 15, and for northern lakes is July 1 to August 31 unless the department determines that an extension from June 15 to September 15 is appropriate during warmer than average years. The department shall consider the threshold attained if the most recent plant survey conducted within the past 10 years, or other more representative survey, attains the applicable threshold in Table 8.

Note: Examples of department-approved sampling protocols include the XRecommended Baseline Monitoring of Aquatic Plants in Wisconsin, Y available on the department's website in the Electronic Guidance and Documents eGADd system at <https://dnr.wi.gov/water/egadsearch.aspx>. Examples of department-approved analysis protocols include the XMacrophyte Assessment of Condition] General Y cMAC-Gen for general condition assessments applicable to this section, and the XMacrophyte Assessment of Condition] Phosphorus Y cMAC-Pd for phosphorus-specific assessments under s. NR 102.60 c2d ccd. Each MAC protocol contains the tolerance groups assigned to each species. MAC-Gen and MAC-P scores can be obtained by contacting the department at DNRSWIMS@wisconsin.gov and submitting aquatic plant data collected and formatted according to department specifications. Computer programming script written in the R language to compute the MAC calculations can be obtained through the department's Water Evaluation Section by contacting the department's call center at 1-888-WDNRINFO c1-888-936-7463d or using options provided on its website at <https://dnr.wi.gov/contact/>.

c2d RECREATION USE THRESHOLDS. **cad Definition.** In this section, Xmoderate algae level Y means a chlorophyll a concentration of 20 ug/L or greater.

cbd Frequency of moderate algae levels. Thresholds in Table 9 shall be used when determining if a lake, reservoir, or impounded flowing water is attaining its recreational use.

Table 9
Algae thresholds for recreational use assessments

| Waterbody type ¹ | Subcategory | Thresholds for frequency of moderate algae levels |
|---|--|--|
| Lakes, reservoirs, impounded flowing waters includes cold and warmd | Impounded flowing water, unstratified drainage, unstratified seepage | Does not exceed 20 ug/L chlorophyll a for more than 30% of days during the summer sampling period ² |
| | Stratified drainage, stratified seepage | Does not exceed 20 ug/L chlorophyll a for more than 5% of days during the summer sampling period ² |
| | Stratified two-story fishery | |

¹Terms used for waterbody types and subcategories are defined in s. NR 102.03.

²Summer sampling period is July 15 to September 15.

Note: Lakes and reservoirs are subcategorized based on both their stratification status cstratified vs. unstratifiedd and whether or not they have an outlet stream or river cdrainage vs. seepage. To find a lake or reservoir's subcategory, also known

as its natural community, go to the department's Surface Water Data Viewer online map at <https://dnr.wi.gov/topic/surfacewater/swdv> and turn on the layer for Surface Water: Lake Natural Communities. On the natural communities layer, unstratified is referred to as Xshallow.Y and stratified is referred to as Xdeep.Y Headwater and lowland lakes are types of drainage lakes.

Note: The U.S. EPA has set human health swimming advisory levels for microcystin and cylindrospermopsin that accurately reflect the latest scientific information on the potential human health effects from recreational exposure to these two cyanotoxins. The department recommends that local and tribal public health agencies use these swimming advisory levels for notification purposes in recreational waters to protect the public. More information can be found at <https://dnr.wisconsin.gov/topic/lakes/bluegreenalgae>.

ccd Assessment methods. Data requirements for chlorophyll *a* are the same as those specified for phosphorus in s. NR 102.07 c1d cad, except that the sampling period for chlorophyll *a* in all waterbody types is July 15 to September 15. To determine attainment of the threshold, the department shall determine a waterbody's frequency of moderate algae levels during the chlorophyll *a* summer sampling period using the confidence interval for a percentile of a normal distribution, and use the approach described under s. NR 102.52 c2d cbd and ccd to compare that frequency to the applicable threshold in Table 9.

Note: The statistical calculation for determining the frequency of moderate algae levels is contained in Wisconsin's Consolidated Assessment and Listing Methodology cWisCALMd guidance document.

History: CR 19-094: cr. Register September 2022 No. 801, eff. 10-1-22.

NR 102.60 Combined assessment procedure for phosphorus. c1d GENERAL. cad This section establishes a combined assessment approach for making total phosphorus attainment determinations for surface waters in cases specified in par. cbd. This approach is designed to account for variability in how waterbodies respond to phosphorus. The combined approach evaluates a waterbody's quality by considering the total phosphorus concentration in the surface water in conjunction with an evaluation of the phosphorus response indicators specified in subs. c2d to c4d. The phosphorus response indicators characterize the condition or abundance of aquatic organisms that are responsive to total phosphorus to determine whether aquatic life and recreation uses are being met. Together, the total phosphorus criteria and response indicators may be used to determine whether the phosphorus water quality standards are attained or whether the waterbody should be listed as impaired for total phosphorus on the section 303 cdd list.

cbd 1. If a waterbody's calculated total phosphorus concentration exceeds its total phosphorus criterion using the assessment procedure under s. NR 102.07 and the waterbody's calculated phosphorus concentration is within the combined assessment range shown in Table 10, the department may make the total phosphorus attainment or impairment determination using phosphorus response indicators specified in subs. c2d to c4d if sufficient biological data are available to conduct these assessments. In that case, the following decision protocols apply:

a. A waterbody that attains all of its applicable phosphorus response indicators under subs. c2d to c4d may be excluded from the section 303 cdd listing of waters impaired for phosphorus.

Note: If a waterbody is not considered impaired using the combined approach, it may be a candidate for a less stringent phosphorus site-specific criterion under ch. NR 119. If a waterbody attains its phosphorus criterion but one or more phosphorus response indicators are not attained, it may be a candidate for a more stringent site-specific phosphorus criterion under ch. NR 119.

b. If a waterbody does not attain one or more of the applicable phosphorus response indicators in subs. c2d to c4d or if the department does not have sufficient data to evaluate all of the applicable response indicators, then the waterbody shall be considered impaired for total phosphorus and the department shall propose inclusion of the waterbody on the section 303 cdd list as not attaining its phosphorus criterion. As part of the public comment period for the section 303 cdd list, the department shall provide a list of waterbodies needing additional data to determine whether

phosphorus response indicators are met. If sufficient phosphorus response indicator data becomes available in the future, the waterbody may be reassessed.

2. If a waterbody's calculated phosphorus concentration exceeds its total phosphorus criterion using the assessment procedure under s. NR 102.07 and the waterbody's calculated phosphorus concentration also exceeds the upper limit of the combined assessment range shown in Table 10, then the waterbody shall be considered impaired for total phosphorus regardless of attainment of phosphorus response indicators, and the department shall propose to include the waterbody on the section 303 cdd list.

Table 10
Range for applying combined assessment for total phosphorus¹

| Waterbody type | Total phosphorus criterion cug/Ld | Combined approach range ² cug/L total phosphorusd |
|---|-----------------------------------|--|
| Stream or its impounded flowing water | 75 | 75 to <150 |
| River or its impounded flowing water | 100 | 100 to <200 |
| Unstratified reservoirs, unstratified drainage or seepage lakes | 40 | 40 to <60 |
| Stratified reservoirs, stratified drainage lakes | 30 | 30 to <45 |
| Stratified seepage lakes | 20 | 20 to <30 |
| Two-story fishery lakes | 15 | 15 to <22.5 |

¹To determine whether a waterbody falls into the combined approach range, compare the lower confidence limit of the waterbody's two-sided 80% confidence interval around the mean for lakes (riversd or median for rivers (streams) total phosphorus concentration to the ranges in the table.

²For streams and rivers the combined criteria range is between the applicable total phosphorus criterion and two times that criterion. For lakes, the range is between the applicable total phosphorus criterion and 1.5 times that criterion. If a waterbody has an approved site-specific phosphorus criteria, the combined criteria range for that waterbody shall be calculated using these multiplication factors.

c2d LAKE AND RESERVOIR PHOSPHORUS RESPONSE INDICATORS. A lake or reservoir 5 acres or greater for which the total phosphorus concentration is within the combined approach range specified in Table 10 shall be listed on the section 303 cdd list as impaired for phosphorus unless it attains all of the following phosphorus response indicators:

cad *Frequency of moderate algae levels.* The biological assessment thresholds for frequency of moderate algae levels to attain recreation uses as specified in s. NR 102.56 c2d.

cbd *Chlorophyll a.* The chlorophyll *a* biological assessment threshold to attain aquatic life uses as specified in s. NR 102.56 c1d cad.

ccd *Aquatic plants.* The aquatic plant phosphorus response indicator for aquatic life use in this paragraph. Thresholds for assessing macrophyte community response to phosphorus levels in a lake or reservoir are shown in Table 11. Thresholds indicate the acceptable percentage of a lake or reservoir's vegetated area supporting species that are phosphorus-sensitive or phosphorus-tolerant. Non-attainment of a threshold indicates that an aquatic plant community is considered degraded by phosphorus concentrations in the surface water. Assessment methods are the same as those specified in s. NR 102.56 c1d cbd 2. except percentages are compared against thresholds in Table 11.

Table 11
Lake aquatic plant community phosphorus response indicator

| Lake subcategory ¹ | Macrophyte assessment of condition for phosphorus is attained if: |
|-------------------------------|---|
| Northern seepage | Phosphorus tolerant ≤ 44% |
| Northern drainage | Phosphorus sensitive > 51% |
| Southern seepage | Phosphorus sensitive > 26% |
| Southern drainage | Phosphorus sensitive > 42% |

¹ In Table 11, northern lakes are those north of 44.84707°N latitude, and southern lakes are those south of that latitude. This plant phosphorus response indicator does not apply to the Great Lakes or lakes less than 5 acres in surface area.

cdd Oxythermal layer thickness. The oxythermal layer thickness criteria specified in s. NR 102.04 c4d camd. This paragraph applies only to two-story fishery lakes.

c3d RIVER AND IMPOUNDED FLOWING WATERS PHOSPHORUS RESPONSE INDICATOR. A river listed in s. NR 102.06 c3d cad, or its impounded flowing waters, for which the total phosphorus concentration is within the combined approach range specified in Table 10 shall be listed on the section 303 cdd list as impaired for phosphorus unless it exceeds 20 ug/L chlorophyll *a* for fewer than 30 percent of days during the summer sampling period of July 15 to September 15, as calculated following s. NR 102.56 c2d ccd.

c4d STREAM PHOSPHORUS RESPONSE INDICATORS. *cad General.* A stream for which the total phosphorus concentration is within the combined approach range specified in Table 10 shall be listed on the section 303 cdd list as impaired for phosphorus unless it attains the phosphorus response indicators specified in this subsection. When applying the phosphorus response indicators for streams, the department may apply the benthic algal biomass indicator under par. cbd as a screening tool before determining whether the benthic diatom assessment under par. ccd is necessary for an attainment determination. If available, benthic diatom assessment results under par. ccd supersede results from the benthic algal biomass screening under par. cbd.

cbd Benthic algal biomass screening. Benthic algal biomass is a measure of primary productivity in streams, and is quantified using a viewing bucket assessment method along stream transects. The benthic algal biomass phosphorus response indicator is applicable to both the aquatic life use and the recreational use, and may be used to make an initial use attainment determination as specified in Table 12. If results from the benthic algal biomass assessment conclusively demonstrate attainment or non-attain-

ment of the benthic algal biomass indicator, no benthic diatom analysis under par. ccd is necessary for the attainment decision. If the benthic algal biomass assessment is inconclusive according to Table 12, or in cases where the assessment is inappropriate due to silted substrate, additional benthic diatom analysis under par. ccd is required to make the aquatic life use attainment determination. If a stream[s] benthic algal biomass score is inconclusive and a benthic diatom sample is not available, the stream shall be proposed for inclusion on the section 303 cdd list.

Table 12
Stream benthic algal biomass phosphorus response indicator

| Benthic algal biomass, viewing bucket score c0-3d | Attainment decision | |
|---|--------------------------------------|------------------|
| | Aquatic life use | Recreational use |
| < 1 | Attained ¹ | Attained |
| 1 - 2 | Inconclusive; assess benthic diatoms | |
| > 2 | Not attained | Not attained |

¹ If the mean score is <1 but 20% or more of individual transect points score a 3, a benthic diatom assessment under par. ccd is required to make an attainment determination.

Note: Wisconsin[s] benthic algal viewing bucket methods are available on the department[s] website in the Electronic Guidance and Documents eGADd system at <https://apps.dnr.wi.gov/water/egadSearch.aspx> by searching for Viewing Bucket Method for Estimating Algal Abundance in Wadeable Streams.

ccd Benthic diatoms. Benthic diatoms are an algal taxonomic group that represents primary producer community structure, and are used for assessment of the aquatic life use. This assessment is needed only if the benthic algal biomass assessment for aquatic life use under par. cbd is inconclusive or inappropriate due to siltation. A stream[s] diatom taxa are statistically analyzed using Wisconsin[s] weighted average Diatom Phosphorus Index, or DPI. To determine use attainment, the DPI result shall be compared to the stream phosphorus criterion of 75 ug/L phosphorus. If only one diatom sample per site is available, the confidence interval approach described under s. NR 102.52 c2d ccd is applied. If the DPI is below 75 as specified under s. NR 102.52 c2d ccd 1., the phosphorus response indicator is attained. If more than one sample is available from the most recent 5 years, the mean score of the surveys is calculated and compared to the threshold of 75 ug/L without applying confidence intervals.

Note: The statistical code to run the Wisconsin DPI calculation can be obtained through the department[s] Water Evaluation Section by contacting the department[s] call center at 1-888-WDNRINFo c1-888-936-7463d or using options provided on its website at <https://dnr.wi.gov/contact>.

History: CR 19-094: cr. Register September 2022 No. 801, eff. 10-1-22.