

# Response to Comments on the Draft 2024 Wisconsin Consolidated Assessment and Listing Methodology (WisCALM)

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Water Evaluation Section, Water Quality Bureau  
Environmental Management Division



A public comment period was held from January 12 to February 24, 2023; comments from six separate entities were received. Comments have been copied verbatim, but in some cases truncated to focus specifically on the recommendations. [Click here](#) for a full copy of all comments.

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## Response to Christine Bedwell, President of Courte Oreilles Lakes Association (COLA)

*“Comment #1: Section 6.1.7, 1st paragraph, 4th sentence: “Some lakes that are enriched with nutrients will not show evidence of impairment in their ambient water dissolved phosphorus or chlorophyll-a concentrations.” This sentence refers to dissolved phosphorus. WisCALM does not use dissolved phosphorus measurements to assess impairment. We suggest “dissolved” be deleted.”*

The word “dissolved” was removed from this sentence.

*“Comment #2: 6.1.8 Oxythermal Habitat: We suggest it be revised as follows so that the last sentence reads in the affirmative: For two-story fishery lakes, the oxythermal layer thickness criteria specified in section 6.6 Oxythermal Habitat also applies as a phosphorus response indicator. Elevated phosphorus can lead to oxygen depletion in lakes and reduce the habitat necessary for coldwater fish. Although phosphorus may not be the only factor affecting oxythermal habitat, if the oxythermal habitat requirement is not met in a waterbody with elevated TP levels, it is appropriate to determine that the waterbody is experiencing stress due to phosphorus, and list it as impaired for TP, unless existing studies indicate otherwise.”*

The language in the 6.1.8 oxythermal habitat paragraph was updated to read in the affirmative, which gives clarity to the methods.

## Response to Wendy Drake, Environmental Protection Agency (EPA) Region V

*“1. p. 14—Section 3.3 Quality Assurance and Laboratory Analysis: Regarding the sentence, “For targeted, or special, monitoring studies which are frequently used to discern impairment prior to listing a waterbody, quality assurance protocols, such as field blanks, duplicates or spikes, are incorporated as funds allow,” does this mean that WDNR conducts targeted/special monitoring studies as funds allow or that WDNR follows quality assurance protocols (e.g., analyzing field blanks, duplicates, or spikes) for targeted/special monitoring studies as funds allow?”*

This sentence was intended to convey that quality assurance measures are added as warranted for the specific project and as funds allow. WisCALM language was altered to read: “For targeted or special monitoring studies, which are frequently used to discern impairment prior to listing a waterbody, quality assurance protocols, such as field blanks, field duplicates, or lab spikes, are incorporated as warranted and as funds allow.”

“2. p. 17—Section 4.1.3 Representative Data: Regarding this sentence in the “Extreme Weather Years” paragraph: “As a very general guideline, an extreme weather year may be defined as a year where precipitation, flow, stage/elevation, and/or temperature are above the 90th or below the 10th percentile of the annual averages within the period of record,” what is the time period used to determine “annual averages,” and are annual averages updated for each listing cycle or are they based on a static baseline?”

The “period of record” refers to the assessment cycle’s period of record, which is the past 10 years.

“3. p. 31—Table 11: In the Individual Metrics row and Warm F-IBI column, see typo in “j) % simple lithophils.””

This typo has been fixed.

“4. p. 39—Section 6.1.8: Oxythermal Habitat: Remove repeat reference to section 6.6 in first sentence.”

The extra text of “6.6” was removed.

“5. p. 52—Section 7.2.1 Chlorophyll-a (Algal blooms) (Lakes, Reservoirs, Impounded Flowing Waters): Regarding the sentence, “However, excessive nutrient loading (particularly phosphorus) can cause algae populations to grow rapidly under certain environmental conditions and form “blooms” that can impact water quality and pose health risks to people, pets, and livestock,” has WDNR started considering whether nitrogen is affecting algal blooms in WI?”

Yes, nitrogen’s impact on algal blooms is part of work planning but has not been developed enough to be included in this draft of WisCALM. Nitrogen criteria was a high-ranking topic in the state’s last Triennial Standards Review, and the department has been reviewing existing nitrogen data, analyses and literature to determine next steps that would be needed to work toward eventual criteria development.

“6. p. 58—Section 8.1 Blue-green Algal Toxin Health Risks (Harmful Algal Blooms): EPA encourages WDNR to leverage other monitoring data, including satellite data from NOAA (e.g., Cyanobacteria Assessment Network or CyAN) and other sources, as other resources to meet water quality goals and inform development of monitoring programs.”

WDNR incorporates other monitoring data as resources allow. Satellite data is used for general chlorophyll-a concentrations and TSI calculations. Some work has been done with drones to inform monitoring priorities.

“7. p. 59—8.2 PFOS and PFOA: Regarding the asterisk for the PFOS threshold of 8 ng/L in Table 33. Wisconsin DNR surface water criteria for PFOS and PFOA, Wisconsin does not have a use designation for “waters that cannot naturally support fish and do not have downstream waters that support fish,” nor has Wisconsin identified any waterbodies as such. Therefore, EPA interprets the PFOS criterion as currently applying to all waterbodies in Wisconsin. To remove the PFOS criterion from a waterbody, Wisconsin would need to conduct a Use Attainability Analysis, consistent with 40 CFR § 131.10(g), to document that the waterbody cannot naturally support fish and is not upstream of waters that support fish and submit that use revision to EPA for review and approval before it may be used as the basis of determining that the PFOS criterion does not apply to that water body.”

It is WDNR's understanding that at this time the PFOS and PFOA criteria apply to all surface waters, as none have yet been identified that fit the exception. The exception includes two factors that both need to be met, 1) cannot naturally support fish, and 2) do not have downstream waters that support fish. For the first factor, the Fish and Aquatic Life use determination of 'Limited Aquatic Life', defined in NR 102.04(3)(e) with specific waters listed in NR 104 Tables 3 – 8, is the basis for determining "waters that cannot naturally support fish". There is a list of these waters, but there is not a list of waters that support factor 2, no connectivity to downstream waters. A Use Attainable Analysis would be required to determine if these criteria do not apply.

*"8. p. 61—Section 8.5.1 Cyanobacteria (Blue-green Algae) Toxins: Has WDNR considered using EPA's 2015 health advisory levels for cyanotoxins in drinking water (<https://www.epa.gov/cyanohabs/epa-drinking-water-health-advisories-cyanotoxins>) instead of the 1998 WHO provisional drinking water guideline value?"*

The DNR completed a review of the EPA's recommendations and determined to apply the values as swimming advisories rather than as statewide criteria. This decision was made because harmful algal blooms that result in algal toxins are often a response to other water quality impairments/issues for which criteria already exist or are potentially forthcoming (i.e., phosphorus, chlorophyll, nitrogen) ([2018-2020 Triennial Standards Review Status Report](#)).

## **Response to Paul La Liberte, Wisconsin Green Fire**

*"Thank you for the opportunity to comment on this draft document. This version of WisCALM includes nothing addressing nutrient impairments resulting in excessive filamentous algae or duckweeds growths in shallow aquatic systems. These impacts have been associated with nitrogen and were pointed out in comments from WGF and others on previous occasions, listed below. In the DNR Triennial Standards Review, finalized in 2021, development of a standard for nitrogen was: 1. Ranked by public respondents as the number one topic; 2. Put into this category for future work: Category B: Priorities for the upcoming cycle*

*Given this prioritization in the 2021 TSR, why is there no mention of work toward a standard for nitrogen and assessment of biological impacts in shallow water systems in WisCALM? Nitrogen is only mentioned in table 25 as a parameter sometimes useful in Best Professional Judgement situations. Filamentous algae and duckweed are not mentioned at all in WisCALM."*

WisCALM guidance houses established assessment methods. Updates on nitrogen criteria progress are published in DNR's Triennial Standards Review progress reports. In response to the 2021 priority ranking for nitrogen, the department has been reviewing existing nitrogen data, analyses and literature to determine next steps that would be needed to work toward eventual criteria development. Data needs have been identified and monitoring has been increased. Once criteria and assessment protocols have been established for nitrogen, they will be included in WisCALM. (See also the response to John Sullivan regarding filamentous algae and duckweed.)

*"a reference to an SOP for viewing bucket appears in WisCALM. Guidance on how to consider canopy when selecting site not included"*

The sentence, "Algal abundance is strongly influenced by the amount of light that reaches the benthos; canopy needs to be considered in selecting sites representative of stream condition and monitoring purpose." was added to section 6.1.9.1 Benthic Algal Biomass. Canopy cover is a metric in the viewing bucket SOP field sheet, and section B contains the following paragraph related to canopy consideration:

"Algal abundance is strongly influenced by the amount of light that reaches the benthos. If the purpose of the study is to determine the how nutrients are impacting algal growth then samples should be

conducted where there is sufficient light reaching the stream, in other words a relatively open canopy. Openness may be relative for streams as a small stream in mostly forested watershed may have very little open canopy, as such an algal abundance measurement anywhere representative of the larger stream conditions is acceptable. For streams in a mixed agriculture (or prairie) and forested watershed site location may have large implications on the score. If a comparison between sites is to be made the user must look for comparable canopy and substrate conditions and record these for each site. All canopy coverage does not need to be avoided but needs to be considered and site selection representative of stream condition and monitoring purpose.”

*“Section 12.3 Monitoring Strategies, Protocols, and Standard Operating Procedures contains no mention of procedures for monitoring backwaters or wetland environments”*

The DNR’s wetland monitoring program does have standardized monitoring and assessment protocols for wetlands, which can be found here: <https://dnr.wisconsin.gov/topic/wetlands/methods.html>. However, these are not yet tied to water quality standards and are therefore not included in WisCALM. If assessment thresholds are established for using these tools to assess attainment of water quality standards like designated uses, they may be included in WisCALM in the future.

Currently available wetland protocols are primarily for “terrestrial” wetlands, monitored on foot. Shallow-open water wetland monitoring protocols that would work well for backwater, deeper wetlands are being developed.

*“Fall 2021 WGF comment on WisCALM: Use procedures for detailed quantification of solar radiation when establishing benchmarks for stream eutrophication. (Section 12.3 Monitoring Strategies, Protocols, and Standard Operating Procedures contains no mention of procedures for monitoring solar radiation)”*

These methods would be housed in stream monitoring protocols and SOPs rather than WisCALM. The comments regarding these protocols have been forwarded to monitoring staff.

## **Response to John Sullivan**

*“The document again fails to utilize assessment procedures for the identification of nutrient impairment problems associated with excessive growths of filamentous algae and duckweeds (free floating plants, FFPs) in shallow aquatic environments including riverine backwaters, floodplain lakes, and deepwater marshes (wetlands). Previous comments on this omission was submitted on the last assessment guidance prepared by the Department four years ago (attached memo, Feb 28th, 2019). I am resubmitting these comments since I believe they are still relevant. It should be noted that initial problems with FFPs were identified almost 15 years ago. Substantial information has been collected since then that demonstrates nutrient enrichment problems with phosphorus and/or nitrogen in shallow aquatic systems, particularly along the Mississippi River and lower Wisconsin River. Although the phosphorus criteria have been developed for surface waters in Wisconsin to address nutrient related problems, similar criteria for nitrogen remain to be developed.”*

*“I am including example photos of nutrient related impairments in the La Crosse Marsh associated with FFPs. Although the Department has developed assessment procedures for identifying nutrient impairment problems in rivers and lakes, similar assessment procedures for wetlands remain to be developed. I believe the assessment methods for FFPs can also be applied to deep and shallow water marshes.”*

The department recognizes the longstanding issues with FFPs and appreciates the research submitted by the commenter. DNR prioritized promulgation of biological assessment thresholds as a Category A priority in the Triennial Standards Review; this includes future rulemaking to create biological assessment thresholds for streams and rivers, parallel to the recently completed rulemaking for lakes and streams. As a part of this, DNR may consider inclusion of thresholds for FFPs. This comment has

been shared with the appropriate monitoring and water quality standards staff. If criteria or assessment protocols are established for nitrogen and/or free floating plants, they will be included in WisCALM. (See also response on nitrogen to Paul La Liberte, Wisconsin Green Fire.)

## **Response to Craig Summerfield, Wisconsin Manufacturers & Commerce (WMC), Wisconsin Paper Council (WPC), and Midwest Food Products Association (MFPA)**

Use of biological assessments: *“Including biological assessments is inconsistent with the plain language of NR 102. As noted previously, NR 102.51(2) states that “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(d) list.” In addition, NR 102.03(6) defines the “Section 303(d) list” as “a list of waters that do not attain water quality standards and require a total daily maximum load analysis.” **Consequently, we request that DNR clarify in the WisCALM guidance that waterbodies will not be placed on the 303(d) list based upon biological assessments.**”*

A waterbody’s designated uses are part of its water quality standards, as specified under s. 281.15(1), Wis. Stats: “Water quality standards shall consist of the designated uses of the waters or portions thereof and the water quality criteria for those waters based upon the designated use.” Attainment of a waterbody’s designated use is determined using both/either water quality criteria and/or biological assessment thresholds. Ch. NR 102 specifies: **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 \(2\) \(b\) 2](#). If a biological assessment threshold under this subchapter is not attained, the waterbody may be considered as not attaining the applicable designated use.” Therefore, if a waterbody is not attaining its designated use, as determined via application of biological assessment thresholds, it is not attaining its water quality standards and is listed on the 303(d) list as not attaining one of the promulgated designated uses (standards) in ch. NR 102.04. In this case, a waterbody is listed as having an “observed effect” related to the degraded biological community. A biological listing is insufficient for Total Maximum Daily Load (TMDL) creation without an identified pollutant. Listing provides the opportunity for management and/or restoration grant funding, which could resolve the issue before a TMDL is required.

Fish Consumption Advisories: *“The use of fish advisories to establish TMDLs has not been required or permitted by statute or rule. It is therefore unlawful for the DNR to use unpromulgated fish advisories as a regulatory requirement for purposes of a section 303(d) impairment listing.”*

The department respectfully disagrees that the use of fish consumption advisories is inappropriate or unlawful. Restrictions on consumption of fish taken from specified waterbodies is demonstration of an impairment of the Public Health and Welfare use in those waterbodies. As outlined in EPA’s 2006 Integrated Report Memo (<https://www.epa.gov/sites/default/files/2015-10/documents/2006irg-report.pdf>), “For purposes of determining whether a segment is impaired and should be included on section 303(d) lists states are required to consider all existing and readily available data and information (see 40 CFR 130.7). This should include physical, chemical and biological data, including data on pathogens (such as bacteria and phytotoxins) as well as fish and shellfish tissue concentration data, where such data are existing and readily available.

“EPA generally believes that fish and shellfish consumption advisories and certain shellfish growing area classifications based on segment specific information demonstrate impairment of CWA section 101(a) “fishable” uses. This applies to fish and shellfish consumption advisories and certain shellfish area classifications for all pollutants that constitute potential risks to human health, regardless of the source of the pollutant.

“While numeric human health criteria for ambient water column concentrations of pollutants are a basis for determining impairment, the attainment of such criteria does not always mean that designated uses are being protected.”

In response to this comment, language in section “8.3 Fish Consumption Assessment” was simplified for clarity and a reference to the 2006 EPA Integrated Report Memo was added.

PFOS and PFOA criteria: *“However, the draft guidance also establishes thresholds to list a waterbody as impaired, defined as two or more exceedances within a three-year period, provided the samples are collected at least 30 days apart. Such a standard is not found in administrative code, nor state statute. In addition, the DNR did [not] even attempt to provide a peer-reviewed, scientific justification as to why making an impairment decision based on only two samples is appropriate. The DNR has failed to promulgate a rule establishing the “two or more exceedances” threshold. Thus, this section of the guidance may be unlawful.”*

Section NR 102.04(8)(d)2 states, “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 (16m) **if any of the criteria are exceeded more than once every 3 years**” [emphasis added]. The phrase “exceeded more than once” is interpreted as “two or more exceedances”. This interpretation was established during the rule making process, as documented in the Technical Support Document ([https://dnr.wisconsin.gov/sites/default/files/topic/SurfaceWater/WY-23-19PFOS-PFOA\\_TechSupportDoc.pdf](https://dnr.wisconsin.gov/sites/default/files/topic/SurfaceWater/WY-23-19PFOS-PFOA_TechSupportDoc.pdf), pages 26 – 27).

## Response to Ed Packee

Full comments included topics more suited to management planning; those comment have been forwarded to management staff.

*“3. Use of acronyms in advisory letter (e.g., for PFOS and PFOA) means “what” to the public from whom the WDNR is seeking comment. At least for first time use, use full name followed by acronym in parentheses or have a glossary. Another example is the use of the term “oxythermal” which needs to simply be defined in parentheses as “oxygen and temperature acting together”.”*

This will be implemented with future advisory materials.

*“4. Why a Friday end of business day for final submission?—who at WDNR is going to look at submissions on a weekend?—future deadline should be extended to start of business day on Monday morning.”*

A minimum 30-day comment period is required by federal code [40 CFR Part 25](#). The comment period was therefore set for a time of 44 days to allow ample time for comment. However, this will be considered in future comment solicitation periods.

*“5. Writing/reading level should be highschool graduate or second year college. Figures should be very clear and understandable.”*

Agreed; clear and understandable language and figures are the goal.

*“6. “Water quality” throughout most WDNR and others documents is subjective and means different things to different people. WDNR must define “water quality” and set realistic parameters/limits. WDNR targets should not override nor ignore natural environmental conditions/controls and must recognize/address background/recent levels such as nutrients, turbidity”*

WisCALM guidance is one way WDNR clarifies what “water quality” means by outlining water quality standards and their application. This document is specifically for assessment and listing purposes. For

individual waterbody management additional analysis is usually done to determine the influence of natural environmental conditions.

*“7. [Site-specific] Targets should be realistic for current times, e.g., phosphorus in Lac Courte Oreilles based on 1996 data (Barr Associates 1998)—more than 25 years ago and more than 25 years development changes from relatively few residences that were for dominantly seasonal use to more suburban-like with more three-season homes and full-time residents and now rentals.” [clarification added]*

While development in the Lac Courte Oreilles watershed and other watersheds has changed over time, the Clean Water Act defines the existing use to maintain as “those uses actually attained in the water body on or after November 28, 1975”. If those uses are no longer attainable, then the highest attainable use is determined through use attainability analysis.

*“8. Rewrite should include statement concerning poisonous shoreline plants such as poison hemlock (Annen 2007) (present in abundance on Lac Courte Oreilles shoreline/riparian zone 2022) and presence of invasive species (vegetative and animal).”*

There are currently no surface water quality assessment methods that incorporate poisonous terrestrial plants or presence of invasive species. These would need to be considered at a waterbody-specific management level.