BUREAU OF WATER QUALITY
WATER EVALUATION SECTION

2018-2020 TRIENNIAL STANDARDS REVIEW (TSR) PRIORITIES FOR THE WATER QUALITY STANDARDS PROGRAM

PUBLICATION NUMBER: 3200-2018-70

EFFECTIVE DATE: DECEMBER 3, 2018

APPROVED:

Sharon L. Gayan — 12/3/18

Sharon Gayan, Director — Date
Bureau of Water Quality

2018-2020 TRIENNIAL STANDARDS REVIEW (TSR) PRIORITIES FOR THE WATER QUALITY STANDARDS PROGRAM

CONTENT

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EXECUTIVE SUMMARY

Every three years the State of Wisconsin is required by the Clean Water Act to review its water quality standards (WQS) and related guidance. This process, called the Triennial Standards Review (TSR), occurs in two phases. The first phase and focus of this report is to determine which WQS or related guidance will be priorities for the next three years. WDNR solicited input from staff, partners, and the public to gather topics, and surveyed staff and partners to rank the topics. The results from the survey were used to determine the final work prioritization for 2018-2020. One topic received through the solicitation period was not ranked due to barriers existing at the time. Since then, it has become high priority and was added to the list of 2018-2020 priorities. The final list of topics included five new priorities: Cyanobacterial Toxin and Cell Density Water Quality Criteria and/or Guidance for Recreational Exposure; Human Health Criteria Revision/Development; Mercury Variance Streamlining or Multi-Discharger Variance (MDV); PFOS/PFOA Criteria Development and Outstanding/Exceptional Resource Waters Process Revision. The next step, the second phase of the TSR, is to revise or develop WQS or guidance for the selected topics

TSR PURPOSE

The Clean Water Act section 303(c) requires that the State of Wisconsin review its water quality standards and related guidance every three years. Water quality standards (WQS) are composed of three parts (outlined in detail in 40 CFR § 131): 1) Use Designations: determination of how a waterbody is used by people, aquatic communities, and wildlife; 2) Water Quality Criteria (WQC): a quantitative amount of a certain pollutant that is allowable in a waterbody or a narrative, qualitative statement of unacceptable conditions in a waterbody, protective of the designated uses; 3) Antidegradation: protection for high-quality waterbodies. Related guidance delineates which water quality standards apply in specific cases (e.g., stream classifications), or provides direction on implementing a surface water quality standard. The TSR does not focus on topics outside of WQS and related guidance (e.g. Best Management Practices, TMDL implementation, watershed permitting). This review helps focus WDNR efforts to integrate the latest science and technology and federal requirements into how the State regulates surface water quality.

TSR PROCESS

The State of Wisconsin's TSR process occurs in two phases. The first phase of the TSR is to identify what will be worked on. It is not possible to review, develop, or revise all WQS and related guidance due to the large number of WQS and limited staff and funding. Topics are gathered from the public, WDNR staff, and external partners. Once compiled, WDNR staff and external partners are asked to rank the importance of these topics. These rankings are used to determine what topics will be addressed over the next three years.

The second phase is to revise or develop WQS or guidance for selected topics. The process for any given topic potentially includes an Advisory Committee, legal and administrative approval, and report submissions to the U.S. EPA on all revisions during the triennium. Any changes to WQS include public hearings. If rulemaking is not needed then the revisions are simply adopted. If rulemaking is needed then the rulemaking process will be followed and all applicable Act 21 requirements completed.

The focus of this document is phase one of the TSR process in which topics are identified and prioritized.

TOPIC SOLICITATION

The topic solicitation period ran from January 2 – 25, 2018. The Topic Solicitation Form was sent out to WDNR staff, external partners, and the public. There were 18 entities that submitted a total of 68 topics. Similar topics were combined and topics not suited for a TSR were removed. The end result was 8 topics for review.

Topic Solicitation Form

TRIENNIAL STANDARD REVIEW: Topics for Consideration

Due Date: January 25, 2018

Submit To: Marcia Willhite: marcia.willhite@wisconsin.gov

Fill out this form to submit one or more topics for consideration for the 2018-2020 Triennial Standard Review. Please include a detailed description of your topic to facilitate decision-making.

Further information on the TSR process can be found on our website at http://dnr.wi.gov/topic/SurfaceWater/TSR.html.

Feel free to contact Marcia Willhite with any questions or comments via email or call 920-746-2875.

We greatly appreciate your input and thank you for being a part of the Triennial Standards Review!

Topic survey can be found on the next page

Organization*:	Click here to enter text.	**Position/Title*:** Click here to enter text.	
Email*:	Click here to enter text.	**Phone*:** Click here to enter text.	

Organization*:

	Topic	Reason for Consideration/Topic Description
1	Click here to enter text.	Click here to enter text.
2	Click here to enter text.	Click here to enter text.
3	Click here to enter text.	Click here to enter text.
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5	Click here to enter text.	Click here to enter text.

TOPIC CATEGORIZATION

The final list has five categories under which topics fall:

Category A: Standards or guidance with revisions or development currently in progress

Topics in Group A were not ranked. These topics are already determined to be priorities. These came from the last TSR cycle (2015 – 2017) or were submitted topics that are already being worked on by WDNR staff.

Category B: Standards or guidance that are new priorities for the upcoming cycle

Topics in Group B were ranked in this cycle or came from Group E of the last TSR cycle (2015 – 2017). These are topics that WDNR is committing to addressing over the next three years. These were determined to be high priorities based on input from internal staff and external partners. Topics in this group were determined to be feasible work goals based on WDNR resources (staff availability, funding, scientific knowledge).

Category C: Standards or guidance that are priorities, but progress will be limited

Topics in Group C were ranked in this cycle. These were determined to be high priorities based on input from internal staff and external partners but WDNR currently does not have the resources (staff availability, funding) to address them. If resources become available then WDNR will work to address them.

Category D: Standards or guidance where barriers to development currently exist

Some topics in Group D were assigned to the group by program staff prior to ranking; others were ranked in this cycle and assigned to the group after ranking. A barrier to progress means that there is one of the following issues: lack of scientific knowledge; another project or rule package needs to be completed before this topic can be addressed; or external input (e.g. EPA rulemaking, model results) is needed before proceeding. A submitted topic known to have a barrier to progress is assigned to this category before ranking. A ranked topic later determined to have a barrier to progress is also placed in this group.

Category E: Standards or guidance that are not priorities

Topics in Group E were ranked in this cycle. These were determined not to be priorities based on input from internal staff and external partners.

The category descriptions were modified from those used in the last TSR cycle, 2015 – 2017, to provide better clarity.

Pre-Ranking Determinations

We evaluated if previous TSR and newly submitted topics could be categorized without further input. It was determined that eight are currently being worked on (Category A) and six have barriers to progress (Category D).

Category A: Standards or guidance with revisions or development currently in progress

- Antidegradation Policy and Implementation Revision
- Bacteria Criteria Revision
- Biological Criteria Development
- Chloride Variance Streamlining
- Designated Uses Structure/Process Revision
- Phosphorus Site Specific Criteria (SSC) Guidance and Rules Development
- Phosphorus assimilative capacity modeling in Great Lakes
- Wetlands Floristic Quality Assessment Numeric Benchmarks

Category D: Standards or guidance where barriers to development currently exist

- Arsenic Criteria Revision
- Chloride Criteria Revision
- Copper Criteria Revision
- Nitrate/Nitrogen Criteria Development
- PFOS/PFOA Criteria Development
- Total Suspended Solids Criteria Development

Topics to be ranked

Eight potential topics were identified and needed to be ranked and prioritized.

Water Quality Criteria Revision/Development

- Ammonia Criteria Revision
- Aquatic Life Water Quality Criteria Revision/Development
- Cyanobacterial Toxin and Cell Density Water Quality Criteria and/or Guidance for Recreational Exposure
- Human Health Criteria Revision/Development
- Phosphorus Criteria Revision for Two-Story Fishery Lakes

Other (Variances, Guidance)

- Arsenic Variance Process Development
- Mercury Variance Streamlining or Multi-Discharger Variance (MDV)
- Outstanding/Exceptional Resource Waters Process Revision

WDNR STAFF AND EXTERNAL PARTNERS SURVEYS

A survey was created for WDNR staff and external partners. External partners included the U.S. EPA and Wisconsin Department of Health Services. These surveys included detailed analyses of ecological relevance, urgency, legal or regulatory requirements, feasibility, and time frame. Participants were asked to rank their top 5 topics (Table 1).

Table 1: Results based on the rankings from WDNR Staff external partners.

TSR Topic	Final Ranking
Cyanobacterial Toxin and Cell Density Water Quality Criteria and/or Guidance for Recreational Exposure	1
Mercury Variance Streamlining or Multi-Discharger Variance (MDV)	2
Human Health Criteria Revision/Development	3
Aquatic Life Water Quality Criteria Revision/Development	3
Outstanding/Exceptional Resource Waters Process Revision	5
Ammonia Criteria Revision	6
Phosphorus Criteria Revision for Two-Story Fishery Lakes	7
Arsenic Variance Process Development	8

FINAL 2018-2020 TSR LIST

We interpreted the internal and partners surveys to determine the final categories for each topic. Topic description and rationale for each placement are provided in the next section.

Category A: Standards or guidance with revisions or development currently in progress

- Antidegradation Policy and Implementation Revision
- Bacteria Criteria Revision
- Biological Criteria Development
- Chloride Variance Streamlining
- Designated Uses Structure/Process Revision
- Phosphorus Site Specific Criteria (SSC) Guidance and Rules Development
- Phosphorus assimilative capacity modeling in Great Lakes
- Wetlands Floristic Quality Assessment Numeric Benchmarks

Category B: Standards or guidance that are new priorities for the upcoming cycle

- Cyanobacterial Toxin and Cell Density Water Quality Criteria and/or Guidance for Recreational Exposure
- Human Health Criteria Revision/Development
- Mercury Variance Streamlining or Multi-Discharger Variance (MDV)
- Outstanding/Exceptional Resource Waters Process Revision
- PFOS/PFOA Criteria Development

Category C: Standards or guidance that are priorities, but progress will be limited due to insufficient resources at this time

- Aquatic Life Water Quality Criteria Revision/Development

Category D: Standards or guidance where barriers to development currently exist

- Ammonia Criteria Revision
- Arsenic Criteria Revision
- Chloride Criteria Revision
- Copper Criteria Revision
- Nitrate/Nitrogen Criteria Development
- Total Suspended Solids Criteria Development

Category E: Standards or guidance that not priorities for the upcoming cycle

- Phosphorus Criteria Revision for Two-Story Fishery Lakes
- Arsenic Variance Process Development

RATIONALE FOR TOPIC CATEGORIZATION & TOPIC DESCRIPTIONS

This section explains why topics were placed in the various categories. Topic descriptions are largely from the submitter, though some changes may have been made for clarity. Topics that were submitted but not appropriate for inclusion in the TSR are described in Appendix A. No submitters are identified for topics that were carried over from the previous TSR cycle, like those in Category A.

Category A: Standards or guidance with revisions or development currently in progress

Antidegradation Policy and Implementation Revision

Antidegradation is a policy designated to protect high quality waters from degradation. The Statement of Scope to revise Wisconsin's antidegradation policy and implementation procedures was approved by the Governor on August 15th, 2016 and the Natural Resource Board on October 26th, 2016. This Scope lays out the objectives of the proposed revisions, an analysis of alternative options, the entities that might be affected, and the anticipated economic impact to those entities. Next steps include drafting rule language and convening an external advisory committee.
For more information, visit http://dnr.wi.gov/topic/surfacewater/antidegradation.html

Bacteria Criteria Revision

The bacteria water quality criteria for recreation protect people who are swimming in the water from exposure to bacteria found in fecal contamination. The Statement of Scope to revise Wisconsin's water quality standard for recreation and related implementation procedures was approved by the Governor on October 27th, 2015 and the Natural Resource Board on January 27th, 2016. The statement of scope lays out the objective of proposed revisions, an analysis of alternative options, the entities that may be affected, and the anticipated economic impact to said entities. Next steps include soliciting economic information from impacted stakeholders and holding public hearings.
For more information, visit http://dnr.wi.gov/topic/SurfaceWater/recreation.html

Biological Criteria Development

Biological criteria set the expectations for measures of fish, aquatic insects, plants, and algae. These expectations aid in the protection of waterbodies from damaging pollutants. The WDNR currently has a rule package underway to establish biological criteria (biocriteria) and phosphorus response indicators (PRI) for several biological metrics. Several of these metrics have been in use for some time as part of the WDNR's waterbody assessment guidance and were refined for this rule package. The WDNR has been meeting with an advisory committee of stakeholder representatives to obtain feedback on the proposed rule changes since June 2016.
For more information, visit http://dnr.wi.gov/topic/SurfaceWater/dubc.html

Chloride Variance Streamlining

WDNR and EPA have implemented improvements and are continuing to identify several areas within the chloride variance process that could be improved or updated to help streamline the variance process for permittees, WNDR, and EPA. These areas include updates to the variance application, updates to the facility specific data sheet, creation of Source Reduction Measures (SRM) plan templates, and creation of SRM Annual report templates and review documents.

Designated Uses Structure/Process Revision

States are required by the Clean Water Act to adopt designated uses to protect human health and aquatic life. The DNR currently has a rule package underway to update the state's designated use classification system for aquatic life. This rule package would revise the categories to better capture the various types of waters found in Wisconsin. The DNR has been meeting with an advisory

committee of stakeholder representatives to obtain feedback on the proposed rule changes since June 2016.
For more information, visit http://dnr.wi.gov/topic/SurfaceWater/dubc.html

Phosphorus Site Specific Criteria (SSC) Guidance and Rules Development

The WDNR currently has a rule package underway to establish a process for developing phosphorus site-specific criteria in cases where a less- or more-stringent criterion is appropriate than the statewide phosphorus criteria. The package defines several types of cases where site-specific criteria would be appropriate and outlines what factors to utilize when selecting such criteria. The WDNR has been meeting with an advisory committee of stakeholder representatives to obtain feedback on the proposed rule changes since June 2016.
For more information, visit http://dnr.wi.gov/topic/SurfaceWater/dubc.html

Phosphorus assimilative capacity modeling in Great Lakes

An assimilative capacity model for phosphorus in the Great Lakes would help WDNR set appropriate phosphorus effluent limits for discharges to these waters. The WDNR continues to work collaboratively with partners to develop a model. In 2017, UW-Milwaukee scientists proposed to develop a model that simulates how offshore and near shore regions respond to changes in phosphorus loading with the objective of defining a phosphorus load that is optimal for supporting offshore fish populations while mitigating the growth of nuisance algae in the near shore zone. The WDNR supports this proposal as the study is intended to provide key information about the dynamics of phosphorus, plankton, and near shore benthic algae in response to phosphorus loading from point sources discharging to Lake Michigan.

Wetlands Floristic Quality Assessment Numeric Benchmarks

Floristic Quality Assessment Benchmark metrics are a measure of biological integrity as reflected in the plant community of a wetland. They are determined by the quantity and proportional cover of plant species with varying different tolerances to disturbance. Surveys have been conducted in the major ecoregions of Wisconsin. Development of numeric benchmarks for floristic quality is a step toward having a numeric water quality standard for wetlands. These would not replace the narrative standards, but provide greater clarity in their interpretation. WDNR has recently completed the collection of field data and expects to complete analysis, report results and propose FQA benchmarks in 2018. Further work and funding are needed to translate the benchmarks research into the wetland water quality standards framework.

Category B: Standards or guidance that are new priorities for the upcoming cycle

Cyanobacterial Toxin and Cell Density Water Quality Criteria and/or Guidance for Recreational Exposure: Adopt US EPA's cyanotoxin human health criteria/recreational advisory levels, when final. Develop cyanobacterial cell densities and visual assessment guidelines, based on World Health Organization guidelines, to allow for flexibility in issuing swimming advisories to protect public health. Cyanotoxins can be produced by certain kinds of cyanobacteria in surface waters and can cause both acute and chronic health effects via ingestion, inhalation, and dermal contact pathways. The US EPA cyanotoxin advisory values are for use as the basis for swimming advisories for notification purposes and are designed to protect children from chronic exposure to microcystin and cylindrospermopsin. They should be considered for adoption into Wisconsin's state standards, as we currently lack regulatory guidelines for cyanotoxins. Additional guidelines based on cell densities and visual assessment will allow for flexibility in issuing advisories in the absence of toxin data. **(Submitted by WDNR staff, Minnesota Pollution Control Agency, and Milwaukee Riverkeepers)**

Rationale: Wisconsin will pursue revisions to ch. NR 102, Wis. Adm. Code, to include criteria for toxins in surface water and may possibly need to also review chapters NR 105: Surface water quality criteria for toxic substances, and NR 809: Safe drinking water. This topic was ranked as the highest priority by WDNR staff and external partners. WDNR considers this topic to be a priority to begin within this TSR cycle.

Human Health Criteria Revision/Development: Incorporate recent EPA recommendations into how WDNR calculates human health criteria (HHC) (i.e., water quality standards that protect human health while swimming or eating locally-caught fish). This effort could include one or more components: 1) Update calculation methods (specifically exposure parameters) to be consistent with EPA's latest recommendations for water consumption rate and average body weight. Evaluate most appropriate fish consumption rates to be protective of fish consumers like tribes. 2) Update the state's existing HHC based on latest toxicological information (31 substances). 3) Adopt HHC for chemicals which EPA has criteria and/or a drinking water standard and Wisconsin does not (14 substances). **(Submitted by Wisconsin Department of Health Services and Great Lakes Indian Fish & Wildlife Commission)**

Rationale: This topic was ranked as third highest priority and WDNR considers this topic to be a priority to begin within this TSR cycle. Wisconsin will work toward incorporating recent EPA recommendations into how WDNR calculates human health criteria (HHC) (i.e., water quality standards that protect human health while swimming or eating locally-caught fish).

Mercury Variance Streamlining or Multi-Discharger Variance (MDV): Mercury, mainly from air deposition, has accumulated in fish tissue so that there are fish consumption advisories in place for many Wisconsin waterbodies. Individual mercury variances for facilities discharging wastewater have been processed for 10-15 years, using a 1997 report to say that no economically feasible treatment exists. A multi-discharger variance or a streamlined variance process could be developed that would include an updated justification for variances and standardize the factors used for variance approvals statewide. A pollutant minimization plan (PMP) would continue to be required for all facilities with a mercury variance. **(Submitted by WDNR staff)**

Rationale: Creating a Mercury Variance Streamlining process or MDV will increase efficiency in WDNR's permits section and for U.S. EPA's review of variances. This topic was ranked as second highest priority and WDNR considers this topic to be a priority to begin within this TSR cycle.

Outstanding/Exceptional Resource Waters Process Revision: Federal law requires states to identify and protect "High Quality Waters". In Wisconsin, these waters are referred to as Outstanding or Exceptional Resource Waters (ORW/ERWs) and are enumerated in sections NR 102.10 and NR 102.11, respectively. Waterbodies that are assigned the special ORW/ERW designation have additional protections afforded them that are not automatically provided for waterbodies not given these designations. The WDNR has not standardized the ORW/ERW designation process. **(Carried over from previous TSR cycle)**

Rationale: The department's existing guidance on classifying waters as ORW/ERW is outdated, and these methods should be updated so that the process is clear and based on current scientific understanding. This topic was ranked 5th priority and because there is sufficient staff time WDNR considers this topic to be a priority to begin within this TSR cycle.

Perfluorooctane Sulfonate (PFOS)/Perfluorooctanoic Acid (PFOA) Criteria Development: Develop new water quality criteria for PFOS and PFOA. These manmade substances have been used to repel oil and water in a variety of industrial and consumer products, such as carpet and clothing treatments, food packaging, and cookware. They are also contained in firefighting foams. They are extremely persistent in the environment and bioaccumulate in humans and wildlife. Health-based advisories or screening levels have been developed by EPA and other states. Some contaminated sites have been investigated/managed in Wisconsin where the primary risk to human health is through contaminated groundwater, however, surface water contamination is being investigated. **(Submitted by WDNR staff)**

Rationale: These substances are under active evaluation by U.S. EPA and the Wisconsin Department of Health Services. Wisconsin DNR will partner with these agencies in review of toxicological data and consider potential criteria for surface water. Addressing potential public health risks from sites contaminated with PFOS/PFOA has emerged as a high priority for the Department. This topic was not ranked because it was previously determined to have barriers to development.

Category C: Standards or guidance that are priorities, but progress will be limited

Aquatic Life Water Quality Criteria Revision/Development: A) Develop water quality criteria for the protection of aquatic life for substances for which EPA has developed or revised criteria based on new toxicological data but for which there is currently no Wisconsin standard. Topics that could be considered include acrolein, carbaryl, diazinon, nonylphenol, and tributyltin. B) Revise existing Wisconsin water quality criteria for the protection of aquatic life for substances for which EPA has new toxicological data. Topics that could be considered include cadmium and selenium. [Note: Ammonia and copper are substances that could also fall under this category but are listed as individual topics instead due to specific considerations for those substances.] **(Submitted by EPA)**

Rationale: This topic was rated highly (tied for 3rd of 8) but has been placed in Category C due to limited staff time. WDNR employs one toxicologist to work on these criteria revisions and development and that person's time is prioritized for developing Cyanobacterial Toxin and Cell Density Water Quality Criteria and/or Guidance for Recreational Exposure, PFOS/PFOA Criteria and Human Health Criteria Revision/Development. This topic tied for 3rd with Human Health Criteria Revision/Development; human health was prioritized over aquatic life criteria. WDNR will work to address this need as resources become available.

Category D: Standards or guidance where barriers to development currently exist

Ammonia Criteria Revision: In August 2013, the U.S. EPA published national recommended ambient water quality criteria for the protection of aquatic life from the toxic effects of ammonia, a constituent of nitrogen pollution. Federal acute and chronic criteria were revised to take into account the sensitivity of mussels to ammonia. States are expected to revise their criteria accordingly in order to be protective of all aquatic organisms. Wisconsin has widespread occurrence of unionid mussels that are sensitive to ammonia. **(Submitted by EPA)**

Rationale: This topic was ranked 6th out of 8. It has since come to light that EPA Region 5 is facilitating a workgroup of state water quality staff to identify an approach for addressing various implementation issues related to the recommended ammonia criterion. Wisconsin DNR will participate in these discussions and consider revising the ammonia standard once an implementation recommendation is finalized.

Arsenic Criteria Revision: Establish a standard process for issuing water quality variances in situations where arsenic in a water supply used by an industry or municipality exceeds Wisconsin's human cancer criterion. A small number of industrial and municipal permitted wastewater dischargers may have arsenic in their discharge that comes from the background levels of intake water used to supply their industrial processes, rather than from anything produced by the discharger. Specify the information that Wisconsin DNR and the U.S. EPA require for an arsenic variance, including how high arsenic levels in the water supply will be considered in the variance review. **(Submitted by Milwaukee Metropolitan Sewerage District)**

Rationale: When deriving human cancer criteria using the methods established in NR 105.09, Wisconsin Administrative Code, both substance-dependent and general parameters are taken into consideration. Substance-dependent parameters include: Risk associated dose--the amount of a substance a human can be exposed to on a daily basis that corresponds to an incremental cancer risk of 1 in 100,000; Relative source contribution--a factor that accounts for how much of the total lifetime exposure of the substance is due to water and/or fish consumption; Bioaccumulation factor--a factor that accounts for accumulation of the substance within fish. General parameters include: Body weight; Drinking water consumption rate; Fish consumption rate.

A change to a criterion can occur if there is sound scientific evidence that one or more of these factors requires updating. In the case of the arsenic human health criteria, the U.S. EPA is currently re-evaluating the risk associated dose used to derive the current criterion. The WDNR will revisit these criteria once the EPA has completed their evaluation.

Chloride Criteria Revision: Revise Wisconsin's existing chloride criteria to a format in which the criteria are calculated based on the hardness and sulfate concentrations of the waterbody. Another state in the region has promulgated chloride criteria based on new toxicological data (from 2009) that are related to sulfate and chloride concentrations in waterbodies. **(Submitted by WDNR staff and Madison Metropolitan Sewerage District)**

Rationale: New studies have emerged that relate chloride toxicity to the levels of hardness and sulfate in the water. EPA is undertaking a review of these studies and is likely to provide guidance or a revised criterion for chloride. Wisconsin DNR will await the outcome of this review and consider a revised chloride standard at that time.

Copper Criteria Revision: Revise the existing copper water quality criteria or provide additional procedures for site-specific copper criteria. WDNR has been working with the State Lab's Environmental Toxicology Section to collect toxicity test data to potentially redefine copper criteria in Northern and Western Wisconsin. The lab could use the Biotic Ligand Model (BLM), a metal bioavailability model, to determine appropriate copper criteria for these regions of Wisconsin. **(Carried over from previous TSR cycle)**

Rationale: U.S. EPA recommends that states use the Biotic Ligand Model for calculating site-specific criteria for copper. This model relates copper toxicity to its bioavailability in the presence of water quality parameters such as pH and dissolved organic carbon. Some limited pilot study of this model has been done using Wisconsin data, but further pilot study is needed to determine the feasibility of using this model to calculate criteria, given its extensive data requirements.

Nitrate/Nitrogen Criteria Development: The U.S. EPA water quality criteria guidance requires all states to develop nitrogen criteria as well as phosphorus criteria. Currently, WDNR regulates nitrogen only as a

toxic substance through implementation of surface water quality criteria for ammonia. However, nitrogen also acts as a nutrient for many plant species and can contribute to nuisance plant and algal growth in surface waters. The result of these conditions may be depletions of dissolved oxygen or extreme pH conditions which are not supportive of a balanced fish and aquatic life community. A review of nitrogen monitoring data may result in a need for nitrogen surface water quality criteria to complement criteria for phosphorus – the other nutrient associated with nuisance conditions in lakes, rivers, & streams.

Nitrogen becomes nitrate in the environment and in that form can pose public health risks, mainly through drinking water consumption. There are some studies indicating that nitrate can be toxic to aquatic life. **(Submitted by WDNR staff, Portage County Planning & Zoning, and Rock River Coalition)**

> **Rationale:** Nitrogen continues to be a high priority for many key external groups and U.S. EPA. The WDNR does not believe sufficient data are present to calculate a scientifically defensible water quality standard for nitrogen. As WDNR does not have a full scientific understanding needed to develop standards within the upcoming TSR cycle, WDNR will review data as they become available to help improve our scientific understanding of this pollutant in Wisconsin's waters. Further information is expected to come from U.S. EPA's proposal of recommended phosphorus and nitrogen criteria to prevent harmful algal bloom development in lakes (currently under development, according to U.S. EPA's 2019 National Water Program Guidance). Further information on nitrate impacts on aquatic life is expected to come from Minnesota as they complete work towards a nitrate aquatic life criterion.

Total Suspended Solids Criteria Development: Excess suspended solids in waterbodies can be caused by a number of factors including excess soil erosion, wastewater discharge, snowmelt, and stormwater runoff. In the water column, suspended particles scatter and absorb light rays instead of transmitting them, thus decreasing light penetration. Less light penetration may adversely affect aquatic ecosystems by reducing the number of rooted plants which yields less protective in-water habitat for fish/aquatic life. The WI DNR has assessed sedimentation impairments in streams based on best professional judgment of total suspended solids (TSS). As of the 2014 Integrated Report, TSS is listed as a pollutant on 232 waterbodies on the States' 303d list (53% of all sites). This accounts for 3,091 impaired stream miles due to TSS (46% of total impaired stream miles). Additionally, water quality criteria for TSS would provide clear delisting guidance for stream segments that have shown considerable improvement but for which there is no clear target to make this determination. A standard sampling protocol and analytical method already exist for TSS but a numeric criterion and assessment methodology could be developed. **(Submitted by DNR staff, Minnesota Pollution Control Agency, and Rock River Coalition)**

> **Rationale:** Initial data analyses have been conducted that did not yield a clear result. Further analysis is needed, but priorities have shifted to other work.

<u>Category E</u>: Standards or guidance that are not priorities

Phosphorus Criteria Revision for Two-Story Fishery Lakes: Consider revising the existing total phosphorus criterion applicable to lakes with two-story fisheries (i.e., cold water fish toward the bottom, warm water fish toward the surface). Wisconsin has approximately 180 such lakes, where the existing phosphorus criterion is 15 µg/L. A review of studies on two-story fisheries in the state or region could be undertaken to determine if a change to the criterion is warranted. **(Submitted by DNR staff)**

> **Rationale**: This topic was ranked 7th out of 8. The department does not have information to indicate that revising the statewide phosphorus criterion for two-story fisheries is warranted. For individual

lakes where the phosphorus criteria are in question a phosphorus site-specific criterion may be considered.

Arsenic Variance Process Development: Establish a standard process for issuing water quality variances in situations where arsenic in a water supply used by an industry or municipality exceeds Wisconsin's human cancer criterion. A small number of industrial and municipal permitted wastewater dischargers may have arsenic in their discharge that comes from the background levels of intake water used to supply their industrial processes, rather than from anything produced by the discharger. Specify the information that Wisconsin DNR and the U.S. EPA require for an arsenic variance, including how high arsenic levels in the water supply will be considered in the variance review. **(Submitted by Municipal Environmental Group (Stafford Rosenbaum LLC) and Wisconsin Power and Light)**

Rationale: This topic was ranked 8th out of 8. The few facilities where an arsenic variance may be considered can be done on an individual, case-by-case basis.

DESIGNATED USE REVIEW AND REVISION FOR SPECIFIC WATERBODIES

Several specific waters were highlighted as in need of designated use classification revisions. This topic will be addressed once WDNR has revised its process for determining and revising designated uses (rule development in progress).
(Submitted by Door County Soil & Water Conservation Department; EPA Region 5; Milwaukee Riverkeepers)

MULT-DISCHARGER VARIANCE FOR PHOSPHORUS

According to Wis. Stat. 283.16(2m), while the statewide phosphorus variance (multi-discharger variance) is in effect, the department is required to make a determination every three years on whether a review of the variance is needed, based on technological improvements over the course of time. Through the public notice/comment process of the TSR, the public, partners and DNR staff will be asked:

Do you have substantive knowledge of technology that has become reasonably available that is likely to result in any of the following:

1. Enable point sources to comply with effluent limitations for phosphorus that are more stringent than those in Wis. Stat. 283.16(6)(a).
2. Enable any category of point sources to comply with effluent limitations for phosphorus that are more stringent than those in sub. (6)(a).
3. Enable more cost-effective compliance with effluent limitations for phosphorus that are more stringent than those in sub. (6)(a).

APPENDIX A: TOPIC SUBMISSIONS NOT RANKED

There were several topics submitted that were not ranked because they were outside the scope of the Triennial Standards Review (see TSR Purpose). The TSR focuses on surface water criteria, designated uses, and antidegradation. This appendix outlines why each topic was not ranked. The topics are listed in alphabetical order with their descriptions and submitters. Topic descriptions are largely from the submitter, though some changes may have been made for clarity.

Agricultural & Animal Waste Runoff: Agricultural runoff pollutes streams and drinking water resources. Minnesota has begun to implement buffer strips. Animal waste from festivals that include horses can wash right into waterways. **(Submitted by the public)**

> **Reason for Exclusion**: This topic is related to runoff issues and these concerns have been forwarded to WDNR's Runoff Management Section.

Assessment Tools: Two topics were submitted that are updated/new tools for assessing water body health. **Macroinvertebrate Assessment Metric Update (submitted by UW-Superior and the public)** was suggested because tolerance values for some taxa of aquatic invertebrates need to be changed, refined or added. This would include refining quantitative stream monitoring/assessment using macroinvertebrates. **Macroinvertebrate Benchmarks for Great Lakes Wetlands (submitted by UW-Superior)** was suggested to develop an index of biotic integrity for aquatic macroinvertebrates that can assist in assessing Great Lakes wetlands.

> **Reason for Exclusion:** Assessment tools are not water quality standards, but are important for determining health of waterbodies. WDNR will work to address this need as resources become available.

Concentrated Animal Feeding Operations (CAFOs) Manure Regulation: There have been several CAFO manure spills in the Driftless area. The press indicates these are preventable errors, like clamps breaking or loosening, and drivers not trained correctly. CAFOs manure spills have a high impact on the environment and can impact our drinking water. One submitter enquired to availability of studies on CAFO concentration and the available farmland available to use the generated manure. Another submitter stated "Clean drinking water is a basic human right and no one should have their access to clean water destroyed by a neighboring business operation."
(Submitted by the public)

> **Reason for Exclusion**: This topic is related to runoff issues and these concerns have been forwarded to WDNR's Runoff Management Section.

Cyanobacterial Toxin Water Quality Criteria and/or Guidance for Drinking Water: "US EPA released Health Advisories for the cyanotoxins microcystin and cylindrospermopsin in 2015. These Health Advisories were published under the Safe Drinking Water Act for contaminants not subject to national primary drinking water regulation. The Health Advisories should be considered for adoption in Wisconsin's state standards. In March 2018 – November 2020, 10 cyanobacterial toxins will be monitored by public water utilities under the fourth Unregulated Contaminant Monitoring Rule. US EPA may use the UCMR monitoring results for the basis of future actions to regulate cyanotoxins in finished drinking water." **(Submitted by WDNR staff)**

Reason for Exclusion: This topic is specifically for drinking water; the TSR specifically focuses on surface water.

Invasive species in riparian areas causing erosion: Invasive species like phragmites, willow, and buckthorn are causing a large amount stream bank erosion along our rivers, streams and tributaries. These plants create a monoculture along a waters banks and this can cause erosion. **(Submitted by Midwest Chemical & Equipment)**

Reason for Exclusion: This topic has been forwarded to invasive species staff because it does not fit within the scope of the TSR (criteria, designated uses, and antidegradation).

Lake Shoreline Habitat Assessment Tool Development: Develop lakeshore habitat benchmarks that identify disturbance and help prioritize restoration work. According to the 2012 National Lakes Assessment, 52% of lakes are moderately or most disturbed in terms of lakeshore habitat. Lakeshore habitat disturbance impacts lakes in many ways: increased erosion and sedimentation, nutrient loading, loss of structure for wildlife, loss of native plants, and reductions in abundance, diversity, or growth of fish, frogs, aquatic invertebrates and birds. The habitat assessment tool could help identify areas that need improvement and prioritize restoration work. **(Submitted by WDNR staff)**

Reason for Exclusion: While shoreline habitat is related to water quality, it is not strictly a surface water parameter**.** WDNR may continue to evaluate development of this tool as resources become available.

Mining Impacts: Multiple submissions addressed mining in its various forms including frac sand, metallic, and sulfide. Mining waste can include heavy metals that are detrimental to the environment. Concerns included a reduction in regulations for mines and changes in permits resulting in more negative impact from mining on surface waters. **(Submitted by Frac Sand Sentinel, Coalition to SAVE the Menominee River Inc., and the public)**

Reason for Exclusion: This topic is outside the scope of the TSR. This topic has been forwarded to appropriate WDNR staff.

Phosphorus Limit for Point Sources in Door County: "NR 217.13 (1)(b) States: "Water quality based effluent limitations for phosphorus shall be calculated based on the applicable phosphorus criteria in s.NR102.06 at the point of discharge, except the WDNR may calculate the limitation to protect downstream waters. Dunes Lake is an 80 acre drainage lake that is not stratified, and should thus have a total phosphorus limitation of 40 µg/L limit, as stated in NR 102.06 (4), to protect the fish and aquatic life present in this water body. In 2013 monthly observations from May through October were noted for forage fish and young of the year northern pike. In addition a couple of adult northern pike were also observed in the same time period. Lake Michigan is the receiving water body after water from Dunes Lake travels down Shivering Sands Creek. In accordance to NR 102.06(4) the Total Phosphorus limit is listed as 7 µg/L. To date the Sevastopol Sanitary District has not had to meet any phosphorus limits when discharging effluent waters to Geisel Creek. For the protection of aquatic life in Geisel Creek, Dunes Lake, Shivering Sands Creek and Lake Michigan, effluent discharge limitations for total phosphorus need to be limited to a minimum of 40 µg/l.to Geisel Creek, Dunes Lake, Shivering Sands Creek and Lake Michigan. Door County T28N R27E sections 30, 31, & 32.

Reason for Exclusion: Outside the scope of the TSR. Calculation of Water Quality Based Effluent Limits is handled by the Wastewater Program. This topic has been forwarded to those staff.

Phosphorous Listing Methodology: "Currently one trigger for an impaired water listing is exceedance of the phosphorus standard for water quality. When a waterbody is listed as impaired, it starts a process that ultimately results in a point source discharger, like a wastewater treatment plant, being required to meet the phosphorus water quality standard. In situations where a waterbody is listed as impaired and the sole reason for impairment is exceeding the phosphorus standard, it is not equitable to require the point source to solve the phosphorus problem for the waterbody when other sources of phosphorus contributed to the impaired water listing. We would like to see the Department develop a strategy that allows for additional considerations for listing a waterbody as impaired or not when the sole source of the impairment is phosphorus. The reality is that many waterbodies in the state already exceed the phosphorus water quality criteria, but the waterbodies have not been listed as impaired. Taking a holistic view on how waters are listed as impaired may help alleviate the singling out of point sources to solve the phosphorus issue every time a new impaired water listing is released."

> **Reason for Exclusion**: This topic is being addressed partially by the department's current rulemaking effort to establish a "combined criteria" approach for phosphorus. Using this proposed approach, waterbodies that exceed the phosphorus criteria (within a certain range) would not be listed as impaired if the waterbody's biological phosphorus response indicators (algae, plants, etc.) are in good condition. Further, several efforts to spread phosphorus reduction efforts between point and nonpoint sources are already available, including water quality trading, adaptive management, the phosphorus multi-discharger variance, Total Maximum Daily Load (TMDL) allocations across point and nonpoint sources, and Nine Key Element Plans for nonpoint dominated watersheds.

P-Index efficiency: "NR 151 requires croplands, pastures, and winter grazing to average a P-Index of 6 or less over the accounting period to control nonpoint sources of phosphorus to surface waters. While implementing these requirements, data collection related to P-Index and surface water quality goal of the waterbody should be considered and periodic reassessment should be undertaken to ensure that the P-index required in code remains sufficiently protective of surface water quality related to P-enrichment. This in turn could inform the process of listing a surface water as impaired solely because the Phosphorus levels exceed the water quality standard and triggering effluent standards that require point sources to meet water quality standards when nonpoint sources are operating on P-indexes that, if modified, could change the point source requirement." **(Submitted by the Madison Metropolitan Sewerage District)**

> **Reason for Exclusion**: This is outside the scope of the TSR. This topic has been forwarded to Runoff Management Section staff.

Regulation Flexibility Policy Considerations: The Department and wastewater treatment plants have the same goal. Improve water quality. It would be helpful in a general sense that the approach of regulators vs. regulated facility could take into account these broad policy considerations to help facilitate reaching the shared goal: 1. resiliency and climate change and how the regulations and guidance could support innovation by offering avenues for greater risk taking; 2. Encouraging regulatory flexibility; 3. Supporting watershed based approaches and "integrated management" one water approaches; 4. Removing barriers for treated effluent reuse. **(Submitted by the Madison Met Sewerage District)**

> **Reason for Exclusion**: This is outside the scope of the TSR. This topic has been forwarded to WDNR Bureau and Division managers.

Road salt application/monitoring program: Application of road salts in Wisconsin leads to contaminated soil, groundwater, and surface water. Communities across the state have reported elevated

levels of salt in their municipal water supply. Reduction of road use needs community engagement by the WDNR for education, regulation, and enforcement. WDNR needs a program to actively engage municipalities, contractors, the public and others regarding the harms to ground water and surface water of over-salting. **(Submitted by the public)**

> **Reason for Exclusion**: This topic addresses concerns about road salt application and educating the public about the negative environmental impact. While important, this is outside the scope of the TSR (criteria, designated uses, and antidegradation) but has been forwarded to stormwater staff.

Thermal Limits Process: "Certain designated uses trigger the need for a thermal water quality standard on state surface waters. Currently some wastewater treatment plants have alternate effluent limits (AEL) for the thermal water quality standard due to the challenges of meeting thermal standards. AEL typically are reviewed at the end of the 5 year permit term. As the Department reviews and identifies additional designated uses or changes designated uses on waterbodies that treatment plants discharge to, and as permit terms expire, there will be more treatment plants that will potentially need to get an AEL for thermal or get a renewal of an AEL. Since meeting thermal limits is a common challenge for all treatment plants, having the department consider developing a comprehensive approach to how AEL or AEL renewals will be assessed would provide much needed consistency and certainty for Department staff and treatment plants as they plan for meeting future thermal limits." **(Submitted by the Madison Met Sewerage District)**

> **Reason for Exclusion**: This is outside the scope of the TSR. This topic has been forwarded to WDNR's Wastewater Program staff.

Total Maximum Daily Load (TMDL) facility identification: As part of the triennial standard review, WPL recommends that the Department consider revising its procedures to ensure all facilities located in a watershed under evaluation for establishing a TMDL are correctly identified, contacted, and receive a proper waste load allocation. **(Submitted by Wisconsin Power and Light)**

> **Reason for Exclusion**: While important, this is outside the scope of the TSR (criteria, designated uses, and antidegradation) but has been forwarded to TMDL staff.

Trading Program Review: Trading has not been a viable option for most municipal permittees. We request that WDNR examine the trading program and ways to make it a more useful compliance option. **(Submitted by Municipal Environmental Group)**

> **Reason for Exclusion**: Permit compliance through the use of water quality trading is outside the scope of a TSR. This topic has been forwarded to WDNR's Wastewater Program staff.

Water Quantity WQC: "In Portage County, as well as other parts of the state, continue to see increasing densities of high capacity wells that continue to use large quantities of groundwater. Groundwater and surface water are inextricably linked, thus decreasing groundwater levels influence surface water levels. Surface waters impacted by decreased water quantity can also see impacts to their designated uses (loss of or a change to recreation and habitat), as well as potential effects on water quality (increased temperatures, decreased dissolved oxygen, etc.)". **(Submitted by Portage County Planning & Zoning)**

> **Reason for Exclusion**: Water quantity issues are outside the scope of the TSR. This topic has been forwarded to WDNR's Groundwater Section staff.

WET Tests for WQC development: "With recent DNR permitting to allow non-metallic mining / sand mining and processing operations to discharge storm water, waste water and contaminated storm water to ground and surface water, the testing criteria is not sufficient to protect both the water body and the Fishery. Sufficient literature exists explaining the known problems with using the current WET test and systems of labs in determining toxicity. The fatal flaw in WET testing is comparable to when initial testing of pesticides on bees to determine toxicity did not reveal the harm caused by ongoing low-dose exposure. Science now shows pollinator decline due to persistent low-dose exposure. WET testing does not consider long-term low dose exposure for organisms in the food web. The food chain for the fishery may collapse and there is no mechanism to prevent that through WET tests.

> **Reason for Exclusion**: This is outside the scope of the TSR. This topic has been forwarded to WDNR's Wastewater Program staff.

Well Requirements: Request for waivers from well requirements for small dairy farms. **(Submitted by Amish dairy farmers in Monroe County)**

> **Reason for Exclusion**: This topic this is outside the scope of the TSR (criteria, designated uses, and antidegradation) but has been forwarded to WDNR's Drinking Water and Groundwater staff.

Wetland protection: "Wetlands are vital for flood protection, species diversity and clean water. Protections have been eroded during this last year and Wisconsin is at risk for wetland degradation." **(Submitted by the public)**

> **Reason for Exclusion**: This is outside the scope of the TSR. This topic has been forwarded to WDNR's Wetland program staff.