**2018-2020 Triennial Standards Review**

**Topic Descriptions**

This document contains topic descriptions for topics to be ranked and for topics already categorized. Once input is received from internal staff and the public the topics will be put into prioritization groups listed below. Some topics submitted for the 2018-2020 Triennial Standards review were determined to already be in process or had barriers to progress (listed below) and those topics will not be ranked.

The topic rankings done in the survey will determine if the remaining topics are put in Groups B or C.

**TSR Categorization**

**Group A: Standards/guidance with revisions/development currently in process**

1. Antidegradation Policy and Implementation Revision
2. Bacteria Criteria Revision
3. Biological Criteria Development
4. Chloride Variance Streamlining
5. Designated Uses Structure/Process Revision
6. Phosphorus Site­ Specific Criteria (SSC) Guidance and Rules ­ Development
7. Phosphorus assimilative capacity modeling in Great Lakes
8. Wetlands Floristic Quality Assessment Numeric Benchmarks

**Category B: Standards/guidance that are a priority for upcoming cycle**

**Category C: Standards/guidance that should be revised but are not a priority for upcoming cycle**

**Category D: Standards/guidance where barriers to development currently exist**

1. Arsenic Criteria Revision
2. Chloride Criteria Revision
3. Copper Criteria Revision
4. Nitrate/Nitrogen Criteria Development
5. PFOS/PFOA Criteria Development
6. Total Suspended Solids Criteria Development

**Topic Descriptions**

**Topics to be ranked (will be ranked into Group B: Priorities for upcoming 3 years, and Group C: Not priorities for upcoming 3 years)**

B/C 1. 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.

B/C 2. 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.

B/C 3. Aquatic Life Criteria Revision/Development

* 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.
* 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.]

B/C 4. Cyanobacterial Toxin and Cell Density Criteria and/or Guidance Development

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.

B/C 5. Human Health Criteria Revisions/Development

Incorporate recent EPA recommendations into how DNR 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).

B/C 6. 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.

B/C 7. Macroinvertebrate Assessment Metric Update

Aquatic insects, or macroinvertebrates, are used to assess the quality of aquatic life in streams and rivers. Some components of the macroinvertebrate assessment tool (index of biotic integrity, or IBI) could be updated to revise or add pollution tolerance values for some kinds of aquatic insects.

B/C 8. Macroinvertebrate Benchmarks for Great Lakes Wetlands - Development

Develop a tool to assess the health of the aquatic insect community within Great Lakes wetlands (an index of biotic integrity for macroinvertebrates). This could be used as a tool for assessing Great Lakes wetlands similarly to how the DNR currently uses macroinvertebrate assessments for streams and rivers.

B/C 9. 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.

B/C 10. 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 ug/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.

B/C 11. 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 ORW/ERW classification have additional protections afforded them that are not automatically provided for waterbodies not given this classification. 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. .

**Topics that are already in progress (Group A)**

A1. Antidegradation Policy and Implementation Procedure Revision

Antidegradation is a policy designed to protect high quality waters from degradation. The Statement of Scope to revise Wisconsin’s antidegradation policy and implementation procedures was approved in 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.

A2. 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 in January 2016, and the department has completed the draft rule language and a draft economic analysis. Next steps include soliciting economic information from impacted stakeholders and holding public hearings.

A3. 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 DNR currently has a rule package underway to establish biological criteria (biocriteria) and phosphorus response indicators for several biological metrics. Several of these metrics have been in use for some time as part of the DNR’s waterbody assessment guidance and were refined for this rule package. The DNR has been meeting with an advisory committee of stakeholder representatives to obtain feedback on the proposed rule changes since June 2016.

A4. Chloride Variance Streamlining

Many wastewater treatment facilities in Wisconsin are not able to meet the 395 mg/L chronic criterion in their effluent for a variety of reasons. Variances to chloride water quality standards can be applied for which allow facilities additional time to meet the limit through creative source reduction measures. In consultation with U.S. EPA (which must approve individual variances), DNR is developing procedures and information for wastewater dischargers seeking chloride variances designed to streamline the process.

A5. 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.

A6. Phosphorus Assimilative Capacity Modeling Development for the Great Lakes

An assimilative capacity model for phosphorus in the Great Lakes would help DNR set appropriate phosphorus effluent limits for discharges to these waters. The DNR 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 DNR 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.

A7. Phosphorus Site-Specific Criteria Process Development

The DNR 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 more 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 DNR has been meeting with an advisory committee of stakeholder representatives to obtain feedback on the proposed rule changes since June 2016.

A8. Wetland Floristic Quality Assessment –Development of Numeric Benchmarks

Floristic Quality Assessment (FQA) benchmarks are a measure of biological integrity as reflected in the plant community of a wetland. They are determined by the proportional cover of plant species with different tolerances to disturbance. Field surveys have been completed in the four major ecoregions of Wisconsin. Data analysis will be conducted and a peer-reviewed final report produced in 2018-2019. The report will propose FQA benchmarks for wetland plant communities that can be used to define a gradient of biological health.

**Topics that will not be ranked because there are barriers to further work at this time (Group D)**

D1. Arsenic Criteria Revision

*Status: Awaiting Further Toxicity Studies, Evaluation or New Criteria by U.S. EPA*

Consider revising the arsenic surface water quality criteria based on any new toxicity information. In WI, the human cancer criterion (HHC) for arsenic is 0.2 pbb which is much lower than the drinking water enforcement standard and maximum contaminant level of 10 ppb. Although both of these standards cover drinking water exposure and utilize EPA methodologies for calculation, they were developed under completely separate federal and state statutes and regulations. They use different health risk endpoints. The methodology for a drinking water standard allows for consideration of factors in addition to health risk such as feasibility and cost of compliance, and natural occurrence of arsenic in drinking water.

D2. Chloride Criteria Revision

*Status: Awaiting Further Toxicity Studies, Evaluation or New Criteria by U.S. EPA*

Consider revising 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.

D3. Copper Criteria Revision

*Status: Implementation Issues*

Consider revising the existing copper water quality criteria or providing 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.

D4. Nitrate/Nitrogen Criteria Development

*Status: Awaiting Further Toxicity Studies, Evaluation or New Criteria by U.S. EPA*

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.

D5. Perfluorooctane Sulfonate (PFOS) and Perfluorooctanoic Acid (PFOA) Criteria Development

*Status: Awaiting Toxicity Evaluation and Guideline Development by Wisconsin Department of Health Services*

Develop new water quality criteria for these substances that were used widely for flame-retardants and anti-sticking agents in various industrial and consumer products. These substances can cause foaming in surface water and pose a human health risk in drinking water.

D6. Total Suspended Solids (TSS) Criteria Development

*Status: Awaiting Further Analysis of Data*

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.

**Specific Designated Use Revisions**

WDNR received recommendations for specific waterbodies/basins whose existing designated uses should be re-evaluated to see if a higher use could be supported. These recommendations included Milwaukee River basin rivers/streams and Geisel Creek (Door County), currently classified as Limited Forage Fish or Limited Aquatic Life. The department plans to review designated uses during this triennial cycle after its current rulemaking effort to revise the designated uses classification system is complete. The Milwaukee River basin rivers/stream updates are included as part of the proposed changes within the rule package currently underway.