



# 2015 - 2017

## Triennial Standards Review

### Topic Status Report

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**In the 2015-2017 Triennial Standards Review, staff, external partners, and the public identified a number of water quality standards topics for development/revision. These topics ranged from revising the mixing zone policy to developing phosphorus implementation guidance to adopting biological water quality criteria. Topics were ranked by priority and DNR began working on high priority topics. This Topic Status Report summarizes the progress that has been made on these topics since 2015.**

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Sharon Gayan, Director  
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Date

## Introduction

Every three years, the Wisconsin Department of Natural Resources (DNR) reviews Wisconsin's water quality standards as required by the Clean Water Act. This comprehensive evaluation, called the Triennial Standards Review, is an essential process in keeping Wisconsin's waters swimmable, fishable, and drinkable.



Water quality standards act as guidelines for setting an appropriate level of protection for Wisconsin's lakes, rivers, and streams. These standards consist of the following:



- **Designated uses:** Goals established for each waterbody
- **Water Quality Criteria:** Numeric or narrative benchmarks established to protect the designated uses
- **Antidegradation:** Policy and procedures established to protect high quality waters



Water quality variances are also reviewed as part of the Triennial Standards Review.

- **Water Quality Variances:** Short-term changes to water quality standards when criteria are unattainable

The Triennial Standards Review helps DNR focus efforts to integrate the latest science, technology and federal requirements into how the State regulates water quality. In addition, the review assists the DNR with work-planning and identifying needed actions for moving projects forward.

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**Status Update in Numbers**

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**32**

**Topics identified in the 2015-2017 Final Report**

**4**

**New tools and data sets in development**

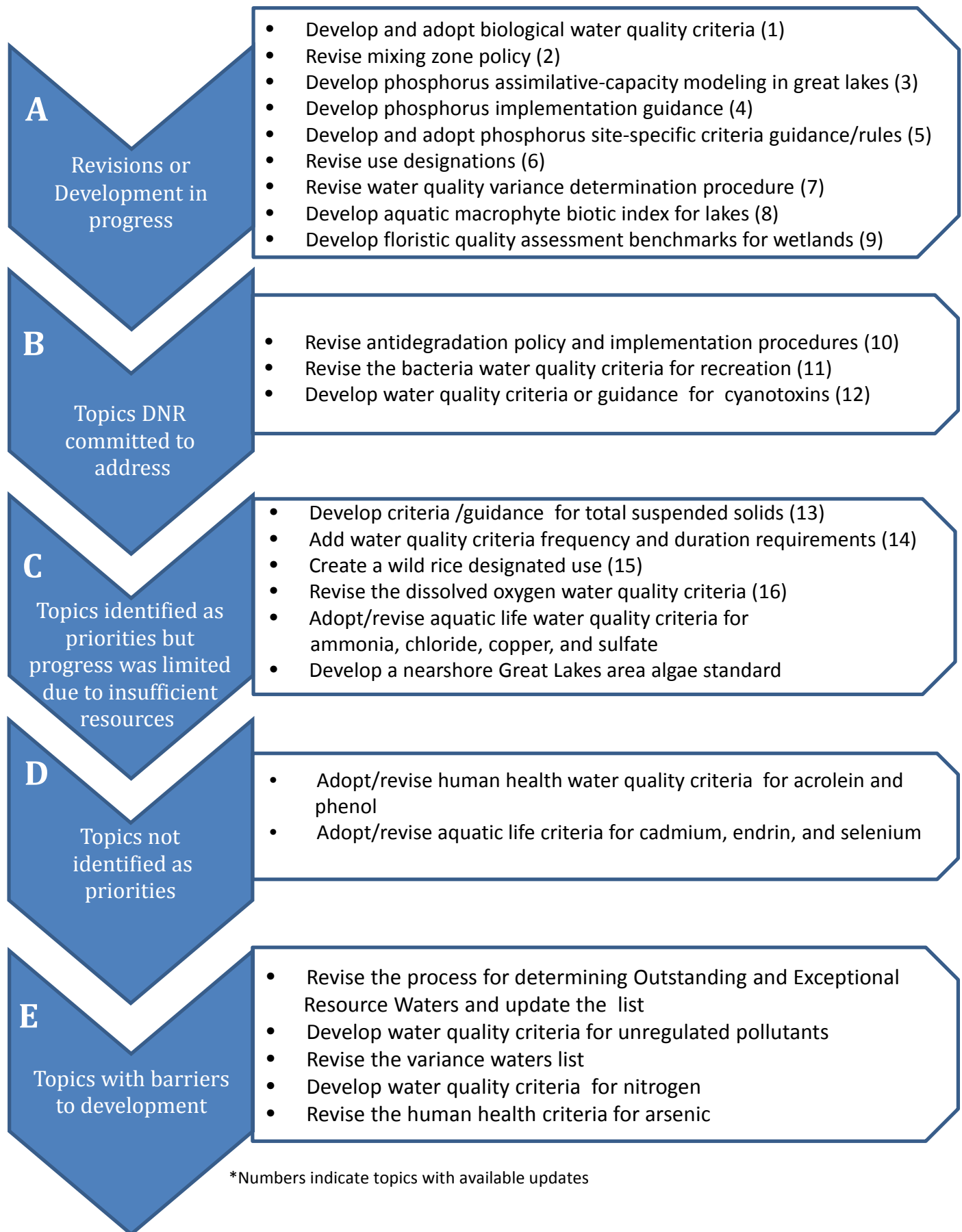
**2**

**New rule packages in progress**

**2**

**Rule packages completed**

**Topics were organized into the following categories:**



\*Numbers indicate topics with available updates



*Category A: Revisions or development currently in progress*

**1. Aquatic Macrophyte Index**

The aquatic macrophyte index evaluates how human disturbance factors (e.g., population, nutrients, land use) impact the distribution of plant species in a lake. This tool can be used to assess whether a lake is responding biologically to a suite of indicators, including phosphorus. A lake Macrophyte Assessment of Condition (MAC) tool and biocriteria thresholds were completed in 2017. Biocriteria thresholds from the MAC method and the phosphorus response tool are proposed as draft language in the biological water quality criteria rule package. A paper documenting this method has been accepted for publication by the *Journal of Environmental Management*.

For more information, visit

<http://www.sciencedirect.com/science/article/pii/S0301479717304723>

## **2. Biological Water Quality Criteria**

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 criteria (PRC) 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.

For more information, visit <http://dnr.wi.gov/topic/SurfaceWater/dubc.html>

## **3. Mixing Zone Policy**

Two rule packages related to Mixing Zones were completed in 2016. These rule packages updated Wisconsin administrative code to reflect current practice and federal requirements.

The first rule package updated ch. NR 106 to phase out mixing zone allowances for dischargers of bio-accumulative chemicals of concern in the Great Lakes system, regulate discharge when a pollutant is present in intake water, and remove of an exemption from water quality based effluent limitations for noncontact cooling water additives.

For more information, visit [https://docs.legis.wisconsin.gov/code/chr/all/cr\\_15\\_084](https://docs.legis.wisconsin.gov/code/chr/all/cr_15_084)

The second rule package updated ch. NR 106, NR 205, and 212 to modify the procedures for calculating water quality based effluent limitations of toxic substances, change how effluent limits in WPDES permits are expressed, and revise the procedures for determining when whole effluent toxicity limitations are required.

For more information, visit [https://docs.legis.wisconsin.gov/code/chr/all/cr\\_15\\_085](https://docs.legis.wisconsin.gov/code/chr/all/cr_15_085)

## **4. Phosphorus Assimilative Capacity Model**

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.

## **5. Phosphorus Implementation Guidance**

This implementation guidance provides tools to set phosphorus effluent limits based on the latest scientific knowledge. Updates to guidance were finalized in February 2017. Revisions included improvements to compliance schedule language, addition of guidance on calculating interim limits for phosphorus, addition of guidance relating to adaptive management and water quality trading, and revisions to the procedures for calculating phosphorus limits to protect downstream waters.

For more information, visit

<http://dnr.wi.gov/topic/SurfaceWater/documents/phosphorus/PhosphorusGuidance.pdf>

## **6. Phosphorus Site-Specific Criteria**

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 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.

For more information, visit <http://dnr.wi.gov/topic/SurfaceWater/dubc.html>

## **7. Aquatic Life Use Designations**

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>

## **8. Variance Determination Procedure**

Ch. NR 104, Wisc. Admin. Code, contains a list of waterbodies that were listed as “variance waters” in the 1970s and 80s. DNR has determined that these waters are more appropriately considered designated uses rather than variances. DNR is currently working to correct the terminology in ch. NR 104 as part of the designated use rule package. The current rule package does not make updates to individual waterbodies’ designated uses; rather, it focuses on updating the overall designated uses classification framework.

For more information, visit <http://dnr.wi.gov/topic/SurfaceWater/dubc.html>

## **9. Floristic Quality Assessment Benchmarks**

Floristic Quality Assessment Benchmarks metrics are a measure of biological integrity as reflected in the plant community of in a wetland. They and are determined by the quantity proportional cover of plant species with varying different tolerances to disturbance. Surveys have been conducted in the major ecoregions several areas of Wisconsin. Currently field work is being conducted in the Southeast Wisconsin Till Plains, which will result in a complete data set for the entire state by the end of the 2017 field season. Data analysis will be conducted and a peer-reviewed final report produced in mid-2018. The report will propose FQA benchmarks for wetland plant communities that can be used to define tiered aquatic life uses along a gradient of biological health.

### *Category B: Topics the DNR committed to addressing*

## **10. Antidegradation Policy and Implementation Procedures**

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>



## **11. Bacteria Water Quality Criteria for Recreation**

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>

## **12. Cyanotoxin Water Quality Criteria**

To protect people from toxins that can be produced by harmful algal blooms, the United States Environmental Protection Agency (EPA) released draft recreational water quality criteria and swimming advisory values for microcystin and cylindrospermopsin in December 2016. In anticipation of the finalization of these criteria, the DNR has not yet adopted criteria for cyanotoxins.

*Category C: Topics identified as priorities but progress was limited due to insufficient resources*

## **13. Dissolved Oxygen Water Quality Criteria**

Dissolved oxygen is vital for supporting fish and other aquatic life in a stream or lake. Revisions and additions to the dissolved oxygen criteria are included as part of current rule package on Designated Uses. These revisions include specifying where and when the cold water dissolved oxygen criteria apply. Additional updates to the dissolved oxygen criteria are likely needed in the future.

#### **14. Total Suspended Solids**

Excess suspended solids in waterbodies can be caused by a number of factors including soil erosion, wastewater discharge, snowmelt, and storm water runoff. Suspended particles scatter and absorb light rays instead of transmitting them decreasing light penetration. This can reduce the number of rooted plants which yields less habitat for fish/aquatic life. The DNR has conducted an analysis of Total Suspended Solids (TSS) data around the state. Data are currently being analyzed across stream types to test for thresholds in biological responses using macroinvertebrate and fish indices of biotic integrity.

#### **15. Water Quality Criteria Frequency and Duration**

The frequency and duration components of a water quality criterion stipulate the amount of time and number of occurrences a concentration of a pollutant can be over the numeric benchmark. Adding frequency and duration components to the existing water quality criteria is unlikely to happen at a single point in time. Instead, the DNR plans to include frequency and duration requirements as criteria are revised in the future.

#### **16. Wild Rice Designated Use**

Wild rice is an important ecological and cultural resource in Wisconsin, particularly in tribal areas. The distribution of wild rice has been greatly reduced from its historical range within the Great Lakes region and specifically within Northern Wisconsin and the Menominee Indian Reservation. The DNR is not proposing a separate designated use for wild rice at this time. The DNR has an existing classification for wild rice waters as an Area of Special Natural Resource Interest in the ceded territories in the northern half of the state. Waters in this classification are managed and protected for wild rice. The DNR's Wild Rice Advisory Committee is working on developing a strategic analysis and held a public comment period on it in 2016.

Status Summary		
Category	Topic	Update (if available)
<b>A</b> Revisions or development in progress	Develop aquatic macrophyte biotic index for lakes	Tool developed and article accepted for publication
	Develop/adopt biological water quality criteria	Rule revision underway
	Revise the mixing zone policy	Rule revisions approved in Fall 2016
	Develop an assimilative capacity model for phosphorus in the Great Lakes	Collaborative model development with UW-Milwaukee
	Revise the phosphorus implementation guidance	Guidance revision completed in February 2017
	Develop/adopt phosphorus site-specific criteria/procedures	Rule package underway
	Revise aquatic life designated use system	Rule package underway
	Update variance determination procedure	Updated language proposed in Designated Use rule revision
	Develop floristic quality assessment benchmarks for wetlands	Field work underway. Data analysis and final report expected mid-2018.
<b>B</b> Topics DNR committed to work on	Revise antidegradation policy and implementation procedures	Scope approved and rule revision in progress
	Revise bacteria water quality criteria for recreation	Scope approved and rule revision in progress
	Develop water quality criteria/guidance for cyanotoxins	Waiting for EPA to finalize criteria recommendations
<b>C</b> Topics identified as propriety but progress was limited due to insufficient resources	Adopt/revise aquatic life criteria for ammonia, carbaryl, chloride, copper, and sulfate	N/A
	Revise dissolved oxygen water quality criteria	Revisions and additions to criteria proposed in Designated Use rule package
	Develop nearshore algae standard for the Great Lakes	N/A
	Develop criteria/guidance for total suspended solids	Data analysis underway
	Add water quality criteria frequency and duration requirements	Plan to include in future criteria revisions
	Create a wild rice designated use	Evaluated options
<b>D</b> Topics not identified as priorities	Adopt/revise human health criteria for acrolein and phenol	N/A
	Adopt/revise aquatic life criteria for cadmium, endrin, and selenium	N/A
<b>E</b> Topics with barriers to development	Revise the human health criteria for arsenic	N/A
	Develop water quality criteria for nitrogen	N/A
	Revise the process for determining outstanding and exceptional resources waters	N/A
	Develop water quality criteria for unregulated pollutants	N/A
	Update the variance waters list	N/A