WISCONSIN DEPT. OF NATURAL RESOURCES

BUREAU OF WATER QUALITY
WATER EVALUATION SECTION

2015-2017 TRIENNIAL STANDARDS REVIEW (TSR) PRIORITIES FOR THE WATER QUALITY STANDARDS PROGRAM

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Bureau of Water Quality

2015-2017 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 twice solicited input from staff, partners, and the public, first to gather topics and second to rank the topics. The ranking of topics was done through online surveys. The results from the surveys were used to determine the final work prioritization for 2015-2017. The final list of topics included three new priorities: Antidegradation, Bacteria Water Quality Criteria (WQC), and Cyanobacterial Toxin and Cell Density WQC or Guidance. 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): 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 and once compiled these same groups 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. This process 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 October 30th to December 2nd, 2013. The Topic Solicitation Form was sent out to WDNR staff, external partners, and the public. There were 18 entities that submitted a total of 55 topics. Similar topics were combined and topics not suited for a TSR were removed. The end result was 33 topics for review.

Topic Solicitation Form

TRIENNIAL STANDARD REVIEW (TSR): Topics for Consideration

Due Date: December 2, 2013

Please Submit To:
Camille Turcotte
Via email is preferred: camille.turcotte@wisconsin.gov
Or by mail: WI DNR Attn: Camille Turcotte
101 S. Webster St. Madison, WI 53703

Fill out this form to submit one or more topics for consideration in the 2014 planning of the 2015-2017 TSR cycle. Please include a detailed description of your topic in order to facilitate decision making. Topics from the last TSR cycle that are currently in progress will automatically be included and are listed on the second page. Topics from the last TSR cycle that are completed are also listed for your reference. 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 Camille Turcotte with any questions or comments via email listed above or call 608-266-9262. We greatly appreciate your input!

Name:	
Organization:	**Position/Title:**
E-mail:	**Phone:**

New Topics For Consideration

	Topic	Reason for Consideration/Topic Description
1		
2		
3		
4		
5		
6		

TOPIC DESCRIPTIONS

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. Topics that were submitted but not appropriate for inclusion in the TSR are described in Appendix A.

Acrolein Water Quality Criteria Revision: Acrolein is used as a pesticide to control algae, weeds, bacteria, and mollusks. It is also used to make other chemicals. Small amounts of acrolein can be formed and enter the air when trees, tobacco, other plants, gasoline, and oil are burned. The U.S. EPA has published national recommended water quality criteria for the protection of human health for acrolein. These updated criteria are based on U.S. EPA's Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health (2000 Human Health Methodology) (EPA-822-B-00-004) and supersedes prior recommended criteria for this chemical. WDNR needs to revise their acrolein criteria to reflect U.S. EPA updates. Related Rule(s): NR 105 Surface Water Quality Criteria **(Submitted by the U.S. EPA)**

Ammonia Water Quality 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. New toxicity data was used to calculate more restrictive criteria that were not used to develop Wisconsin's criteria. States are expected to revise their criteria in order to be protective of all aquatic organisms. Wisconsin has widespread occurrence of unionid mussels that are sensitive to ammonia. Therefore, the WDNR needs to review and possibly revise NR 105 to update the ammonia WQC to ensure protection of mussels as well as other aquatic organisms. Related Rule(s): NR 105 Surface Water Quality Criteria
(Submitted by the U.S. EPA and WDNR staff)

Antidegradation Procedures Revision: The U.S. EPA has encouraged WDNR to review and revise its rules and implementation procedures to address 7 key areas of antidegradation: 1) public participation; 2) protection of existing uses; 3) definition of increased load; 4) threshold for determining significant lowering of water quality; 5) increased limits due to revised and less stringent water quality criteria; 6) criteria for determining necessary social & economic development; and 7) application of antidegradation to stormwater discharges. WDNR has acknowledged that revisions to policies/procedures may be needed. WDNR has reviewed the antidegradation policies from U.S. EPA/other Region 5 states to determine changes needed. Rulemaking will be necessary to formalize any revisions to policies/procedures. Related Rule(s): NR 102 Water quality standards for Wisconsin surface waters, NR 207 Water quality antidegradation.
(Submitted by the U.S. EPA, WDNR staff, and the public)

Topic Descriptions (continued)

Arsenic Water Quality Criteria Revision: Arsenic is a naturally occurring element found in soil and minerals and has been used in a variety of products and industries (e.g., pesticides, wood preservation, paints) over the years. Arsenic can enter ground and surface waters through both natural (e.g., volcanic action, erosion of rocks, forest fires) and manmade (e.g., mining, spills, runoff) processes. The U.S. EPA has classified arsenic as a Class A human carcinogen meaning that there is "adequate human data to demonstrate the causal association of [arsenic] with human cancer."

In WI, the human cancer criterion (HHC) for arsenic is 0.2 pbb (NR 105.09). This criterion represents a 1 in 100,000 lifetime cancer risk and is based on the oral slope factor for skin cancer and drinking water and fish consumption rates. The HHC is a criterion for public health and welfare use and "shall be met regardless of whether the surface water is used for public drinking water supply or the applicable fish and aquatic life subcategory" (NR 102.04).

The drinking water enforcement standard (NR 140.10) and maximum contaminant level (NR 809.11) is 10 ppb. This criterion was based on a number of factors including health risk (specifically bladder cancer), feasibility and cost of compliance, and natural occurrence of arsenic in drinking water. This criterion represents a 14/18 (females/males) in 10,000 for lung cancer and 12/23 (females/males) in 10,000 for bladder cancer.

There are several issues with the criteria for arsenic: 1) the drinking water criteria are 50x higher than HHC even though the HHC accounts for drinking water consumption; 2) while both the drinking water criteria and HHC were calculated using U.S. EPA recommended approaches, they use different cancer slope factors. The slope factor for skin cancer was used for HHC while the slope factor for bladder cancer was used for the drinking water criteria; 3) there is an ongoing national debate as to how the oral cancer slope factor is determined, whether arsenic has a threshold effect dose, and how the lifetime cancer risk is calculated. Related Rule(s): NR 102 Water quality standards for Wisconsin surface waters, NR 105 Surface water quality criteria and secondary values for toxic substances, NR 140 Ground Water Quality, NR 809 Safe drinking water
(Submitted by the public)

Aquatic Macrophyte Biotic Index for Lakes Development: Currently, the WDNR does not have any assemblage-based biological criteria to assess lake health. The WDNR has invested in studying macrophyte communities in lakes across the state, and a rich data set exists. More work is needed to develop biological criteria based on macrophytes for different types of lakes. Compared to other biological endpoints (e.g. fish, benthic macroinvertebrates, zooplankton), macrophytes have the greatest potential for developing lake biological criteria. This could be guidance and/or criteria. Related Rule(s): NR 102 Water quality standards for Wisconsin surface waters
(Submitted by WDNR staff)

Bacteria Criteria Development: The pathogen indicator standard applicable to Wisconsin lakes, rivers, and streams is currently fecal coliform. In the open waters of the Great Lakes, Wisconsin's standards and the applicable criteria is *E. coli*. The U.S. EPA revised their recreational water quality criteria in October 2012 to use *E. coli* and/or Enterococci as the indicator organisms. Wisconsin will need to pursue revisions to NR 102 to update the criteria for surface water pathogen indicators and may possibly need to also revise NR 210 as it relates to disinfection of wastewater. Related Rule(s): NR 102 Water quality standards for Wisconsin surface waters, NR 210 Sewage treatment works.
(Submitted by WDNR staff)

Topic Descriptions (continued)

Biological Water Quality Criteria Development: WDNR is proposing development and codification of water quality criteria for a suite of biological metrics that are used to assess waterbodies and determine impairments. Biological criteria (or "biocriteria") set expectations for measures of fish, aquatic insects, plants, and algae. These criteria represent critical assessment benchmarks for determining the health of the state's streams, rivers, and lakes. Biocriteria would be used to determine whether a waterbody is meeting its designated uses, or should be placed on the impaired waters list (303(d) list) based on the biology alone or as confirmation of a nutrient impairment. Related Rule(s): NR 102 Water quality standards for Wisconsin surface waters.
(Submitted by the U.S. EPA and WDNR staff)

Cadmium Water Quality Standards Revision: Cadmium is a naturally occurring metal that is often extracted from zinc ores and used for batteries and electroplating. Sources of Cadmium in surface waters are discharge from metal refineries, runoff from waste batteries and paints, or erosion of natural deposits. The U.S. EPA has requested the WDNR evaluate cadmium criteria to ensure that Wisconsin's water quality criteria are consistent with federal criteria. Revisions to Chapter NR 105 are necessary to synchronize Wisconsin's toxic substance criteria with federal criteria promulgated by the U.S. EPA. Proposed Revisions for cadmium are intended to provide appropriate protection for human health as well as fish and aquatic life for chemical species that are frequently detected in Wisconsin discharge water. Related Rule(s): NR 102 Water quality standards for Wisconsin surface waters
(Submitted by the public)

Carbaryl Water Quality Criteria Development: The U.S. EPA recently published updated aquatic life criteria recommendations for carbaryl so WDNR should consider adopting a Carbaryl Water Quality Criteria. Carbaryl belongs to a family of chemicals that kill or control insects (insecticides) known as carbamates. Carbaryl is used to control a wide variety of pests, including moths, beetles, cockroaches, ants, ticks, and mosquitoes. Products with carbaryl can be formulated as dusts, wettable powders, liquid concentrates, granules, or baits. Carbaryl products are used on fruits, vegetables, rangeland, lawns, ornamental plants, trees, and building foundations. Related Rule(s): NR 105 Water Quality Criteria
(Submitted by the U.S. EPA)

Chloride Water Quality Criteria Revision: The Iowa DNR has promulgated chloride criteria based on new toxicological data (from 2009) and are related to sulfate and chloride concentrations in waterbodies. The WDNR should review new toxicological data to ensure Wisconsin's chloride criteria are providing the appropriate level of protection for fish and aquatic life species. Many POTWs (Publicly-Owned Treatment Works) in Wisconsin are operating under chloride variances driven by the current method to determine acute and chronic criterion. Criterion developed based on hardness and sulfate concentrations may result in less stringent, but scientifically defensible criterion. This could reduce the need for utilizing chloride variances in discharge permits and allow both the WDNR and permittees to better target limited resources. Related Rule(s): NR 105 Surface water quality criteria for toxic substances.
(Submitted by WDNR staff and the public)

Copper Water Quality Criteria Revision: 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 will use the Biotic Ligand Model (BLM), a metal bioavailability model, to determine appropriate copper criteria for these regions of Wisconsin. Related Rule(s): NR 105 Water Quality Criteria; s. 283.15, Wis. Stats., Variances to water quality standard.
(Submitted by WDNR staff)

Topic Descriptions (continued)

Cyanobacterial Toxin and Cell Density Water Quality Criteria and/or Guidance: Blue-green algae blooms create aesthetic and ecological problems in lakes, hinder recreational use, and if cyanobacterial toxins are produced, pose health risks to humans and animals. Wisconsin lacks formal criteria for cyanobacterial toxins and cyanobacterial cell densities. With only informal guidance available from the WDNR, public health efforts to educate and protect the public from blue-green algae blooms in Wisconsin are piecemeal. Adopting the World Health Organization (WHO) recreational risk assessment guidelines on a provisional basis, drafting Wisconsin-specific recreational guidelines, or developing water quality criteria for cyanobacterial toxins and cell densities would give public health officials a tool and impetus to improve the protection of human and animal health. Provisionally adopting the WHO guidelines could alleviate challenges in quantitative cell and toxin density determinations, as the guidelines include qualitative assessments, which are correlated with quantified risk factors. These qualitative guidelines from the WHO offer public health officials a quick, easy way to assess risk from blooms. Adopting the WHO guidelines on a provisional basis, drafting Wisconsin-specific guidelines, or developing water quality criteria for cyanobacteria could give more impetus to local public health officials' roles in improving notification, education, and protection of the public in regards to cyanobacterial blooms. Related Rule(s): NR 102 Water quality standards for Wisconsin surface waters, NR 105 Surface water quality criteria for toxic substances, NR 809 Safe drinking water, NR 140 Groundwater quality.
(Submitted by WDNR staff and the State Lab of Hygiene)

Dissolved Oxygen Water Quality Criteria Revision: Wisconsin's minimum water quality criteria for dissolved oxygen (DO) were developed in the early 1970's and have not been updated. Several challenges to the appropriateness of the DO criteria have been made in formal and informal reviews of WPDES permits for wastewater treatment facilities. Most often the challenges surround the question of whether or not the DO criteria are adequately protective of threatened and endangered fish and other aquatic life species. Maintaining adequate concentrations of DO is vitally important for supporting fish, invertebrates and other aquatic life. Any effort to review the applicability of DO criteria would need to consider the multiple use designations currently a part of NR 102. Related Rule(s): NR 102 Water quality standards for Wisconsin surface waters, NR 104 Uses and designated standards, NR 212 Waste load allocated water quality related effluent limitations, NR 151 Runoff Management.
(Submitted by WDNR staff)

Endrin Chronic Water Quality Standards Revision: Endrin is used as an insecticide and rodenticide. It primarily enters waterbodies through application to soil in fields. The persistence of endrin in the soil led to a reduction of its use. The U.S. EPA recommended criterion is 0.036 µg/L, and the Agency approved 0.036 µg/L in 2009. Wisconsin published a criterion of 0.05 µg/L. WDNR should consider revising their endrin criteria to protect warm water sport fish, warm water forage fish waters. Rule(s): NR 105 Surface Water Quality Criteria.
(Submitted by the U.S. EPA)

Topic Descriptions (continued)

Floristic Quality Assessment Criteria for Wetlands: The Clean Water Act requires that states monitor and assess the quality of wetlands, which necessitates measurement tools. Floristic Quality Assessments are a measure of biological integrity in a wetland, determined by the quantity of plant species with different tolerances to wetland disturbance. Wisconsin currently has a narrative standard for floristic integrity created in 2003. WDNR is developing numeric Floristic Quality Assessment benchmarks or criteria for evaluating plant community integrity in Wisconsin wetlands. This would be the first attempt at a numeric water quality standard, but not meant to replace the current narrative standard for floristic integrity. Minnesota and Ohio have standards for possible reference.
(Submitted by WDNR staff)

Mixing Zone Policy Revision: Review and consider updating mixing zone policy at NR 102.05(3) and implementation rules, including: the default use of 2 X ATC to set limits for acute when stream flow approaches zero (NR 106.06(3)(b)). Mixing zones are limited areas associated with point source discharges in which water quality standards may be exceeded. The area associated with these zones varies according to the type of pollutants and the type of protection warranted (i.e. acute, chronic, etc.). As part of the federal Great Lakes Water Quality Initiative of 1995, the U.S. EPA required states to eliminate mixing zones altogether for certain bioaccumulative pollutants. To be consistent with federal law, Wisconsin must revise its mixing zone provisions to eliminate such mixing zones. Related Rule(s): Ch. NR 102, Wis. Adm. Code, Water quality standards for Wisconsin surface waters; Chapter NR 106, Wis. Adm. Code, Procedures for calculating water quality based effluent limitations for toxic and organoleptic substances discharged to surface waters; Chapter NR 212, Wis. Adm. Code, Waste load allocated surface water quality related effluent limitations
(Submitted by the U.S. EPA and the public)

Nearshore Great Lakes Area Algae Standard: Develop algae standards for nearshore Great Lakes areas (Lake Michigan) in accordance with the recommendations of the International Joint Commission and the Great Lakes Water Quality Agreement protocols. For the past several years, large quantities of decaying algae, mostly Cladophora, have been fouling Wisconsin's Lake Michigan shoreline. Nuisance levels of algae at Great Lakes beaches may impair recreational uses of beach areas. Part of the standards could include development of a method to apply the narrative standards in s. NR 102.04(1) to assess Cladophora levels in order to identify recreational use impairments of Great Lakes beaches. Related Rule(s): NR 102 Water quality standards for Wisconsin surface waters.
(Submitted by WDNR staff and the public)

Nitrogen Water Quality Standards 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 standards 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 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. Related Rules: NR 102 Water quality standards for Wisconsin surface waters, NR 210 Sewage treatment works, NR 809 Safe drinking water, NR 140 Groundwater quality.
(Submitted by WDNR staff and the public)

Topic Descriptions (continued)

Outstanding & Exceptional Resource Waters Process for Determination and List 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. Therefore, the method to add or delete waters from the list of ORW/ERWs is yet unclear to staff and citizens of the state. An effort to update this process should be considered. Pending the outcome of the ORW/ERW process determination redesign, WDNR may initiate a review of previously codified Outstanding and Exceptional Resource Waters. In addition, WDNR may consider additional waters for inclusion in the ORW/ERW designation. Related Rule(s): NR 102 Water quality standards for Wisconsin surface waters, NR 207 Water quality antidegradation.
(Submitted by WDNR staff)

Pesticides Water Quality Standards Development: Pesticides have been implicated in a number of environmental trends, including declines in pollinator populations, increasing soil and water contamination, and the buildup of persistent organic pollutants. Dispersion of pesticides to aquatic ecosystems is a particularly pressing issue that must be addressed. WDNR should consider adopt the existing aquatic life benchmarks for pesticides that have been compiled by the U.S. EPA's Office of Pesticide Programs. These benchmarks, which represent baseline risk assessments, present scientifically rigorous estimates of bio-toxicity thresholds of hundreds of registered pesticides to fish, invertebrates, and vascular and nonvascular plants. Pesticide concentrations below the "chronic" thresholds described in this dataset are not expected to harm aquatic life, and should represent starting points for developing pesticide water quality standards for the State of Wisconsin. Given the proliferation of novel pesticides and continual introduction of new chemicals in the realm of pest control, it is important for WDNR to harness existing U.S. EPA data to begin the process of defining pesticide water quality standards in the State. Related Rule(s): NR 105 Surface Water Quality Criteria
(Submitted by a Wisconsin Native American Tribe)

Phenol Water Quality Standards Revision: Phenol is used to make detergents, herbicides, and pharmaceutical drugs. The U.S. EPA has published national recommended water quality criteria for the protection of human health for phenol. These updated criteria are based on U.S. EPA's Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health (EPA-822-B-00-004) and supersedes prior recommended criteria for this chemical. WDNR needs to revise their phenol criteria to reflect U.S. EPA updates.
http://water.epa.gov/scitech/swguidance/standards/criteria/health/phenol_index.cfm.
Related Rule(s): NR 105 Surface Water Quality Criteria
(Submitted by the U.S. EPA)

Phosphorus Assimilative-Capacity Modeling in Great Lakes: This was in the previous TSR cycle under the title "Phosphorus Near Shore or Whole Lake Models for Great Lakes Development & Implementation Development" and was changed for clarity. Pursuant to s. NR 217.13(4), Wis. Adm. Code, the Department shall set phosphorus effluent limits for discharges to the Great Lakes consistent with nearshore or whole lake assimilation model results approved by the Department. An interim approach for calculating total phosphorus limits for direct discharges to the Great Lakes is being used in the meantime. Related Rule(s): Ch. NR 217, Wis. Adm. Code, Effluent Standard and Limitations
(Submitted by the public)

Topic Descriptions (continued)

Phosphorus Implementation Guidance Revision: Wisconsin's water quality standards for phosphorus took effect on December 1, 2010. Implementation guidance was made available January 2, 2012 to clarify the implementation elements described in ch. NR 217. Since that time, WDNR has improved several aspects of its program through implementation of these standards. This guidance document should be updated to reflect these improvements: 1) improved compliance schedule language, 2) additional guidance on calculating interim limits for phosphorus, and 3) calculating phosphorus limits to protect downstream waters. This guidance document should also be amended to reflect recently developed guidance relating to adaptive management and water quality trading. Related Rule(s): NR 102 Water quality standards for Wisconsin surface waters; NR 217 Effluent.
(Submitted by WDNR staff and the public)

Phosphorus Site-Specific Criteria (SSC) Guidance and Rules Development: Wisconsin has developed numeric water quality criteria to protect fish and aquatic life from the effects of excess phosphorus. However, site-specific conditions may cause statewide criteria to be more or less protective than necessary to maintain a balanced indigenous biological community. WDNR has not codified procedures for deriving site-specific criteria for nutrients including phosphorus pursuant to s. NR 102.06(7). WDNR is currently developing guidance to inform staff and external audiences about standard procedures that can be used to develop site-specific criteria for nutrients. WDNR also should develop a rule that defines the site-specific criteria development process. Related Rule(s): NR 102 Water quality standards for Wisconsin surface waters, NR 217 Effluent Standard and Limitations.
(Submitted by WDNR staff and the public)

Selenium Water Quality Standards Revision: The U.S. EPA has requested the WDNR evaluate selenium criteria to ensure that Wisconsin's water quality criteria are consistent with federal criteria. Revisions to Chapter NR 105 are necessary to synchronize Wisconsin's toxic substance criteria with federal criteria promulgated by U.S. EPA. Proposed Revisions for selenium are intended to provide appropriate protection for human health as well as fish and aquatic life for chemical species that are frequently detected in Wisconsin discharge water. Related Rule(s): NR 102 Water quality standards for Wisconsin surface waters
(Submitted by the public)

Sulfate Water Quality Standards Development: Develop water quality criteria for sulfate in order to protect and restore Wisconsin's wild rice population. Sulfate occurs naturally in mineral salts found in soil. Anthropogenic sources of sulfate include fossil fuel combustion, mining, gas processing, wastewater treatment, and other industrial facilities. Studies have shown that low aquatic sulfate levels (about 10 parts per million) provide good habitat for wild rice populations. Wild rice has a permanent, cultural and dietary importance to the indigenous communities and also provides subsistence for many Wisconsin residents and wildlife species. A recent collaborative study done by the Minnesota Pollution Control Agency (MPCA), Environmental Protection Agency (U.S. EPA) and Minnesota Department of Natural Resources (MN-DNR) examined the mechanisms by which sulfate impacts wild rice growth. In order to support the preservation and restoration of wild rice in Wisconsin, the WDNR should review available toxicity data and develop water quality criteria for sulfates. Related Rule(s): NR 105 Surface water quality criteria for toxic substances.
(Submitted by WDNR staff and a Wisconsin Native American Tribe)

Topic Descriptions (continued)

Total Suspended Solids (TSS) or Suspended Sediment Water Quality Standards 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 WDNR should review the impacts of Total Suspended Solids (TSS) on waterbodies to determine if surface water quality criteria should be calculated for the protection of fish and aquatic life. These criteria may also be beneficial for streamlining Total Maximum Daily Load development and impaired waters listing. WDNR currently assesses sedimentation impairments in streams based on best professional judgment of TSS concentrations. TSS is listed as a pollutant on 262 waterbodies on the State's 303d list (24% of all listings). This accounts for 1,505 impaired stream miles due to TSS (27% of total impaired stream miles). A standard sampling protocol and analytical method already exists for TSS but there is clearly a need to develop a numeric criterion and assessment methodology for one of the most prevalent pollutants in the State. Related Rule(s): NR 102 Water quality standards for surface waters, NR 106 Procedures for calculating water quality based effluent limitations, NR 151 Runoff Management, NR 809 Safe drinking water, NR 140 Groundwater quality.
(Submitted by WDNR staff)

Unregulated Pollutants Water Quality Standards Development: WDNR should develop Water Quality Standards for unregulated pollutants (for example: flammables and endocrine disruptors). Two recent studies from the Minnesota Pollution Control Agency (MPCA) found a wide variety of unregulated chemicals in the state's lakes and streams. Wisconsin should follow the lead of Minnesota DNR and MPCA in providing funding for sampling in Wisconsin waters to better understand quantity and sources of unregulated pollutants. Related Rule(s): NR 102 Water quality standards for surface waters, NR 105 Surface water quality criteria for toxic substances.
(Submitted by the public)

Use Designations Revision: Federal law requires states to assign a use designation to surface waters in order to determine the water quality goals for those waterbodies. WDNR has assigned uses for: a) General Use, b) Fish & Other Aquatic Life Use; c) Public Health & Welfare Use, d) Recreational Use; and e) Wildlife Use. These designated uses have been in place since 1976 and were most recently updated in 1991. Based on new scientific data, WDNR has become aware that various waterbodies across the state have been listed incorrectly, and therefore may not be receiving the relevant level of protection. Furthermore, perspectives on the conditions associated with each of the use designations vary widely between different affected groups, including regulated entities, environmental advocates, and the general public. This has led to confusion about WDNR's water quality management objectives and has created conflicts in the expectations of the WDNR among those many constituents. In response, WDNR initiated an effort to re-design its use designations to be ecologically and scientifically defensible, understandable to affected parties, and supported by well-designed monitoring initiatives. WDNR needs to review and update use designations for various waters once the revised use designations are codified. Related Rule(s): NR 102 Water quality standards for Wisconsin surface waters, NR 104 Uses and designated standards, NR 207 Water quality antidegradation.
(Submitted by the U.S. EPA and WDNR staff)

Topic Descriptions (continued)

Variance Determination Procedure Revision: Federal law allows variances to surface water quality standards under certain conditions. State law also allows variances to standards as they pertain to the imposition of effluent limitations in a WPDES permit (See s. 283.15(5)(b), Wis. Stats.). In either case, all surface water quality standards and associated variances to those standards are to be reviewed each permit term to determine if the conditions for granting the variance continue to be applicable. The variances that have been approved in NR 104 of the Wisconsin Administrative Code should be reviewed on a case-by-case basis to determine whether or not they should remain in effect. See 33 USC 1313(c) and 40 CFR 131.20. Related Rule(s): NR 104 Uses and designated standards.
(Submitted by WDNR staff)

Variance Waters List Revision: Federal law allows variances to surface water quality standards under certain conditions. State law also allows variances to standards as they pertain to the imposition of effluent limitations in a WPDES permit (See s. 283.15(5)(b), Wis. Stats.). In either case, all surface water quality standards and associated variances to those standards are to be reviewed each permit term to determine if the conditions for granting the variance continue to be applicable. The variances that have been approved in NR 104 of the Wisconsin Administrative Code should be reviewed on a case-by-case basis to determine whether or not they should remain in effect. See 33 USC 1313(c) and 40 CFR 131.20. Related Rule(s): NR 104 Uses and designated standards.
(Submitted by the U.S. EPA and the public)

Water Quality Criteria Frequency and Duration Requirements Development: State water quality criteria typically include the magnitude of the acceptable concentration, whereas the acceptable duration and frequency of those criteria are only in WisCALM (Wisconsin Consolidated Assessment and Listing Methodology) as guidance. It is recommended that duration and frequency be defined for each pollutant in the water quality standards in Wisconsin Administrative Code. Related Rule(s): NR 102 Water quality standards for Wisconsin surface waters
(Submitted by WDNR staff)

Wild Rice Designated Use Development: 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. In order to support the preservation and restoration of wild rice in Wisconsin, the WDNR should consider developing a wild rice designated use. Using such a designation, in addition to development of appropriate water quality criteria, would ensure that the water quality goals of the waterbody would support wild rice. Related Rule(s): NR 102 Water quality standards for Wisconsin surface waters, NR 104 Uses and designated standards, NR 207 Water quality antidegradation.
(Submitted by WDNR staff)

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 (2012 – 2014) 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 or came from Group E of the last TSR cycle (2012 – 2014). 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, external partners, and the public. 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 due to insufficient resources at this time

Topics in Group C were ranked. These were determined to be high priorities based on input from internal staff, external partners, and the public, 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 that should be revised or developed but are not priorities for the upcoming cycle

Topics in Group D were ranked. These were determined to be low priorities by internal staff, external partners, or the public. As these are not priorities and WDNR has limited resources, these topics will not be addressed at this time.

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

Topics in Group E include both those ranked and non-ranked. 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. A submitted topic known to have a barrier to progress is put in this category before ranking. A ranked topic later determined to have a barrier to progress is also placed in this group.

These categories were modified during this TSR process.

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), one no longer has a barrier to progress and will be addressed during this cycle (Category B), and two have barriers to progress (Category E).

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

- Aquatic Macrophyte Biotic Index for Lakes Development
- Biological Criteria Development
- Mixing Zone Policy Revision

- Phosphorus Assimilative-Capacity Modeling in the Great Lakes
- Phosphorus Implementation Guidance Revision
- Phosphorus Site-Specific Criteria (SSC) Guidance and Rules Development
- Use Designations Revision
- Variance Determination Procedure Revision

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

- Bacteria Criteria Development

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

- Outstanding & Exceptional Resource Waters Process for Determination and List Revision
- Variance Waters List Revision

Topics to be ranked

Twenty-two potential topics were identified and needed to be ranked and prioritized.

Water Quality Criteria Revision:

- Ammonia
- Acrolein
- Arsenic
- Cadmium
- Chloride
- Copper
- Dissolved Oxygen
- Endrin Chronic
- Phenol
- Selenium

Water Quality Criteria Development:

- Carbaryl
- Floristic Quality Assessment Criteria for Wetlands
- Nitrogen
- Pesticides
- Sulfate
- Total Suspended Solids (TSS) or Suspended Sediment
- Unregulated pollutants (eg/flammables, endocrine disruptors)
- Water Quality Criteria Frequency and Duration Requirements

Other:

- Antidegradation Procedures
- Cyanobacterial Toxin and Cell Density Water Quality Criteria and/or Guidance
- Nearshore Great Lakes Area Algae Standard
- Wild Rice Designated Use

WDNR STAFF AND EXTERNAL PARTNERS SURVEYS

A survey was created for WDNR staff and external partners. External partners included the U.S. EPA, Wisconsin Department of Health Services, and Wisconsin's Native American Tribes. 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 top 5 topics from WDNR Staff & the U.S. EPA and Wisconsin's Native American Tribes. The ranking order was determined by weighted totals calculated using the number of responses for each priority type, giving 1st priority the most points ((1st*5) + (2nd*4) + (3rd*3) + (4th*2) + (5th*1)).

Topics	Rank	
	WDNR Staff & External Partners	**Tribes**
Acrolein WQC	17	14
Ammonia WQC	**5**	8
Antidegradation Procedures	**3**	8
Arsenic WQC	9	8
Cadmium WQC	9	6
Carbaryl WQC	17	14
Chloride WQC	9	14
Copper WQC	12	13
Cyanobacterial Toxin and Cell Density WQC and/or Guidance	**1**	14
Dissolved Oxygen WQC	7	8
Endrin Chronic WQC	17	14
Floristic Quality Assessment – Numeric Benchmarks for Wetlands	6	8
Nearshore Great Lakes Area Algae Standard	16	14
Nitrogen WQC	**2**	**5**
Pesticides WQC	17	**3**
Phenol WQC	17	14
Selenium WQC	17	14
Sulfate WQC	12	**2**
Total Suspended Solids (TSS) or Suspended Sediment WQC	**4**	**3**
Unregulated pollutants WQC	12	6
Water Quality Criteria Frequency and Duration Requirements	7	14
Wild Rice Designated Use	15	**1**

PUBLIC INPUT

Input from the public was gathered through an online survey and a public hearing. A news release was sent out on July 8th, beginning the public comment period that lasted until August 7th. A public hearing was held on July 30th from 10 to 11 am. The WDNR TSR webpage was updated with background information, instructions on how to participate in the survey and public hearing, and links to topic descriptions and the survey.

News Release

The news release was sent out through the WDNR's website and a GovDelivery email list.

July 8, 2014

Public invited to share priorities for water quality standards

Public survey available until August 7

MADISON – Where should state environmental officials focus efforts to protect surface water quality in Wisconsin over the next three years?

State officials are seeking public input on 22 water quality standard topics for Wisconsin lakes and rivers related to the protection of public health, recreation, fish and other aquatic communities.

This process, which occurs every three years, is called the triennial standards review. The topics under consideration address things such as levels of toxic pollutants, algae and nutrients as well as guidance for implementing water quality criteria.

The Wisconsin Department of Natural Resources is proposing to revise some existing standards because of new information about the effects of certain contaminants and to reflect changes in federal or state regulations. Also under consideration is the development of standards for certain emerging contaminants that may need to be monitored and controlled to protect people and the environment.

Any actual changes to standards must be approved by the Natural Resources Board, the Wisconsin Legislature and the U.S. Environmental Protection Agency.

There are many potential standards-related topics that may benefit from a review under this process. However, due to limited resources, not all of the changes can be addressed at the same time. To help prioritize which standards and policies should receive attention first, DNR is asking for input from the public.

Stakeholders are invited to comment on the standards-related topic priorities through August 7, 2014 through an online survey tool. The goal of the survey is to determine which surface water quality standards and policies the public most strongly wants to see reviewed or developed in the next three years. The Public Ranking Survey and topic descriptions are available on the DNR Web site at http://dnr.wi.gov/topic/surfacewater/tsr.html or go to the DNR's website (http://dnr.wi.gov) and type in the search words "triennial standards review."

After the survey, DNR will use the public priorities and DNR's internal rankings to prepare a final list of topics for 2015-2017 as required under the Clean Water Act. The DNR will use that final priority list to plan its work over the ensuing three years and each topic will be addressed as resources allow.

A public hearing will be held on July 30, 2014 from 10 to 11 am. This hearing is for citizens to comment on or ask questions about the process and the topics presented. Anyone who would like to participate is invited to join online through a webinar using the link posted on the DNR's triennial standards review Web page, or in person at the DNR's Madison office at 101 S. Webster St., Madison, in Room 313 after signing in at the visitor's desk.

Questions or comments on the triennial standards review process should be directed to Ashley Beranek by calling (608) 267-9603, e-mailing ashley.beranek@wisconsin.gov, or mailing to Wisconsin DNR WT/3, PO Box 7921, Madison, WI 53707.

CONTACTS: Ashley Beranek (608) 267-9603; Brian Weigel (608) 266-927

Public Survey

The survey was crafted through the online survey software called Survey Monkey.

Surface Water Quality Triennial Standards Review 2015-2017
Public Ranking Survey

Every three years, the Wisconsin Department of Natural Resources (WDNR) reviews Wisconsin's water quality standards and selects specific standards or related guidance for development or revision. This comprehensive evaluation, called the Triennial Standards Review (TSR), is an essential process to keep Wisconsin's waters swimmable, fishable, drinkable and suitable for use by industry, agriculture and the citizens of the state. This review helps focus WDNR efforts to integrate the latest science and technology and federal requirements into how the State regulates water quality.

The Department is currently requesting your input to help prioritize Wisconsin's water quality standard priorities for the 2015-2017 TSR cycle. Please review the Topic Descriptions on the TSR webpage http://dnr.wi.gov/topic/surfacewater/tsr.html. After reviewing the Triennial Standards Review (TSR) materials on WDNR's website, please answer the following questions to indicate your top priority topics for review during the 2015-2017 cycle. WDNR will take this input into consideration before finalizing the topics selected for this upcoming cycle.

THIS SURVEY CLOSES THURSDAY AUGUST 7TH, 2014.

TOPIC RANKING

1. Please rank your top three priorities for the 2015 – 2017 TSR cycle. Mark one topic per column.

	1st Priority	2nd Priority	3rd Priority
Cyanobacterial Toxin and Cell Density Water Quality Criteria and/or Guidance			
Nearshore Great Lakes Area Algae Standard, Including Cladophora			
Wild Rice Designated Use Development			
Antidegradation Procedures Revision			
Ammonia			
Acrolein			
Arsenic			
Cadmium			
Chloride			
Copper			
Dissolved Oxygen			
Endrin Chronic			
Phenol			
Selenium			
Water Quality Criteria Frequency and Duration Requirements Development			
Carbaryl			
Floristic Quality Assessment Numeric Benchmarks for Wetlands			
Nitrogen			
Pesticides			
Sulfate			
Total Suspended Solids (TSS) or Suspended Sediment			
Unregulated pollutants (eg/ flammables, endocrine disruptors)			

Explanation

1. Please explain why you selected these topics as a priority.
2. What is your experience related to the priority topics you have chosen?

Future Updates and Contact Information

We will attempt to share the results of the Triennial Standard Review with all who contributed. If you would like to receive updates, please provide your contact information. We do not intend to use your personal information for any other purpose, but it may be made available to requesters under Wisconsin's Open Records law.

If desired, please provide contact information:

Name:
Company:
Address:
City/Town:
State:
ZIP:
Email Address:

Survey Review

If desired, please indicate your satisfaction with the TSR ranking process from the following statements.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	No Opinion
I understood the TSR topics and felt comfortable providing feedback.						
The material on the Department website was useful and easy to understand.						
The survey was easy to use.						
The survey captures my opinions well.						
I was satisfied with my opportunity to participate in the TSR ranking.						

~End of Survey~

PUBLIC RESPONSE

WDNR received input from 157 people through the online survey, an increase from the 72 responses received in the previous cycle. A small number of responses were also received by email, phone, and during the public hearing. People from all across the state took part in the TSR process (Figure 1).

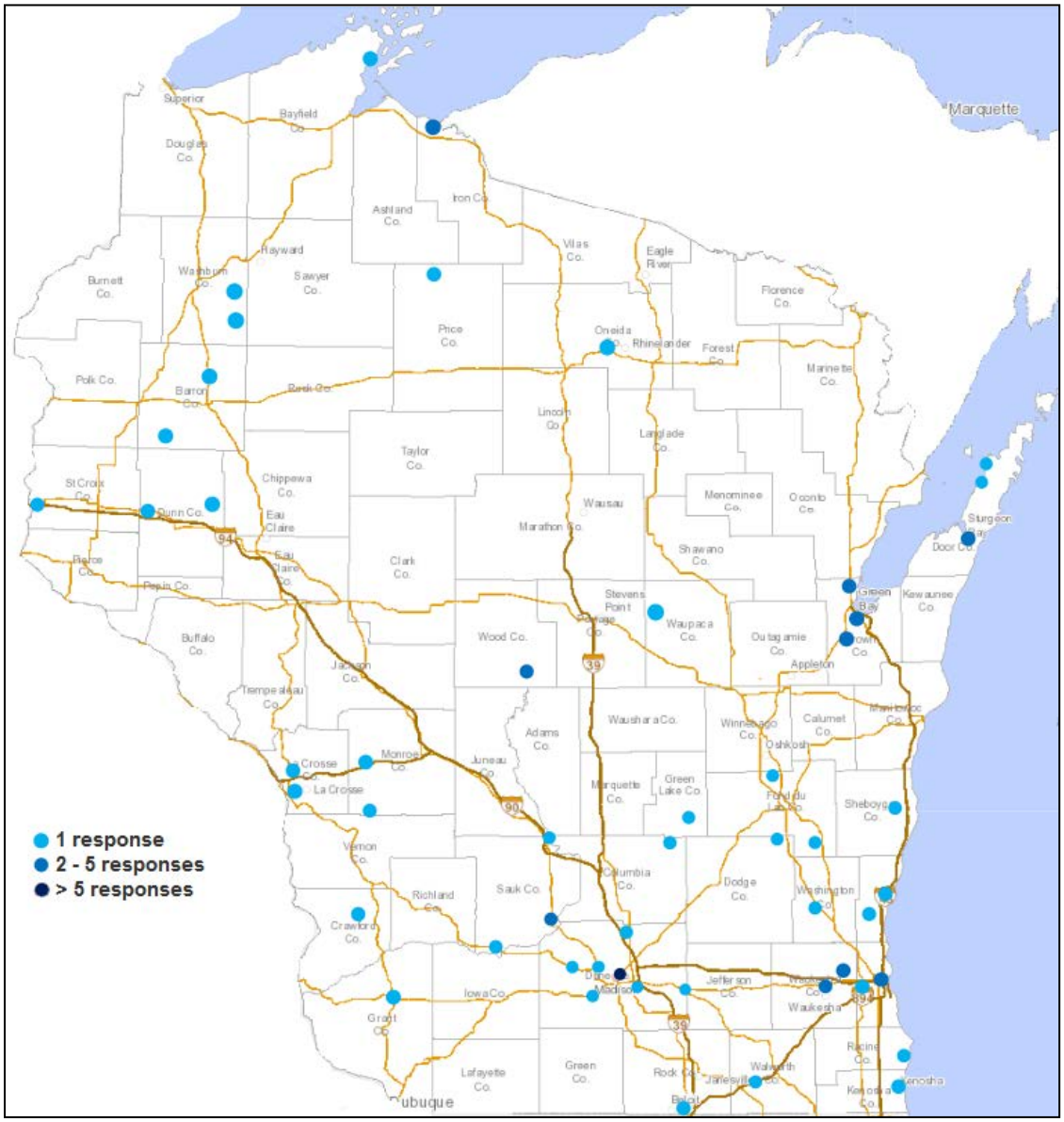

Figure 1: Self-identified locations of public TSR survey participants.

Ranks were determined by calculating a weighted score for each topic such that a vote for 1st priority was given the most weight, and the 3rd priority the least weight using the formula ((# of 1st priority votes * 3) + (# of 2nd priority votes * 2) + (# of 3rd priority votes *1) = total weighted score). The top topics included Pesticides Water Quality Criteria, Nearshore Great Lakes Area Algae Standard, and Antidegradation Procedures Revision (Table 2).

Table 2: Survey results from the public. Participants were asked to select three topics that should be WDNR's top priorities. Weighted point totals were calculated using the number of responses for each priority type, giving 1st priority the most points ((1st*3)+(2nd*2)+(3rd*1)).

Topics	1st Priority	2nd Priority	3rd Priority	Weighted Total	Rank
Pesticides WQC	16	23	13	107	**1**
Nearshore Great Lakes Area Algae Standard	22	10	6	92	**2**
Antidegradation Procedures	11	21	9	84	**3**
Unregulated pollutants WQC	14	12	11	77	**4**
Nitrogen WQC	12	12	13	73	**5**
Cyanobacterial Toxin and Cell Density WQC and/or Guidance	19	3	7	70	**6**
Total Suspended Solids (TSS) or Suspended Sediment WQC	11	8	15	64	**7**
Wild Rice Designated Use	10	10	10	60	**8**
Chloride WQC	9	9	3	48	**9**
Water Quality Criteria Frequency and Duration Requirements	7	5	14	45	**10**
Dissolved Oxygen WQC	3	11	11	42	**11**
Sulfate WQC	7	3	14	41	**12**
Arsenic WQC	8	5	6	40	**13**
Floristic Quality Assessment - Numeric Criteria for Wetlands	4	3	4	22	**14**
Copper WQC	2	4	1	15	**15**
Ammonia WQC	1	4	3	14	**16**
Endrin Chronic WQC	0	3	5	11	**17**
Acrolein WQC	0	2	1	5	**18**
Cadmium WQC	0	1	1	3	**19**
Selenium WQC	0	0	1	1	**20**
Carbaryl WQC	0	0	0	0	**21**
Phenol WQC	0	0	0	0	**21**

FINAL 2015-2017 TSR LIST

We combined results from the public survey with the internal and partners surveys to determine the final categories for each topic. Rationale for each placement is provided in the next section.

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

- Aquatic Macrophyte Biotic Index for Lakes
- Biological WQC
- Mixing Zone Policy
- Phosphorus Assimilative-Capacity Modeling in Great Lakes
- Phosphorus Implementation Guidance
- Phosphorus Site-Specific Criteria (SSC) Guidance and Rules
- Use Designations
- Variance Determination Procedure

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

- Antidegradation
- Bacteria WQC
- Cyanobacterial Toxin and Cell Density WQC or Guidance

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

- Ammonia WQC
- Chloride WQC
- Copper WQC
- Dissolved Oxygen WQC
- Floristic Quality Assessment Numeric Benchmarks for Wetlands
- Nearshore Great Lakes Area Algae Standard
- Pesticides and Carbaryl WQC
- Sulfate WQC
- Total Suspended Solids (TSS) or Suspended Sediment WQC or Guidance
- Water Quality Criteria Frequency and Duration Requirements
- Wild Rice Designated Use

Category D: Standards or guidance that should be revised or developed but are not priorities for the upcoming cycle

- Acrolein WQC
- Cadmium WQC
- Endrin Chronic WQC
- Phenol WQC
- Selenium WQC

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

- Arsenic WQC
- Nitrogen WQC
- Outstanding & Exceptional Resource Waters Process for Determination and List Revision
- Unregulated pollutants WQC Development
- Variance Waters List Revision

RATIONALE FOR TOPIC CATEGORIZATION

This section explains why topics were placed in the various categories.

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

Aquatic Macrophyte Biotic Index for Lakes Development

The Aquatic Macrophyte Community Index (AMCI) is a multipurpose tool developed to assess the biological quality of aquatic plant communities in Wisconsin lakes. An internal workgroup is currently exploring the use of the AMCI, component metrics and other related metrics, as stand-alone biological metrics and also as biological response indicators for total phosphorus assessments and site-specific phosphorus criteria development. Analysis will be done to develop methods for rapid assessment of lake macrophytes and refinement of assessment/listing protocols for multiple designated uses.

Biological WQC

WDNR proposes the codification of water quality criteria for a suite of biological metrics (or "biocriteria") that are used to assess the health of streams, rivers, and lakes. The Governor's office approved the scoping statement for developing rules for biological water quality criteria December 19, 2013. WDNR is actively working on this rule development and will convene an External Advisory Committee once rule language is drafted.

Mixing Zone Policy Revision

Two rule packages are currently being worked on by the WDNR Permits Section to address this topic. One of the rule packages addresses elimination of mixing zones for bio-accumulative substances. This rule package has a scoping statement submitted and the solicitation of information for an economic impact analysis has been public noticed. The other rule package addresses the default use of 2-times the ATC (Acute Toxicity Criteria) to set limits for when stream flow approaches zero. This rule package has an approved scoping statement (May 20, 2012) and the solicitation of information for an economic impact analysis is scheduled to be public noticed soon.

Phosphorus Assimilative-Capacity Modeling in Great Lakes

The WDNR is currently working with the U.S. EPA as well as technical experts to refine available tools and collect additional water quality data, as necessary, for this project.

Phosphorus Implementation Guidance Revision

The original implementation guidance written in 2012 will be updated to reflect changes in: 1) improved compliance schedule language, 2) additional guidance on calculating interim limits for phosphorus, and 3) calculating phosphorus limits to protect downstream waters. WDNR considers this topic continuing to evolve as we work through nuances of implementing our Phosphorus rule.

Phosphorus Site-Specific Criteria (SSC) Guidance and Rules Development

Site-specific criteria for phosphorus may be developed in cases where, due to site-specific conditions, the statewide phosphorus criteria are over- or under-protective. However, a consistent process is needed by which to develop phosphorus SSC. WDNR is actively working on developing such a process through rulemaking and guidance, and will convene an External Advisory Committee once rule language is drafted. The statement of scope was approved June 29, 2012.

Rationale for Topic Categorization (continued)

Use Designations Revision

Use designations are a fundamental building block of many water programs and are a federal and state law requirement. Wisconsin's designated use program has not been substantively updated since the 1980s. The Governor's office approved the scoping statement for modifying Chapters NR 102, 104, and 105 relating to surface water designated uses December 19, 2013. WDNR is actively working on this rule revision and will convene an External Advisory Committee once rule language is drafted.

Variance Determination Procedure Revision

WDNR is continuing to streamline the general variance processing procedure. EPA and WDNR working together decided in October 2014 to not pursue a formalized Multiple Discharger Variance. No rule making or guidance is proposed at this time.

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

Antidegradation

Antidegradation continues to be a top priority for internals and externals. The Governor's office approved the scoping statement for NR 207 rule revision on November 30, 2009. EPA is developing guidance/rule language on this topic that could impact rule development so progress is awaiting these changes and additional guidance. WDNR is actively participating in EPA's work group in support of these efforts. Additionally, WDNR has reviewed other states' policies, established definitions, and developed a work plan to begin the rulemaking process.

Bacteria WQC Development

In the last Triennial Standards Review this topic was placed in Group E (barrier to progress) because the U.S. EPA had not yet adopted *E. coli* criteria updates. The U.S. EPA adopted updated surface water *E. coli* criteria in 2012. Wisconsin will pursue revisions to ch. NR 102, Wis. Adm. Code, to update the criteria for surface water pathogen indicators and may possibly need to also revise ch. NR 210, Wis. Adm. Code, as it relates to disinfection of wastewater. WDNR considers this topic to be a priority to begin within this TSR cycle.

Cyanobacterial Toxin and Cell Density WQC or Guidance

This issue was the sixth highest priority of externals and near the top for internals. Concerns associated with blue-green algae include discolored water, taste and odor problems, dissolved oxygen depletions, and toxin production, which can harm human health, domestic animals, and wildlife. A review of algal toxicity will be conducted to determine if surface water quality criteria or guidance should be developed for the protection of humans and domestic animals.

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

Ammonia WQC Revision

Ammonia was ranked highly by internal staff and technical partners. New toxicological data on the sensitivity of mussels to ammonia was used to calculate updated federal acute and chronic criteria. WDNR will evaluate the applicability of this new data to possibly revising the ammonia water quality criteria to ensure the protection of mussels. WDNR will work to address this need as resources become available.

Rationale for Topic Categorization (continued)

Chloride WQC Revision

Updates to the Chloride Water Quality Standard ranked highly with externals. New chloride toxicological data related to sulfate and chloride concentrations are available. Criterion developed based on hardness and sulfate concentrations may result in less stringent, but scientifically defensible criterion. To ensure that WI chloride surface water standards are sufficiently protective for fish and aquatic life, WNDR will review this new data as resources become available.

Copper WQC Revision

The WDNR is working with the Wisconsin State Lab of Hygiene's Environmental Toxicology Section to collect toxicity test data. The WDNR has chosen to use the Biotic Ligand Model to evaluate these toxicity results. The WDNR is awaiting results of toxicity tests and based on those results rule changes may be recommended.

Dissolved Oxygen WQC Revision

Updating the Dissolved Oxygen (DO) Criteria ranked highly among internal staff, external partners, and externals. To make sure that the DO criteria are adequately protective of aquatic life the current criteria need to be reviewed and possibly updated. The DO criteria were developed in the 1960s and have not been updated since. If updated, it is likely that there will be fewer challenges made during the review of WPDES permits. WDNR will work to address this need as resources become available.

Floristic Quality Assessment Numeric Benchmarks for Wetlands

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 more tools for wetland assessments. WDNR has undergone the first stages of this work in certain parts of the state but further work and funding are needed to complete the tool statewide. This topic ranked highly with internal staff and external partners. WDNR will continue to address this need as resources become available.

Nearshore Great Lakes Area Algae Standard

Cladophora buildup on the shoreline creates mats of decaying organic matter that produces unpleasant odors and the potential for unhealthy bacteria levels. This has an impact on shoreline aesthetics, human health, and recreation. WDNR will work to address this need as resources become available. This issue was the second highest priority of externals.

Pesticides and Carbaryl WQC Development

WQC development for pesticides ranked as the number one priority of externals. The number of pesticides in use currently is substantial and many of these products do not have EPA recommended standards. WDNR works to create applicable surface water quality standards as information on individual pesticides becomes available. Many of the surface water quality standards promulgated thus far in NR105 are for pesticides or pesticide constituents. To begin to address this issue in the current review cycle, the WNDR will develop WQC for the pesticide, carbaryl, which had a separate topic for review but received little attention in priority rankings. The EPA recently developed a water quality standard for carbaryl. WDNR will work to address this need as resources become available.

Rationale for Topic Categorization (continued)

Sulfate WQC Development

This topic ranked highly among externals and the Tribes. Sulfate standards could potentially protect waters with wild rice populations. Wisconsin will evaluate the results of the study done by Minnesota Pollution Control Agency (MPCA) along with the U.S. EPA and Minnesota Department of Natural Resources, and further address this need as resources become available.

Total Suspended Solids (TSS) or Suspended Sediment Guidance

Total Suspended Solids (TSS) ranked fourth for internal staff and technical partners and seventh for externals. TSS are a primary cause of water quality impairments in the state of Wisconsin. However, it is unclear if sufficient data are present to calculate a scientifically defensible water quality standard for TSS. To determine the feasibility of a TSS water quality standard in Wisconsin and to improve our scientific understanding of this issue, a review of existing data is required. WDNR will work to address this need as resources become available.

Water Quality Criteria Frequency and Duration Requirements

For most pollutant standards in Wisconsin Administrative code there is a lack of explicit statements outlining the acceptable duration or frequency of digressions over the criteria (usually the magnitude of the acceptable concentration). In terms of workload it would be impractical to address duration and frequency for all pollutants in administrative code simultaneously. As new criteria are developed or existing criteria are revised, these requirements will be included. This topic will likely be a work in progress over several TSR cycles. This topic ranked near the top for internal staff and technical partners and in the top ten for externals.

Wild Rice Designated Use Development

Establishing a designated use for wild rice may be useful in setting water quality goals to help support and maintain wild rice populations. In the ceded territories in the northern half of the state, wild rice waters are classified as Areas of Special Natural Resource Interest, which includes certain protections; a determination is needed as to whether a separate designated use would be beneficial. Water quality criteria to support this use should also be considered. WDNR will work to address this need as resources become available. This topic ranked eighth for externals and first for Tribes.

Category D: Standards or guidance that should be revised or developed but are not priorities for the upcoming cycle

Acrolein WQC Revision

This issue was not ranked as a top priority by externals and internal staff. To use WDNR resources most effectively to meet the top needs of the program, WDNR will not focus on this issue for this TSR cycle.

Cadmium WQC Revision

This issue was not ranked as a top priority by externals and internal staff. To use WDNR resources most effectively to meet the top needs of the program, WDNR will not focus on this issue for this TSR cycle.

Rationale for Topic Categorization (continued)

Endrin Chronic WQC Revision

This issue was not ranked as a top priority by externals and internal staff. To use WDNR resources most effectively to meet the top needs of the program, WDNR will not focus on this issue for this TSR cycle.

Phenol WQC Revision

This issue was not ranked as a top priority by externals and internal staff. To use WDNR resources most effectively to meet the top needs of the program, WDNR will not focus on this issue for this TSR cycle.

Selenium WQC Revision

This issue was not ranked as a top priority by externals and internal staff. To use WDNR resources most effectively to meet the top needs of the program, WDNR will not focus on this issue for this TSR cycle.

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

Arsenic WQC Revision

When deriving a 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.

Nitrogen WQC

Nitrogen continues to be a high priority for the WDNR, 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. This need will be addressed as resources become available.

Outstanding & Exceptional Resource Waters Process for Determination and List Revision

The Outstanding & Exceptional Resource Waters Process and List cannot be reviewed until the Designated Use revision has been completed. Once the Designated Use revisions have been done this issue will be addressed as resources become available.

Rationale for Topic Categorization (continued)

Unregulated pollutants (eg/flammables, endocrine disruptors)

Unregulated pollutants rated fourth with externals, however WDNR needs more scientific data to address this issue. WDNR may choose to revisit this issue once additional data and toxicological studies become available.

Variance Waters List Revision

The Variance Waters List cannot be reviewed until the Designated Use revision has been completed. Once the Designated Use revisions have been done this issue will be addressed as resources become available.

APPENDIX A: TOPIC SUBMISSIONS NOT RANKED

There were several topics submitted that were not ranked. Reasons for excluding a topic included:

- **Outside the scope of a TSR** (see TSR Purpose section).
- **Too broad of a topic**. Some topics were considered too general or broad to be included in this review. Topics needed to be feasible to work on within the timeframe of a TSR.
- **For a specific waterbody**. In the future WDNR would like to use this review for specific waterbody criteria development, site specific criteria development, or use revisions, but currently cannot.

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.

Adaptive Management/WQ Trading Implementation Guidance Nonpoint Sources: Staff in the Bureau of Watershed Management are taking the lead on developing an outline for guidance for nonpoint sources and partners (county LCDs, DATCP), however final guidance will be developed by the cross-program AM/WQT team. Related Rule(s): NR 102, water quality standards for Wisconsin surface waters; NR 217, implementation of phosphorus standards in WPDES permits. **(Submitted by WDNR Staff)**

- **Reason for Exclusion**: Outside Scope of a TSR.

Climate Change: Significant efforts are underway at all levels of government to evaluate resiliency in the context of climate change. While a broad topic, the WDNR should spend time critically thinking about how they will support resiliency and adaptation in the regulation and guidance arena-this will likely involve supporting innovative approaches that might involve a greater level of risk taking. Impacts of climate change include more significant storm events and massive runoff. Many wastewater treatment facilities are investigating a number of new techniques to deal with these significant runoff events but will need to have some flexibility to implement these measures. **(Submitted by the public)**

- **Reason for Exclusion**: Too broad of a topic and outside the scope of a TSR.

Cooling Water Intake Structure Best Technology Available Standards Development: This topic is pending U.S. EPA rule changes. Once federal regulations are in place, we will need to create rule language and guidance to implement these requirements. Related Rule(s): Section 283.31(6), Wis. Stats., regulating intake structures in WPDES permits, and NR 106 Implementation of water quality standard in WPDES permits. **(Submitted by WDNR Staff)**

- **Reason for Exclusion**: Outside Scope of a TSR.

Effluent Limit Calculations Guidance and Rules: Pink sheet/scope statement was approved by the Governor on 05/29/12 and the Natural Resources Board on 06/27/12. NR 106 rule language is currently being revised to address changes required by the U.S. EPA. Once these rule revisions are complete, implementation guidance will need to be revised in a number of areas, including whole effluent toxicity (WET), use restriction development, chlorides, and others. Related Rule(s): Ch. NR 106, Wis. Adm. Code, implementation of water quality standard in WPDES permits. **(Submitted by WDNR Staff)**

- **Reason for Exclusion**: Outside Scope of a TSR.

Appendix A: Topic Submissions Not Ranked (continued)

Geisel Creek in Door County Reclassification: This stretch of Geisel creek is currently classified as Limited Aquatic Life (LAL). Based on biological data gathered and observations during a 3 year water quality study of the watershed, the stretch of Geisel Creek from Highway 57 downstream to Dunes Lake should be changed to "Warm Water Forage Fish Community" or "Warm Water Sport Fish Community". Heavy spawning runs of Lake Michigan tributary spawners (white and red horse suckers) occur on the stream with northern pike and other small forage fish observed in this stretch beginning in early spring after ice-out through the summer. The suckers and northern pike are known to spawn north of Dunn Road and north of Hwy 57. While Geisel Creek north of the center of section 19 experiences non continuous flow this stretch of water has been observed to have continuous flow. Flow is dependent on precipitation and ground water conditions. This summer WDNR crews observed young of the year northern pike at the intersection of Geisel Creek and Dunn road. To properly protect the aquatic life in this section of Geisel Creek a designation change under NR 102.04 (3) is needed. This is for Geisel Creek in Door County, Town of Sevastopol T28N R27E Center of section 18 to Dunes Lake. **(Submitted by Door County)**

- **Reason for Exclusion**: For a specific waterbody.

Implementation of Approved Total Maximum Daily Loads: The WDNR has completed the general implementation guidance for TMDLs. The WDNR should now focus on specific TMDLs that have been approved and develop individualized implementation processes for each TMDL and make these available to the permittees. **(Submitted by the public)**

- **Reason for Exclusion**: Outside Scope of a TSR.

Industrial Stormwater Performance Standards Development: Under current rules, both municipal separate storm sewer system (MS4) permittees and construction site permittees are required to meet established performance standards for storm water runoff quality. The performance standards are specified in ch. NR 151, Wis. Adm. Code, and are implemented through the MS4 and construction site storm water permit programs in ch. NR 216, Wis. Adm. Code. However, there are currently no performance standards in ch. NR 151 for industrial storm water runoff regulated under ch. NR 216. This topic would propose that the DNR consider developing performance standards, such as for total suspended solids, for industrial facilities regulated under ch. NR 216. **(Submitted by the public)**

- **Reason for Exclusion**: Outside Scope of a TSR.

Phosphorus Limit for Point Sources in Door County - Implementation: 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. **(Submitted by Door County)**

- **Reason for Exclusion**: For specific waterbodies.

Appendix A: Topic Submissions Not Ranked (continued)

Public Health Designated Uses and Water Quality Criteria Revision: The updating of Ambient Water Quality Criteria (AWQC) should be a routine part of any state's triennial review as new toxicological, exposure, and risk information becomes available (primarily those vetted and published in the Integrated Risk Information System (IRIS) database). Also, consideration should be given to adopting Maximum Contaminant Levels (MCLs) into standards to protect drinking water designated uses for those chemicals where no national 304(a) criteria exist. **(Submitted by the U.S. EPA)**

- **Reason for Exclusion**: Too broad of a topic.
- **More Information**: This topic was considered too broad because updating AWQC is part of Wisconsin's TSR process. Topics with specific WQC to develop or revise were included in this review.

Total Maximum Daily Load Development Guidance: In 2013 the TMDL Development Guidance was revised. However, this guidance revision only included updates to TMDL *implementation* guidance. The TMDL *development* guidance in this document is extremely limited and has not been updated since its creation in 2011. There is still a need for comprehensive TMDL development rules and/or guidance. Related Rule(s): NR 102, Water quality standards for Wisconsin surface waters; NR 217, Implementation of phosphorus standards in WPDES permits. **(Submitted by WDNR Staff)**

- **Reason for Exclusion**: Outside Scope of a TSR.
- **More Information**: In 2013 the TMDL *Implementation* Guidance was updated whereas the TMDL *development* guidance has not been updated since 2011. Currently, NR 212 is being updated to incorporate requirements of 40 CFR Procedure 3 in Appendix F for developing TMDLs in the Great Lakes System in the State of Wisconsin. In addition, procedures are being drafted to cover TMDLs for the entire State of Wisconsin. Once these procedures have been promulgated in NR 212 the DNR will draft accompanying guidance.

Total Maximum Daily Load Implementation Planning Guidance: WDNR should create comprehensive guidance related to developing point source and nonpoint implementation plans (319 "9-key element" watershed plans) in areas where TMDLs have been approved. Related Rule(s): Ch. NR 102, Wis. Adm. Code, water quality standards for Wisconsin surface waters; Ch. NR 217, Wis. Adm. Code, implementation of phosphorus standards in WPDES permits. **(Submitted by WDNR Staff)**

- **Reason for Exclusion**: Outside Scope of a TSR.

Total Suspended Solids Site Specific Criterion for the Impaired Reach of the Mississippi River Development: Site Specific TSS Criterion for the turbidity impaired reach of the Mississippi River: St. Croix Confluence to Upper Lake Pepin. The MN Pollution Control Agency developed a draft South metro Mississippi River TSS TMDL with site specific criterion of 32 mg/L TSS. This TMDL includes the Wisconsin Mississippi River border waters, and sediment load reductions have been recommended for some of Wisconsin's watersheds in the impaired river reach. Staff from WDNR have been actively working with MPCA on water quality problems on the Mississippi River for the past 2 decades and generally support the sediment load reductions that have been identified in this TMDL. **(Submitted by WDNR Staff)**

- **Reason for Exclusion**: For a specific waterbody.

Appendix A: Topic Submissions Not Ranked (continued)

Utility Shoreland Zoning Best Management Practices (BMPs) and Guidance: County shoreland zoning ordinances vary from one county to the next, making it difficult for utility project scoping and for proceeding with efficient and timely project implementation. In addition, county shoreland zoning ordinances are often duplicative of, and in many cases more restrictive than WDNR permits. Finally, county shoreland zoning ordinances may be more restrictive than the NR 115 Model Zoning Ordinance, and counties are at different stages in adopting and implementing their shoreland zoning ordinances. Request: Develop Best Management Practices (BMPs) for routine construction and maintenance of electric and gas services in shoreland areas to incorporate into Model Zoning Ordinance, and develop Guidance that utilities can follow as an alternative to obtaining local shoreland zoning permits. Developing a set of utility BMPs that utilities can follow would assure the same level of environmental protection as under existing local permitting requirements. Guidance that allows utilities to follow BMPs and other WDNR permitting requirements (e.g., Chapter 30 permits, and wetland permits under Sec. 281.36, Stats.) instead of obtaining local permits would eliminate the uncertainty, inconsistency, and duplicative requirements that utilities are facing when having to obtain NR 115 approvals from the many individual counties where customer operations projects are located. The WDNR is also proposing Natural Resources Board approval of a Secretary's Executive Order to extend the deadline for county adoption of updated ordinances under NR 115 from February 1, 2014 until May 1, 2016 (attached). This is the second extension of the deadline for counties to revise their shoreland zoning ordinances. A prior Executive Order extended the compliance date from February 1, 2012 until February 1, 2014. These extensions contribute to the uncertainty and inconsistency that affect utilities' ability to provide electric and gas to existing customers and to support new economic growth and business development. **(Submitted by the public)**

- **Reason for Exclusion**: Outside Scope of a TSR.

Watershed Permitting Development & Implementation Guidance: WDNR currently issues individual WPDES (Wisconsin Pollutant Discharge Elimination System) discharge permits, but watershed based permits can facilitate permittees working together to improve water quality within a watershed. Create comprehensive guidance on how watershed permits might be used to help in the implementation of Total Maximum Daily Loads, Phosphorus standards, adaptive management, and water quality trading. Related Rule(s): NR 102 Water Quality Standards for Wisconsin surface waters; NR 217 Implementation of Phosphorus Standards in WPDES permits. **(Submitted by WDNR staff and the public)**

- **Reason for Exclusion**: Outside Scope of a TSR.

Wetland Restoration/Protection: Use of dam removal to restore riverine type wetlands from their current use of impoundments or flowages. Discuss ending the funding of dam upgrades and reconstruction to dam removal. End the use of taxpayer funds for dams and use funds for riverine restorations. Consider the decommissioning of dams to reach better water quality on unnatural water bodies and restore natural ecosystems from the current artificial ones. **(Submitted by the public)**

- **Reason for Exclusion**: Outside Scope of a TSR.

Wisconsin Hydrogeologist Requirements Revision: "Grandfathering" provision for hydrogeologists is needed, else many decades of experience will be lost to the consulting field in Wisconsin. **(Submitted by the public)**

- **Reason for Exclusion**: Outside Scope of a TSR.

APPENDIX B: SATISFACTION WITH TSR COMMENT PROCESS

In order to improve the TSR process we gathered feedback from the public at the end of the online survey. This portion of the survey was voluntary and was completed by about a third of the participants. Participants were asked to rate how much they agreed with five different statements related to the TSR process and provide suggestions. The majority of the feedback was positive with over 50% of respondents agreeing with each statement (Figure 1). The areas that needed the most improvement were having understandable material (DNR website, survey instructions, topic descriptions) and capturing the public's opinions well. Only 53% of respondents agreed that the material was useful and easily understood. This was reflected in written comments where common suggestions were to have clearer topic descriptions with less jargon, provide links to more information within the topic descriptions, and have more description of the outcome of the TSR process. Only 56% of respondents agreed, 20% disagreed, that this survey captures their opinion well. This question had the largest percentage that disagreed and written recommendations included allowing comments to be submitted in writing, ranking more than 22 topics, and have more open-ended questions for comments. All of these suggestions will be considered when we start the 2018-2020 TSR cycle.

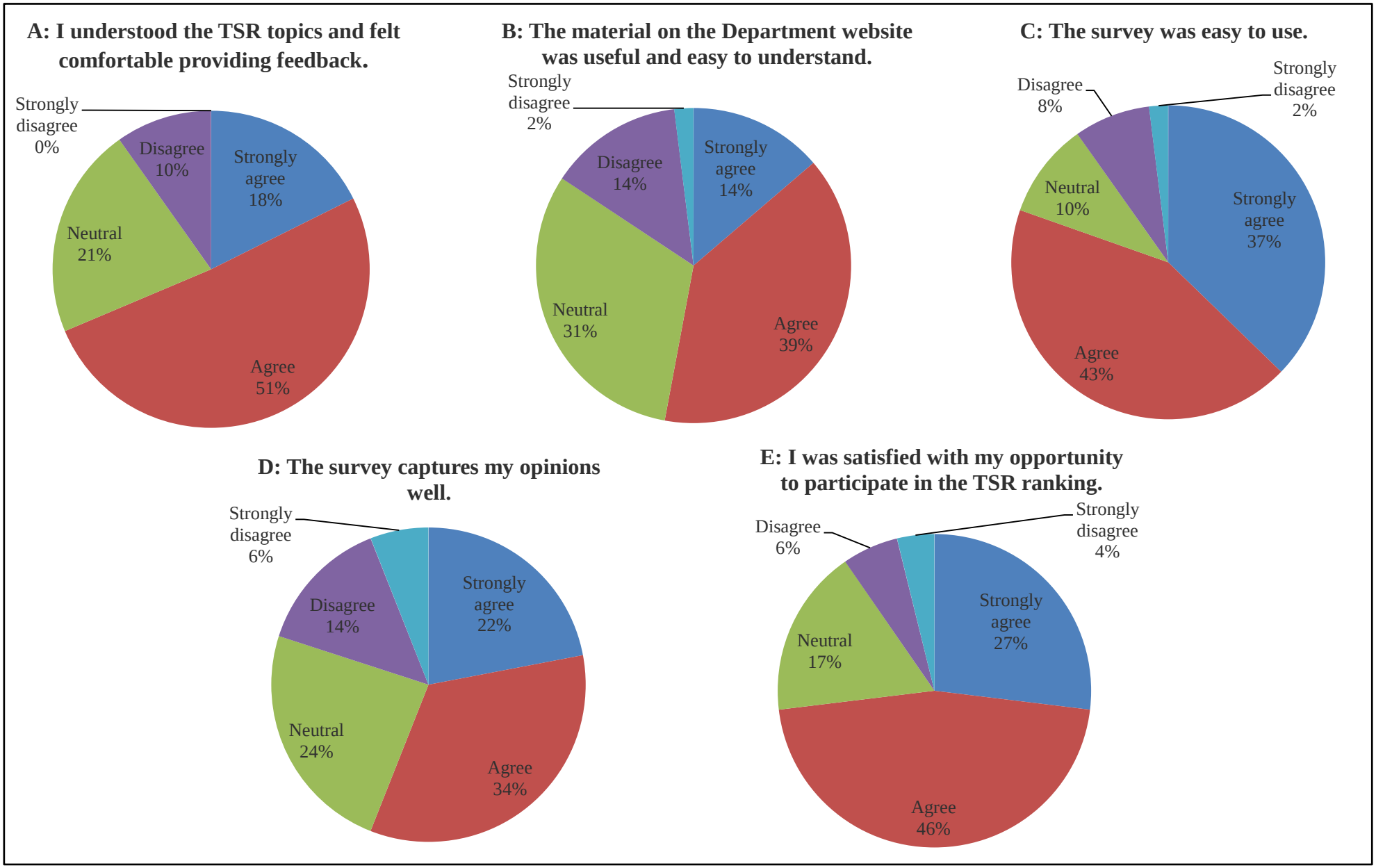

Figure 1: TSR survey satisfaction results. Participants were asked to rate how much they agreed with five statements.