



Early Stakeholder Outreach – OAC 3745-1

Developing Rules to Reduce the Impacts of Nutrients in Surface Waters

What rulemaking is Ohio EPA considering?

Water quality standards (WQS, OAC 3745-1) establish the uses and criteria for how Ohio's surface waters will be managed and regulated. This rulemaking will address the need, and the most appropriate means to protect beneficial uses of water from adverse impacts due to cultural eutrophication. Cultural eutrophication is the result of releasing large amounts of nutrients into rivers and lakes. If left unchecked cultural eutrophication can result in harmful algal blooms, the depletion of dissolved oxygen and fish kills. Cultural eutrophication associated with high levels of phosphorus and nitrogen is one of the leading causes of impairment of aquatic life in Ohio's lakes, streams and rivers. Ohio EPA began working in 2002 to establish scientifically sound criteria and practical tests that will link excessive amounts of nutrients to the water quality problems that nutrients create. Ohio EPA is now ready to begin the process to adopt criteria to address cultural eutrophication.

What has Ohio EPA already done?

The Division of Surface Water (DSW) has designed and carried out studies on Ohio's lakes and rivers. These studies provide useful data for interpreting how aquatic systems in Ohio respond to increasing nutrients and other variables. Results of work conducted on Ohio streams have been peer reviewed and published in the scientific literature and additional technical review has occurred through the efforts of U.S. EPA. Over the past several years DSW has informally shared preliminary results of these studies and their possible application as a water quality standard with various interest groups.

What is the purpose of Early Stakeholder Outreach on rulemakings?

The first step in the rule-making process is for Ohio EPA to identify that a rule needs to be amended, rescinded, or created. In response to Executive Order 2011-01K, Ohio EPA has created the Early Stakeholder Outreach step in all rulemaking efforts to ensure that stakeholders are brought into the process at the initial rule assessment phase. This additional interested party notification and request for information will allow for early feedback regarding the need for the rule, its rationale and the likely impacts of new requirements on stakeholders. The goal is to gather constructive feedback from outside parties before rule language is drafted by the Agency.

Why are the rules to address nutrients necessary?

Two reasons: 1) there is clear evidence that waters in Ohio are harmed by excessive amount of nutrients (phosphorus and nitrogen); and 2) U.S. EPA is urging that all states address nutrient pollution through multiple lines of work, including the adoption of state strategies and effective regulations. Ohio EPA believes the full scope of water quality problems caused by cultural eutrophication cannot be addressed until better clean water standards are established. Action now will result in faster implementation of additional pollution control measures at point sources and the voluntary adoption of best management practices for nonpoint sources of phosphorus and nitrogen.

What will happen if Ohio does not adopt standards?

The pace of effectively dealing with the impacts caused by nutrient pollution will continue to lag behind the expanding scope of impairments seen in Ohio's rivers, inland lakes and especially downstream waters like Lake Erie, the Ohio River and the Gulf of Mexico. Prolonged delays in Ohio's rule adoption efforts could lead to actions by U.S. EPA to promulgate standards for Ohio. These standards would almost certainly be less flexible and result in more extensive business impacts compared to the approaches under consideration by Ohio EPA.

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What are the differences between narrative and numeric criteria?

Federal and state WQS regulations accommodate two types of criteria, narrative or numeric. Both criteria are intended to protect the beneficial uses assigned to the water (for example drinking water or protection of aquatic life). Narrative criteria are descriptors of the conditions that support the beneficial use. Numeric criteria specify the amount and form of a specific substance or biological attribute measured in the water. This value becomes the threshold at which the beneficial use is considered impaired.

Ohio currently has broad narrative criteria covering nuisance algal conditions and phosphorus. Ohio EPA has used these regulatory provisions and studies done in the 1990s to list waters impaired by nutrients and to establish Total Maximum Daily Load (TMDL) target values for nutrients. Much has been learned over the past decade and this new information should be applied to update Ohio's standards.

What are the issues and the areas where public input is needed?

At this time Ohio EPA is seeking input on the basic form of the criteria (narrative vs. numeric), the underlying technical approach used to develop criteria and on the Division's preliminary ideas for the criteria applicable in rivers, streams and inland lakes. The attached table outlines the scope of what Ohio EPA believes will be necessary to protect our water resources. All these issues are under review and open for input from all interested parties.

What preliminary criteria has Ohio EPA considered?

For Streams and Rivers

Ohio EPA has studied over one hundred stream locations to develop empirical relationships between nutrient concentrations [total phosphorus (TP) and dissolved inorganic nitrogen (DIN)], chlorophyll a produced by benthic algae, dissolved oxygen and overall biological community health (Ohio's existing biological criteria). A multi-metric scoring system has been developed that aggregates results from separate evaluations of primary productivity, biological health and in-stream nutrient concentrations. The resulting output is a multi-metric scoring system referred to as the Trophic Index Criterion (TIC). The TIC provides an integration of "stressor" variables (nitrogen and phosphorus concentrations) that potentially cause stream degradation with "response" data collected through measurements of biologically important stream attributes.

The conceptual approach is summarized on the attached flow chart. If advanced through the administrative rulemaking process the TIC would be adopted in Ohio's WQS regulations as the criterion to protect the stream and river aquatic life use designations from adverse impacts of cultural eutrophication. Where the TIC indicates that aquatic life uses of a stream are either impaired or threatened due to cultural eutrophication, nutrients would be managed to restore ambient nutrient concentrations to levels below the use-appropriate targets derived from the relationships observed in the Ohio field data. Tentative target values are shown on the flow chart.

For Inland Lakes

Ohio EPA used the regional reference approach to develop criteria for inland lakes and released these draft standards for interested party review in 2008. Criteria for chlorophyll a, secchi disk transparency, total phosphorus and total nitrogen were developed and stratified where possible by lake type and ecoregion. Ohio EPA is currently re-calibrating the regional reference approach criteria calculations using additional data collected in the past 4 years.

Who will be directly regulated by this rulemaking?

These standards, once adopted, will be implemented in Clean Water Act (CWA) programs such as National Pollutant Discharge Elimination System (NPDES) permits and TMDL reports. Entities affected by these programs that discharge nutrients include municipalities, industries (especially food and fertilizer plants), commercial facilities and concentrated animal feeding operations.

Who will be indirectly affected by this rulemaking?

Everyone who expects and depends upon clean water that is useable for drinking, recreation and industrial purposes. Drinking water utilities, tourism and water based recreation businesses have the most obvious interests and potential for economic losses. The quality and economic value of Ohio's water resource depends upon reducing the pollution impacts cause by cultural eutrophication.

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Agribusiness and individual producers could be indirectly affected by these rules. Agriculture is currently exempt from most CWA regulations so water quality criteria cannot be translated into specific individual producer requirements. However, the criteria may be used to identify waters impaired by nutrients. Once listed as a water body impaired by nutrients Ohio EPA is obligated to track the status of the water body to determine if pollution abatement efforts result in improvements. TMDLs may be prepared on impaired waters and the regulations should clearly articulate the restoration goals or TMDL targets. .

What is the rulemaking schedule?

The Agency is planning to release a draft version of the rules for interested party review and comment later in 2013.

What feedback is the Agency seeking?

The Agency wants to hear from all who may be impacted by this rulemaking. General comments and specific factual information are welcome. Ohio EPA is specifically asking for feedback on the following general and specific questions:

General Questions -

- Does this rulemaking impact your business?
- Does this rulemaking have an adverse impact on your business? If so, please identify the nature of the adverse impact (e.g., license fees, fines, employer time for compliance).
- Is there a need to for the rule? Are the preliminary concepts regarding the rule clear?
- Is there an alternative rulemaking (or specific provisions within the rule) that the Agency should consider?
- What are the benefits of the rulemaking?
- What are the costs of not adopting the criteria?

Specific questions –

- Should the Agency adopt narrative or adopt numeric nutrient criteria?
- Is there sufficient technical justification to adopt nutrient standards? For which type(s) of water bodies?
- Do you support the TIC criterion for streams and rivers? Is another approach preferable? Are the TMDL stream target values for DIN and TP used for calculating Waste Load Allocations (WLAs) and Water Quality Based Effluent Limits (WQBELs) reasonable?
- What other specific questions need to be addressed before proceeding with rule adoption?

What should I consider as I prepare my comments?

You may find the following suggestions helpful for preparing your comments:

1. Explain your views as clearly as possible.
2. Describe any assumptions that you used.
3. Provide any technical information and/or data you used that support your views.
4. If you estimate potential burden or costs, explain how you arrived at your estimate.
5. Provide specific examples to illustrate your concerns.
6. Offer alternatives.
7. Make sure to submit your comments by the comment period deadline.

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How can I provide input on the rulemaking?

Please submit your comments in one of the following ways:

By email: dsw_rulecomments@epa.ohio.gov

By fax: (614) 644-2745

By postal mail: Rule Coordinator, Ohio EPA, Division of Surface Water, P.O. Box 1049, Columbus, OH 43216-1049

Comments on the rule must be received no later than 5:00 p.m. on May 22, 2013.

How can I get more information?

This fact sheet is available on the Division of Surface Water website at www.epa.ohio.gov/dsw/dswrules.aspx. Links to supporting documents are available below.

For more information about the rulemaking, please contact:

Dan Dudley
(614) 644-2876
dan.dudley@epa.ohio.gov

Supporting documents

Nutrients in General:

- Early stakeholder outreach chart for framing numeric nutrient criteria issues and the areas where public input is solicited (SEE ATTACHED PAGE)
- Ohio's Draft Nutrient Reduction Strategy Framework – available at: www.epa.ohio.gov/dsw/Home.aspx
- Director's Agricultural Nutrients and Water Quality Working Group – Final Report and Recommendations – available at: http://www.agri.ohio.gov/topnews/waterquality/docs/FINAL_REPORT_03-09-12.pdf
- Ohio EPA Point Source & Urban Runoff Nutrient Workgroup – Final Report and Recommendations – available at: www.epa.ohio.gov/dsw/Home.aspx
- Ohio Nutrient Forum Visioning Workshop – available at: www.epa.ohio.gov/dsw/wqs/NutrientReduction.aspx
- Ohio EPA's Association Between Nutrients, Habitat, and the Aquatic Biota of Ohio Rivers and Streams (1999) – available at: www.epa.ohio.gov/dsw/document_index/docindx.aspx

Nutrient Criteria for Lakes:

- 2010 Interested Party Review Draft Lake Habitat Criteria – available at: www.epa.ohio.gov/dsw/dswrules/nutrientcriteria.aspx
- Technical Support Document: Nutrient Criteria for Inland Lakes in Ohio, March 2010 - available at: www.epa.ohio.gov/dsw/rules/dswrules/nutrientcriteria.aspx
- Interested party comments on Draft Lake Habitat Criteria available upon request
- Ohio EPA DSW Inland Lakes program – available at: www.epa.ohio.gov/dsw/inland_lakes/index.aspx
- 2012 Integrated Report Section I, Consideration for Future Lists – available at: <http://epa.ohio.gov/portals/35/tmdl/2012IntReport/IR12SectionIfinal.pdf>

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Nutrient Criteria for Streams & Rivers

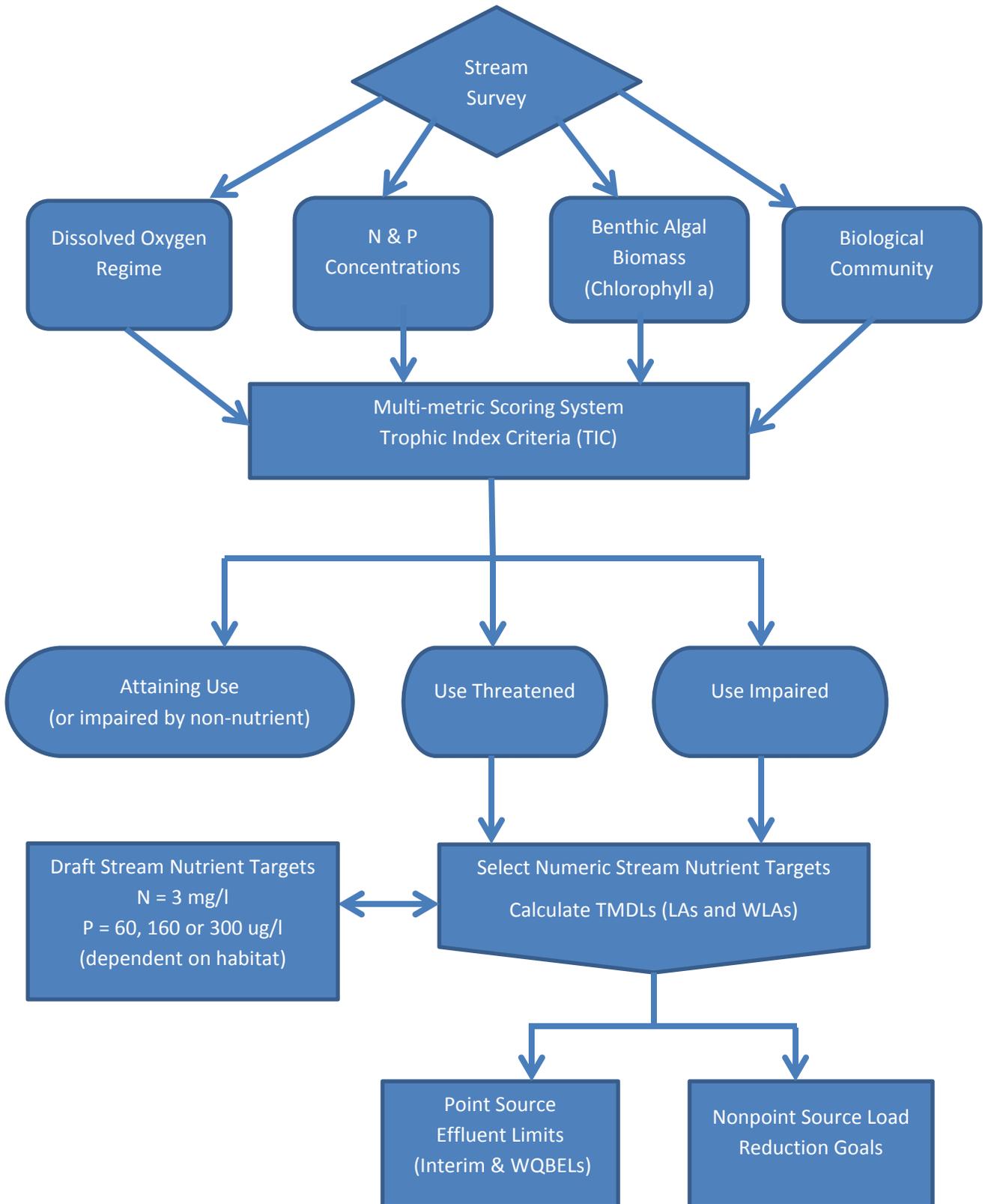
- Miltner, R. J. 2010. A method and rationale for deriving nutrient criteria for small rivers and streams in Ohio. Environmental Management 45:842-855 – available at: www.link.springer.com/article/10.1007%2Fs00267-010-9439-9
- Technical Support Document for Nutrient Water Quality Standards for Ohio Rivers and Streams. (Draft document prepared by Ohio EPA in cooperation with Tetra Tech and submitted to U.S. EPA on December 5, 2011.) – available at: www.epa.ohio.gov/Portals/35/rules/Nutrient_Criteria_Technical_Support_Document_12-2-2011%20DRAFT.pdf
- Trophic Index Criterion – Rationale and Scoring – available at: www.epa.ohio.gov/dsw/dswrules/nutrientcriteria.aspx

Other Resources

- Nutrients and the Mississippi River Basin / Gulf of Mexico – available at: www.water.epa.gov/type/watersheds/named/msbasin/index.cfm
- U.S. EPA – Nutrient Pollution Policy and Data – available at: www2.epa.gov/nutrient-policy-data

A chart that frames the nutrient standard issues and the areas where public input is being solicited during Ohio EPA’s early stakeholder outreach process (March 2013).

Type of Water Body (where criteria apply)	Primary Nutrient of Concern & other parameters	Technical Approaches for Nutrient criteria – Available Options	Specific Standard as drafted by Ohio EPA
Lake Erie	Total P Dissolved P Chl a Secchi depth Nitrogen	1) Offshore, nearshore and tributary river mouth nutrient targets set out in Lake Erie Binational Nutrient Management Strategy (Lake Erie LaMP. 2011) 2) other	None at this time
Inland lakes and reservoirs	Total P Chl a Secchi depth Dissolved Oxygen Nitrogen	1) Regional reference model 2) Stressor response model 3) Recreational use impairment management model 4) other	Using regional reference model - draft criteria for each parameter listed; values vary by lake type and region of the State (proposed rules were withdrawn in February 2012)
Streams and rivers	Total P DIN Chl a Dissolved Oxygen Biological criteria	1) Stressor response model, parameters weighed collectively 2) Stressor response model, each parameter considered separately 3) Regional reference model 4) other	Using stressor response model – Trophic Index Criterion, incorporating the parameters listed; associated TP and DIN target values provided and applied in TMDL and permit programs
Ohio River & Gulf of Mexico	Nitrogen Phosphorus	1) Reduction goal established by Gulf hypoxia task force 2) other	None at this time



Conceptual design of the Trophic Index Criterion