



2023 Water Quality Standards Triennial Review



Division of Surface Water
Standards and Technical Support Section

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2023 Water Quality Standards Triennial Review

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1.0 SUMMARY

The federal Clean Water Act requires states to review and seek public comments on their water quality standards (WQS) every three years (40 CFR 131.20). As the state entity overseeing and implementing Ohio's WQS, Ohio Environmental Protection Agency Division of Surface Water (Ohio EPA, DSW) conducts the state's triennial review.

For the current triennial review, DSW staff drafted a ranking of WQS rulemaking priorities, submitted an unranked list of potential priorities for public review, and used staff input and external comments received to develop a work plan for the next three year period. DSW staff contributed to the initial ranking of the rulemaking priorities. An unranked list was then released to the public for comments. Individuals and organizations could comment digitally or by mail at any time during the 60-day comment period and could also comment in person or virtually during a public hearing.

Internal staff included the antidegradation, beneficial use designation, and aquatic life and wildlife criteria rules as the top priorities.

External comments primarily focused on the potential categorization of the Big and Little Darby Creeks as Outstanding National Resource Waters in the Antidegradation rule Ohio Administrative Code (OAC) 3745-1-05. All comments received from individuals were requests for Ohio EPA to formally categorize Big and Little Darby Creeks as Outstanding National Resource Waters. Comments from organizations included the former request, as well as comments regarding a combined sewer overflow (CSO) wet weather use and CSO National Pollutant Discharge Elimination System (NPDES) permitting, emerging contaminants, coldwater habitat definition, nutrients, ammonia, chloride, and sulfate standards, and the decoupling of the Triennial Review from the rulemaking process.

Ohio EPA will now proceed with rulemaking on the prioritized water quality standards as outlined in the Triennial Review workplan.

2.0 BACKGROUND

Under the Clean Water Act (CWA) states are required to have WQS that protect lakes, rivers, streams or other surface waters from pollution. Ohio's WQS are in OAC Chapter 3745-1. These rules contain beneficial use designations such as warmwater aquatic life habitat, public water supply and primary contact recreation, water quality criteria (numeric levels and narrative statements) protective of the beneficial use designations, and procedures for applying the water quality criteria to discharges. WQS are the foundation for other regulatory actions such as permitting, compliance, enforcement, and monitoring and assessing the quality of Ohio's waters.

WQS are comprised of three elements:

- Use Designations – Beneficial use designations describe existing or potential uses of water bodies. They take into consideration the use and value of water for public water supplies, protection and propagation of aquatic life, recreation in and on the water, agricultural, industrial and other purposes. Ohio EPA assigns beneficial use designations to water bodies in the state. There may be more than one use designation assigned to a water body. Examples of beneficial use designations include public water supply, primary contact recreation, and aquatic life uses (warmwater habitat, exceptional warmwater habitat, etc.).
- Water Quality Criteria – narrative and numeric criteria and values derived from methods described in rule:
 - Narrative "free froms" are general water quality criteria that apply to all surface waters. These criteria state that all waters shall be free from sludge, floating debris, oil and scum, color and odor producing materials, substances that are harmful to human, animal or aquatic life, and nutrients in concentrations that may cause algal blooms.
 - Numeric criteria are estimations of concentrations of chemicals and degree of aquatic life toxicity allowable in a water body without adversely impacting its beneficial uses. Although numeric criteria are applied to water bodies, they primarily are used to regulate dischargers through NPDES permits. Numeric criteria consist of chemical criteria, whole effluent toxicity levels and biological criteria.
- Antidegradation Policy – The antidegradation provisions describe the conditions under which water quality may be lowered in surface waters. Existing beneficial uses must be maintained and protected. Further, water quality better than that needed to protect existing beneficial uses must be maintained unless lower quality is deemed necessary to allow important economic or social development (existing beneficial uses must still be protected).

Ohio EPA DSW is conducting a Triennial Review of Ohio's WQS, a process required by the federal Clean Water Act (40 CFR 131.20). This review helps keep states' WQS up to date by integrating the latest science, technology, policy, and federal requirements. The Triennial Review is an essential process in fulfilling the role of the federal Clean Water Act and provides an opportunity for public input to help the Agency determine and prioritize updates to the WQS. It is important to note that while the Triennial Review process helps determine WQS priorities, it is not a rulemaking, rather it helps to guide the Agency for future rulemaking priorities. The Triennial Review has previously been conducted through rulemaking procedures. However, Ohio EPA is decoupling the Triennial Review from the rulemaking process and is implementing the new process described below.

3.0 REVIEW PROCESS

Ohio EPA implemented a new process for this Triennial Review. Similar to the Agency's rulemaking process, this process incorporates an internal review of the rules followed by an opportunity for the public to review and comment on the draft document. This process differs from previous Ohio EPA Triennial Reviews in that it is de-coupled from the state rulemaking process. This allows the Triennial Review to be completed in a timely manner.

3.1 Internal Staff Review

Division of Surface Water solicited internal division staff input on WQS that may need review or revision in the coming three year period. An email was sent with a spreadsheet of all the WQS rules.

Staff suggestions were considered along with five year rule review due dates, the latest science, technology, policy, and federal requirements, and program/division needs. The Division then created a draft ranking of WQS update priorities (Appendix A).

3.2 Public Review

Ohio EPA solicited input from the public on potential WQS priorities during a 60-day public comment period which ran from December 1, 2022 through January 31, 2023. The public was invited to complete a form in which they could rank potential rulemaking priorities, and to submit comments on those or any other aspects of Ohio's WQS rules that they thought should be addressed. The Agency also held an informative public webinar and a public hearing during the comment period.

Stakeholders were informed of these opportunities in multiple ways: the comment period, webinar, and public hearing were advertised in our state Weekly Notices, a notification email was sent to the ~2,700 members of the Division's rulemaking interested party list, a news release was issued on December 15, 2022. Three reminder emails were sent to the interested party list during the comment period highlighting the webinar, public hearing, and comment deadline.

The list of potential priorities was included in an informative Fact Sheet which was posted on the Division's website and was available during the webinar and public hearing. A copy of the Fact Sheet, the emails sent to stakeholders, and the form that commenters were asked to complete are included as Appendices B, C, and D.

Ohio EPA held a public webinar on December 19, 2022 to provide information and answer questions about our WQS and the Triennial Review process. The recorded webinar was posted to the Agency's YouTube account two days later and remains available here: youtube.com/watch?v=yM92cIBYhp8. The public hearing was held on January 18, 2023 to solicit additional comments.

Ohio EPA received comments from 83 individuals and 17 organizations during the public comment period. However, the form allowing commenters to rank priorities was only

completed by three of these entities. The comment letters and completed forms are included as Appendix E. 16 non-staff registrants attended the informative webinar, and 15 attended the public hearing.

Comments received during the public comment period and public hearing were reviewed and considered by Division WQS staff.

4.0 Responses to Comments

Eighty-three individuals and 17 organizations submitted comments during the public comment period. All comments are available in their entirety in Appendix E. Organizations submitting comments include: American Rivers, Association of Ohio Metropolitan Wastewater Agencies, Center for Biological Diversity, Darby Creek Association, Forest Keeper, Midwest Biodiversity Institute, Metropolitan Sewer District, Northeast Ohio Regional Sewer District, Ohio Coal Association, Ohio Environmental Council, Ohio Scenic Rivers Association, Ohio Utilities and Generation, Sierra Club Ohio, The Nature Conservancy, US Environmental Protection Agency, and US Fish & Wildlife Service.

Topics of the comments received, along with the Agency response, include:

- Categorization of Big and Little Darby Creeks as Outstanding National Resource Waters in Ohio's Antidegradation rule
Response: Ohio EPA intends to initiate a rulemaking that will consider the recategorization of Big and Little Darby Creeks as Outstanding National Resource Waters in Ohio's antidegradation rule (OAC 3745-1-05). In addition, Ohio EPA plans to initiate a separate rulemaking to consider new additions and revisions to the list of Antidegradation high quality waters, taking into consideration water quality survey results since the initial list development. Please see the Triennial Review Work Plan for additional information.
- Inclusion of Ohio EPA priorities in the next Triennial Review
Response: As mentioned above, Ohio EPA is utilizing a new process to conduct the Triennial Review of Ohio's Water Quality Standards. In a break from past practices, Agency priorities were not included in the materials soliciting public input. The Division will consider this suggestion in the next Triennial Review process.
- Revise water quality standards to ensure compliance with combined sewer overflow policy
Response: Ohio EPA intends to initiate a rulemaking that will include revisions to recreation criteria in OAC 3745-1-37 and other applicable rules. During this rule review, the Agency will consider various options available within water quality standards' provisions related to recreation use attainment in areas with combined sewer overflows and completed Long-term Control Plans.

- Follow science in developing water quality standards for emerging contaminants and consider use of variances for emerging contaminants

Response: Ohio EPA is closely following the development of water quality standards and analytical methodologies for contaminants of emerging concern. At the time of this response, U.S. EPA has released draft aquatic life water quality criteria for perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS). Ohio EPA is currently working on a statewide monitoring project to determine the levels of these chemicals in large rivers to determine whether the draft aquatic life criteria may be attained.

- Clarify the Coldwater Habitat definition and specifically review and revise the list of coldwater species and establish richness criteria for fish and invertebrates

Response: Ohio EPA intends to initiate a rulemaking to clarify the Coldwater Habitat use. Please see the Triennial Review Work Plan for additional information.

- Utilize the full suite of biological assessment methods including the Primary Headwater Habitat methodologies in Use Attainability Assessments

Response: Ohio EPA recognizes the need to establish beneficial use designation subcategories and assessment metrics for Primary Headwater Habitat waters, however the Agency is not ready to proceed with a rulemaking in this Triennial Review period. Ohio EPA is conducting additional water quality survey work in the summer of 2023 as part of the Probabilistic Headwater Survey that will inform the regulatory structure for Primary Headwater Habitat waters. The results from the 2023 survey should be available and analyzed prior to the next Triennial Review.

- Proceed with nutrient standards for streams and large rivers

Response: Ohio EPA intends to initiate a rulemaking to establish nutrient standards for streams and large rivers. Please see the Triennial Review Work Plan for additional information.

- Incorporate U.S. EPA's recommended national ammonia criteria published in 2013

Response: Ohio EPA intends to initiate a rulemaking to update/adopt new aquatic life criteria for several parameters including ammonia. Please see the Triennial Review Work Plan for additional information.

- Review and update variance rule provisions, including multiple discharger variance for mercury

Response: Ohio EPA began the review of the WQS variance rule in 2020 (please see the related fact sheet at the following link:

epa.ohio.gov/static/Portals/35/rules/ESO_fs_WQS_variances_jul31_2020.pdf?ver=2020-07-30-142845-813). The next step in the rulemaking process is to release draft rule

revisions for interested party review and comment. Ohio EPA anticipates the release of the draft rule this summer.

- Adopt aquatic life criteria for chloride and sulfate

Response: Currently, Ohio EPA does not have aquatic life criteria for chloride and sulfate, rather these parameters are group with other ions and included in the aquatic life criteria for Total Dissolved Solids. Ohio EPA is beginning to explore establishing benchmarks for these parameters that are protective of aquatic life in Ohio and how to incorporate them into the WQS. Ohio EPA anticipates continued strategy development and a plan ready for the next Triennial Review.

- Inclusion of stream physical integrity assessment in water quality standards

Response: Ohio EPA will evaluate ways to include assessment of stream physical integrity in future updates to water quality standards rules and implementation programs though there are not specific rule revisions included in this Triennial Review.

- Provide review of all parameters for which EPA has published new or updated 304(a) criteria recommendations since May 30, 2000 as part of the Triennial Review submission

Response: The following Table 4.1 summarizes the federal criteria that have been updated/finalized since May 30, 2000 and the current status within Ohio EPA's WQS.

Table 4.1 New/Updated CWA 304(a) Criteria Recommendations Published since May 30, 2000 and Ohio EPA Plan of Action

Pollutant	Publication Year	Ohio EPA Comment
Aquatic Life Criteria		
Acrolein	2009	Plan to consider in review of OAC 3745-1-35
Aluminum	2018	Deferred – Ohio EPA is waiting to adopt updated criteria until the results of the Cooperative Research and Development Agreement for Aquatic Life Bioavailability Modeling for Metals is complete.
Ammonia	2013	Plan to consider in review of OAC 3745-1-35
Carbaryl	2012	Plan to consider in review of OAC 3745-1-35
Cadmium	2001, 2016	Plan to consider in review of OAC 3745-1-35
Copper	2007	Deferred – Ohio EPA is waiting to adopt updated criteria until the results of the Cooperative Research and Development Agreement for Aquatic Life Bioavailability Modeling for Metals is complete.
Diazinon	2005	Plan to consider in review of OAC 3745-1-35
Nonylphenol	2005	Plan to consider in review of OAC 3745-1-35
Nutrients	2003	Plan to consider in the current Triennial

		Review period
Selenium	2016	Plan to consider in review of OAC 3745-1-35
Tributyltin	2004	Plan to consider in review of OAC 3745-1-35
Human Health Criteria		
94 chemicals included in EPA's 2015 Human Health Ambient Water Quality Criteria update (epa.gov/wqc/human-health-water-quality-criteria-and-methods-toxics#2015)	2015	Adopted by Ohio EPA in OAC 3745-1-33 and OAC 3745-1-34
Antimony	2002	Adopted by Ohio EPA in OAC 3745-1-33 and OAC 3745-1-34
Methylmercury	2001	Adopted by Ohio EPA in OAC 3745-33-07
Nitrosodibutylamine	2002	Adopted by Ohio EPA in OAC 3745-1-33 and OAC 3745-1-34
Nitrosodiethylamine	2002	Adopted by Ohio EPA in OAC 3745-1-33 and OAC 3745-1-34
Nitrosopyrrolidine	2002	Adopted by Ohio EPA in OAC 3745-1-33 and OAC 3745-1-34
N-Nitrosodimethylamine	2002	Adopted by Ohio EPA in OAC 3745-1-33 and OAC 3745-1-34
N-Nitrosodi-n-Propylamine	2002	Adopted by Ohio EPA in OAC 3745-1-33 and OAC 3745-1-34
N-Nitrosodiphenylamine	2002	Adopted by Ohio EPA in OAC 3745-1-33 and OAC 3745-1-34
Polychlorinated Biphenyls (PCBs)	2002	Adopted by Ohio EPA in OAC 3745-1-33 and OAC 3745-1-34
Selenium	2002	Adopted recommendation in OAC 3745-1-34, more stringent criterion in OAC 3745-1-33
Thallium	2003	More stringent criterion in OAC 3745-1-33, Recommended value removed from OAC 3745-1-34 due to removal of reference dose upon which criterion based
Zinc	2002	Adopted by Ohio EPA in OAC 3745-1-33 and OAC 3745-1-34
2,3,7,8-TCDD (Dioxin)	2002	Adopted by Ohio EPA in OAC 3745-1-33 and OAC 3745-1-34
Recreation		
EPA's 2012 Recreational Water Quality Criteria	2012	Including methodology in current review of OAC 3745-1-03. Plan to consider criteria in review of OAC 3745-1-37

5.0 WORKPLAN FOR 2023-2025

Based on both DSW staff input and the comments received from the public, WQS program staff developed a workplan for the upcoming three years. This workplan shows rulemaking priorities and estimated schedules/timing for each.

It should be noted that the state of Ohio requires each rule in the Ohio Administrative Code to be reviewed every five years. This review cycle is independent from the Triennial Review required by federal law. Because of this review cycle, some rules may be amended outside of their Triennial Review priority ranking – that is, a rule considered low priority by Triennial Review commentators may be amended before one that is considered higher priority due to where the rules are currently in their state-mandated review cycle.

Table 5.1 Rulemakings in Progress, Organized by Stage in the Rule Review Process

Rule Number(s)	Topic	Ohio EPA Comments
WQS Rules OAC 3745-1-01, 04, 06, 18, 20, 39, 40, 41, 42, 43, 44	Minor updates for the state five-year review for the following: Purpose and applicability of rules, narrative criteria, mixing zones, site-specific criteria, criteria development methodologies, whole effluent toxicity and Beneficial use designation rules for the following basins: Little Miami River and Rocky River	Ohio EPA is currently preparing this package for original filing with JCARR
WQS Rules OAC 3745-1-50, 51, 52, 54	Updates to the wetland rules as part of the state five-year review	Ohio EPA is currently reviewing comments received during Early Stakeholder Outreach and drafting rule language
WQS Rules OAC 3745-1-29, 30, 53	No changes proposed for the state five-year review of the Wetland use designation rule and Beneficial use designation rules for the Wabash River and Mill Creek basins	Ohio EPA is currently preparing this package for original filing with JCARR
WQS Rules OAC 3745-1-02, 03, 25, 31	Updates to definitions, methods and Lake Erie standards and Mahoning river beneficial use designations as part of the state five-year review	Ohio EPA is currently responding to comments received during the Interested Party Review comment period
WQS Rule OAC 3745-1-38	Variances	Ohio EPA is currently drafting rule language prior to Interested Party

		Review
WQS Rule OAC 3745-1-07 and New Implementation Rule OAC 3745-2-03	Reorganization and clarification of biocriteria narrative application requirements	Ohio EPA is currently preparing this package for original filing with JCARR
WQS Use Designations Wave 3 (OAC 3745-1-10, 13, 14, 24, 26, 27, 28)	Includes the following basins: Grand River, Central Ohio tributaries, Ashtabula River, Muskingum River, Cuyahoga River, Black River, Vermilion River	Ohio EPA is currently finalizing draft technical support documents and preparing this package for Interested Party Review

Table 5.2 Rulemakings in Preparation, Listed by Priority

Rule Number(s)	Topic	Ohio EPA Comments
WQS Rule 3745-1-05	Update of special high quality waters lists in Antidegradation rule	
WQS Rule OAC 3745-1-35	Updates to aquatic life criteria for parameters with new/revised criteria since 2000 (see Table 4.1) and Ohio EPA developed criteria for barium, fluoride, peracetic acid, strontium	
WQS Rule OAC 3745-1-07	Update coldwater habitat definition	
Various rules in OAC Chapters 3745-1 and 3745-2	Update/add nutrient criteria for streams and large rivers	
WQS Rule 3745-1-05	Best Available Demonstrated Control Technology update	
WQS Rules OAC 3745-1-03, 07, 31	Include Lake Erie shoreline, lacustrary, and open water Aquatic Life Uses	Ohio EPA is currently finalizing draft technical support documents
WQS Rules OAC 3745-1-33, 34, 41, 42	Update to human health criteria based upon most recent methodology, inputs and resolve U.S. EPA disapproval of certain values in Lake Erie Basin	
WQS Rule 3745-1-37	Update recreation criteria to included HAB criteria and CSO/LTCP considerations	
WQS Rule 3745-1-05	Updates to NPDES provisions	
WQS Rule OAC 3745-1-07, 35	Create new lake habitat designated use and put associated criteria in rule	

Ohio EPA Division of Surface Water Triennial Review Internal Input

Rule #	Rule title	Priority rank	Reasoning for rank
3745-01-05	Antidegradation.	H	Several significant changes or updates are expected, including updating the lists of high quality waters and clarification to provisions related to NPDES permits.
3745-01-07	Beneficial use designations and biological criteria.	H	Several changes expected at the upcoming review date and further in the future, including Coldwater Habitat Use, Lake Habitat Use and inclusion of primary headwater streams in aquatic life uses.
3745-01-35	Aquatic life and wildlife criteria.	H	Several updates are expected, including U.S. EPA-recommended and Ohio EPA-developed criteria for parameters (finalized since last rule revision).
3745-01-13	Central Ohio tributaries drainage basin.	M	Changes are expected pending the results of fieldwork being conducted during summer 2022.
3745-01-29	Wabash river drainage basin.	M	Changes are expected pending the results of fieldwork being conducted during summer 2022.
3745-01-37	Water quality criteria for recreation use designations and aesthetic conditions.	M	Need to correct some errors within the current rule, and it is due for five-year-review.
3745-01-50	Wetland definitions.	M	May require some changes over the next two years due to requirements outlined in HB 175.
3745-01-54	Wetland antidegradation.	M	May require some changes over the next two years due to requirements outlined in HB 175.
3745-01-01	Purpose and applicability.	L	No changes expected.
3745-01-04	Criteria applicable to all waters.	L	No changes expected.
3745-01-06	Mixing zone demonstration and sizing requirements.	L	No changes expected, but due for five year review.
3745-01-20	Rocky river drainage basin.	L	No changes expected, but due for five year review.
3745-01-25	Mahoning river drainage basin.	L	No changes expected, but due for five year review.
3745-01-30	Mill creek drainage basin.	L	No changes expected, but due for five year review.
3745-01-39	Site-specific modifications to criteria and values.	L	No changes expected, but due for five year review.
3745-01-40	Methodologies for development of aquatic life criteria and values.	L	No changes expected, but due for five year review.
3745-01-41	Methodology for deriving bioaccumulation factors.	L	No changes expected, but due for five year review.

3745-01-42	Methodologies for development of human health criteria and values for the lake Erie drainage basin.	L	No changes expected, but due for five year review.
3745-01-43	Methodology for the development of wildlife criteria for the lake Erie drainage basin.	L	No changes expected, but due for five year review.
3745-01-44	Whole effluent toxicity provisions.	L	No changes expected, but due for five year review.
3745-01-51	Wetland narrative criteria.	L	No changes expected.
3745-01-52	Numeric chemical criteria for wastewater discharges to wetlands.	L	No changes expected.
3745-01-53	Wetland use designation.	L	No changes expected.



Stakeholder Outreach— Water Quality Standards Triennial Review

The Triennial Review process helps Ohio EPA determine priorities for either revising existing water quality standards or setting new water quality standards priorities. The Triennial Review process is not a rulemaking procedure, rather it helps to guide Ohio EPA in future rulemaking priorities.

What are Water Quality Standards?

Water quality standards (WQS) are state regulations in Ohio Administrative Code (OAC) chapter 3745-1 that protect Ohio's lakes, rivers, streams and other surface water bodies from pollution.

WQS are comprised of three elements:

- Beneficial Use Designations – water supply, recreation, fish and wildlife
- Water Quality Criteria – narrative and numeric criteria and values derived from methods described in rule
- Antidegradation Provisions – to help keep clean water clean

There are currently 49 individual rules in the WQS, of which 23 rules are beneficial use designations for specific watersheds throughout the state.

WQS are used in the implementation of Clean Water Act programs such as the National Pollutant Discharge Elimination System (NPDES) permits, Section 401 Water Quality Certifications and Total Maximum Daily Load (TMDL) reports. Entities potentially regulated under WQS include facilities that discharge or plan to discharge wastewater or entities seeking permission to physically impact water bodies.

What is the Triennial Review?

Ohio EPA is conducting a triennial review of its WQS as required by federal regulations (40 CFR 131.20). These regulations are available [online](#). The federal regulations require that states at least every three years, hold public hearings for the purpose of seeking input on the priorities for reviewing their water quality standards. During the Triennial Review, states also need to consider new or updated water quality criteria recommendations published by U.S. EPA pursuant to Section 304(a) of the Clean Water Act.

How does the Triennial Review differ from the normal state-required five-year rule review process?

The Triennial Review is a process mandated by the federal Clean Water Act and provides a public process for input on WQS

How can you provide input?

To submit stakeholder input on Ohio EPA's Triennial Review, please complete the online form at epa.ohio.gov/help-center/contact-us/forms/triennial-review-feedback to rank the priorities and offer any additional comments.

When preparing comments, be sure to:

- explain your views as clearly as possible;
- describe any assumptions used;
- provide any technical information and/or data used to support your views;
- explain how you arrived at your estimate for potential burdens, benefits or costs;
- provide specific examples to illustrate your views; and
- offer alternatives.

You may also submit any comments in one of the following ways:

- By email:
dsw_rulecomments@epa.ohio.gov
- By mail: Rules Coordinator, OhioEPA,
Division of Surface Water, P.O. Box 1049,
Columbus, OH 43216-1049

Completed forms and written comments will be accepted through close of business on January 31, 2023.

Questions?

For more information about this review, please contact:

Melinda Harris at (614) 728-1357 or
melinda.harris@epa.ohio.gov

rulemaking priorities. WQS rules make up only a portion of Ohio’s environmental rules. The Triennial Review helps determine the prioritization of work within the WQS rules for the following three years but does not itself result in specific rule changes.

Ohio’s five-year rule reviews are mandated in the Ohio Revised Code (ORC) and apply to each rule in the OAC regardless of agency or topic. Any given rule is to be reviewed every five years by the associated agency and put out for public comment multiple times as part of that review. This review results in one of the following: no change, an amended rule, or a rescinded rule.

What input is Ohio EPA seeking?

Ohio EPA is requesting that stakeholders select from options A through O shown in Table 1, the five items that you believe are most important for Ohio EPA to prioritize in the next three years. More information on how you can provide input is provided on page 1 of this factsheet.

Table 1. Potential water quality standards rulemaking priorities for the next three-year period. Note that they are presented in the order they appear in the WQS rules chapter.

Option	Rule #	Rule title and subtopic if applicable
A.	3745-01-01	Purpose and applicability
B.	3745-01-04	Criteria applicable to all waters
C.	3745-01-05	Antidegradation - NPDES discharges
D.	3745-01-05	Antidegradation - Special high-quality waters
E.	3745-01-05	Antidegradation - Best available demonstrated control technology
F.	3745-01-06	Mixing zone demonstration and sizing requirements
G.	3745-01-07	Beneficial use designations and biological criteria (e.g.: Coldwater Habitat definition)
H.	3745-01-35	Aquatic life and wildlife criteria - U.S. EPA recommended and Ohio EPA developed criteria for parameters finalized since the last rulemaking
I.	3745-01-37	Water quality criteria for recreation use designations and aesthetic conditions
J.	3745-01-39	Site-specific modifications to criteria and values
K.	3745-01-40	Methodologies for development of aquatic life criteria and values
L.	3745-01-41	Methodology for deriving bioaccumulation factors
M.	3745-01-42	Methodologies for development of human health criteria and values for the Lake Erie drainage basin
N.	3745-01-43	Methodology for the development of wildlife criteria for the Lake Erie drainage basin
O.	3745-01-44	Whole effluent toxicity provisions

Stakeholders may also make comments on **any** WQS rule(s) in OAC Chapter 3745-1. General comments are welcome.

The following questions may help guide you as you develop your comments.

- Is there any information or data Ohio EPA should be aware of when reviewing these rules?
- Are there ways to increase efficiencies or better facilitate compliance with these rules?
- How closely should Ohio EPA follow U.S. EPA national criteria recommendations for aquatic life and human health criteria?
- Are there other aspects of Ohio’s WQS rules that you would like to see reviewed and changed?

What is the Triennial Review schedule?

- **An informative webinar will be held on December 19, 2022.** Ohio EPA will host a public webinar to present information and answer questions about the Triennial Review process and the WQS topics being considered for prioritization. The virtual event address for webinar attendees is: attendee.gotowebinar.com/register/4934258968257049173. The webinar will be uploaded to the Agency YouTube channel after the event. A link to the video will be available with the Triennial Review materials at this link: epa.ohio.gov/divisions-and-offices/surface-water/regulations/early-stakeholder.
- **A public hearing will be held January 18, 2023.** Ohio EPA will host a public hearing to give interested persons the opportunity to present oral and written comments on the WQS rules. The public hearing will be held at the Ohio EPA Conference Center, Room A, 50 West Town Street, Suite 700, in Columbus, Ohio. Interested parties may attend in person or virtually. The virtual event address for public hearing attendees is: attendee.gotowebinar.com/register/2578740023700534365.
- **The comment period ends at close of business on January 31, 2023.**

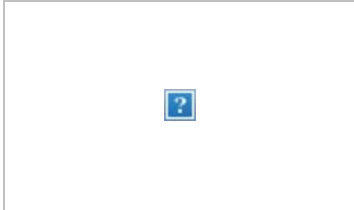
This is the **only** public comment period for the Triennial Review and Ohio EPA strongly encourages stakeholders to provide comments now.

At the close of the comment period, Ohio EPA will consider input provided by stakeholders and Ohio EPA's Division of Surface Water staff, draft a work plan, and publish a Triennial Review report. The report will be made available on the Division of Surface Water's [website](#).

How can you get more information?

- This fact sheet is available on Ohio EPA's Division of Surface Water website at epa.ohio.gov/divisions-and-offices/surface-water/regulations/early-stakeholder.
- For additional background information on water quality standards, please visit the Water Quality Standards Program webpage at: epa.ohio.gov/divisions-and-offices/surface-water/reports-data/water-quality-standards-program.
- The existing rules in OAC Chapter 3745-1 are available at: epa.ohio.gov/divisions-and-offices/surface-water/regulations/effective-rules.
- Information on the federal WQS program is available at: epa.gov/wqs-tech.
- Contact Melinda Harris at (614) 728-1357 or melinda.harris@epa.ohio.gov.

From: [Ohio EPA Outreach](#)
To: [Imhoff, Emily](#)
Subject: Ohio EPA Triennial Review of Water Quality Standards
Date: Thursday, December 1, 2022 2:42:05 PM



Stakeholder Outreach - Water Quality Standards Triennial Review

Division of Surface Water

December 1, 2022

Ohio EPA is holding a Triennial Review of the state's Water Quality Standards (WQS). The Triennial Review process helps Ohio EPA determine priorities for either revising existing water quality standards or setting new water quality standards. The Triennial Review process is not a rulemaking procedure, rather it helps to guide Ohio EPA in future rulemaking priorities.

What are Water Quality Standards?

WQS are state regulations in Ohio Administrative Code (OAC) chapter 3745-1 that protect Ohio's lakes, rivers, streams and other surface water bodies from pollution.

WQS are used in the implementation of Clean Water Act programs such as the National Pollutant Discharge Elimination System (NPDES) permits, Section 401 Water Quality Certifications and Total Maximum Daily Load (TMDL) reports. Entities potentially regulated under WQS include facilities that discharge or plan to discharge wastewater or entities seeking permission to physically impact water bodies.

What is the Triennial Review schedule?

- o An informative webinar will be held on December 19, 2022.
- o A public hearing will be held January 18, 2023.
- o The comment period ends at close of business on January 31, 2023.

This is the only public comment period for the Triennial Review and Ohio EPA strongly encourages stakeholders to provide comments now.

How can you provide input?

Access the Fact Sheet for more information. It is available here: epa.ohio.gov/static/Portals/35/rules/TriennialReview_FactSheet_1Dec2022.pdf or here: epa.ohio.gov/divisions-and-offices/surface-water/regulations/early-stakeholder

The Fact Sheet includes information on the webinar, public hearing, how and when to comment and ask questions, and how to access the currently effective WQS rules.

Comments are due by 5 p.m., January 31, 2023 via the online form (preferred) or to dsw_rulecomments@epa.ohio.gov.

For more information on the Triennial Review process, visit epa.ohio.gov/divisions-and-offices/surface-water/reports-data/water-quality-standards-program and click on the Triennial Review tab.

For questions, please contact Melinda Harris at melinda.harris@epa.ohio.gov or (614) 728-1357.

If you submit comments regarding this rulemaking, you should receive a reply email within 2 business days indicating the receipt of your comments. If you do not receive a reply, please reach out using the contact info below.

Rule Coordinator, Ohio EPA
Division of Surface Water
Phone: 614-728-2396
Email: dsw_rulecomments@epa.ohio.gov

[614-644-3020](tel:614-644-3020)
epa.ohio.gov

50 W. Town St.,
Suite 700
Columbus, OH
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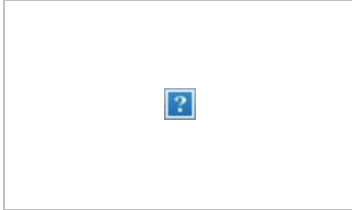
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From: [Ohio EPA Outreach](#)
To: [Imhoff, Emily](#)
Subject: Ohio EPA Triennial Review of Water Quality Standards - webinar and public hearing
Date: Wednesday, January 4, 2023 2:21:25 PM



Water Quality Standards Triennial Review - webinar available

Division of Surface Water

January 4, 2023

Ohio EPA is holding a Triennial Review of the state's Water Quality Standards (WQS). The Triennial Review process helps Ohio EPA determine priorities for either revising existing water quality standards or setting new water quality standards. The Triennial Review process is not a rulemaking procedure, rather it helps to guide Ohio EPA in future rulemaking priorities.

Schedule:

- An informative webinar was held December 19, 2022 and is now available on the Ohio EPA's YouTube channel here: <https://www.youtube.com/watch?v=yM92cIBYhp8>
- A public hearing will be held at 10:30 am on January 18, 2023.
- Comments are due by 5 pm on January 31, 2023.

This is the only comment period for the Triennial Review, and Ohio EPA strongly encourages stakeholders to provide input now.

Providing input:

The Fact Sheet includes information on how to provide input, how to attend the public hearing, and more about the Triennial Review process. It is available here: epa.ohio.gov/static/Portals/35/rules/TriennialReview_FactSheet_1Dec2022.pdf and here: epa.ohio.gov/divisions-and-offices/surface-water/regulations/early-stakeholder.

The online form to submit your input is available here: <https://epa.ohio.gov/help-center/contact-us/forms/triennial-review-feedback>

For more information on the Triennial Review process, visit epa.ohio.gov/divisions-and-offices/surface-water/reports-data/water-quality-standards-program and click on the Triennial Review tab.

For questions, please contact Melinda Harris at melinda.harris@epa.ohio.gov or (614) 728-1357.

If you submit comments regarding this rulemaking, you should receive a reply email within 2 business days indicating the receipt of your comments. If you do not receive a

reply, please reach out using the contact info below:

Rule Coordinator, Ohio EPA
Division of Surface Water
Phone: 614-728-2396
Email: dsw_rulecomments@epa.ohio.gov

[614-644-3020](tel:614-644-3020)
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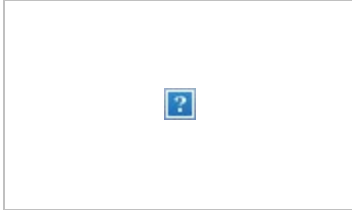
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From: [Ohio EPA Outreach](#)
To: [Imhoff, Emily](#)
Subject: Ohio EPA Triennial Review public hearing
Date: Tuesday, January 17, 2023 9:22:55 AM



Water Quality Standards Triennial Review - public hearing

Division of Surface Water

January 17, 2023

Ohio EPA is holding a Triennial Review of the state's Water Quality Standards (WQS). The Triennial Review process helps Ohio EPA determine priorities for either revising existing water quality standards or setting new water quality standards. The Triennial Review process is not a rulemaking procedure, rather it helps to guide Ohio EPA in future rulemaking priorities.

Schedule:

- An informative webinar was held December 19, 2022 and is now available on the Ohio EPA's YouTube channel here: <https://www.youtube.com/watch?v=yM92cIBYhp8>
- A public hearing will be held tomorrow, January 18, 2023, at 10:30 am. Register for the public hearing here: <https://register.gotowebinar.com/register/2578740023700534365>
- Comments are due by 5 pm on January 31, 2023.

This is the only comment period for the Triennial Review, and Ohio EPA strongly encourages stakeholders to provide input now.

Providing input:

The Fact Sheet includes information on how to provide input, how to attend the public hearing, and more about the Triennial Review process. It is available here: epa.ohio.gov/static/Portals/35/rules/TriennialReview_FactSheet_1Dec2022.pdf and here: epa.ohio.gov/divisions-and-offices/surface-water/regulations/early-stakeholder.

The online form to submit your input is available here: <https://epa.ohio.gov/help-center/contact-us/forms/triennial-review-feedback>

For more information on the Triennial Review process, visit epa.ohio.gov/divisions-and-offices/surface-water/reports-data/water-quality-standards-program and click on the Triennial Review tab.

For questions, please contact Melinda Harris at melinda.harris@epa.ohio.gov or (614) 728-1357.

If you submit comments regarding this rulemaking, you should receive a reply email

within 2 business days indicating the receipt of your comments. If you do not receive a reply, please reach out using the contact info below:

Rule Coordinator, Ohio EPA
Division of Surface Water
Phone: 614-728-2396
Email: dsw_rulecomments@epa.ohio.gov

[614-644-3020](tel:614-644-3020)
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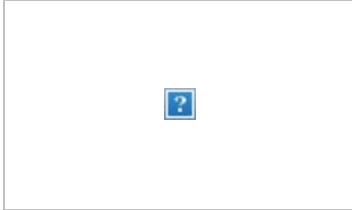
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From: [Ohio EPA Outreach](#)
To: [Imhoff, Emily](#)
Subject: Ohio EPA Triennial Review comment period ending soon
Date: Thursday, January 26, 2023 10:38:37 AM



Water Quality Standards Triennial Review - comment period ends January 31

Division of Surface Water

January 26, 2023

Ohio EPA is holding a Triennial Review of the state's Water Quality Standards (WQS). The Triennial Review process helps Ohio EPA determine priorities for either revising existing water quality standards or setting new water quality standards. The Triennial Review process is not a rulemaking procedure, rather it helps to guide Ohio EPA in future rulemaking priorities. The public input period is ending soon: January 31st at 5 pm. This is the only comment period for the Triennial Review, and Ohio EPA strongly encourages stakeholders to provide input now.

Providing input:

Please use this online form to submit your input: <https://epa.ohio.gov/helpcenter/contact-us/forms/triennial-review-feedback>

For more information on this Triennial Review, see the Fact Sheet available here: epa.ohio.gov/static/Portals/35/rules/TriennialReview_FactSheet_1Dec2022.pdf and here: epa.ohio.gov/divisions-and-offices/surface-water/regulations/early-stakeholder.

For more information on the Triennial Review process, visit epa.ohio.gov/divisions-and-offices/surface-water/reports-data/water-quality-standards-program and click on the Triennial Review tab, or view the webinar here: <https://www.youtube.com/watch?v=yM92cIBYhp8>

For questions, please contact Melinda Harris at melinda.harris@epa.ohio.gov or (614) 728-1357.

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Triennial Review Feedback

The Triennial Review process helps determine water quality standards priorities. It is not a rulemaking, rather it helps to guide the Agency for future rulemaking priorities. For more information, the Triennial Review fact sheet is available on the Division of Surface Water's website at epa.ohio.gov/divisions-and-offices/surface-water/regulations/early-stakeholder.

Listed below are potential water quality standards rulemaking priorities for the next three-year period. They are presented in the order they appear in the WQS rules chapter.

Please rank your top five choices - indicate one option each for first priority, second priority, etc. You may also indicate any number of items that you feel should not be a priority (not required).

	First	Second	Third	Fourth	Fifth	Not a priority
3745-01-01 Purpose and applicability	☐	☐	☐	☐	☐	☐
3745-01-04 Criteria applicable to all waters	☐	☐	☐	☐	☐	☐
3745-01-05 Antidegradation - NPDES discharges	☐	☐	☐	☐	☐	☐
3745-01-05 Antidegradation - Special high quality waters	☐	☐	☐	☐	☐	☐
3745-01-05 Antidegradation - Best available demonstrated control technology	☐	☐	☐	☐	☐	☐
3745-01-06 Mixing zone demonstration and sizing requirements	☐	☐	☐	☐	☐	☐
3745-01-07 Beneficial use designations and biological criteria (e.g.: Coldwater Habitat definition)	☐	☐	☐	☐	☐	☐
3745-01-35 Aquatic life and wildlife criteria - U.S. EPA recommended and Ohio EPA developed criteria for parameters finalized since the last rulemaking	☐	☐	☐	☐	☐	☐
3745-01-37 Water quality criteria for recreation use designations and aesthetic conditions	☐	☐	☐	☐	☐	☐
3745-01-39 Site-specific modifications to criteria and values	☐	☐	☐	☐	☐	☐
3745-01-40 Methodologies for development of aquatic life criteria and values	☐	☐	☐	☐	☐	☐
3745-01-41 Methodology for deriving bioaccumulation factors	☐	☐	☐	☐	☐	☐
3745-01-42 Methodologies for development of human health criteria and values for the lake Erie drainage basin	☐	☐	☐	☐	☐	☐
3745-01-43 Methodology for the development of wildlife criteria for the lake Erie drainage basin	☐	☐	☐	☐	☐	☐
3745-01-44 Whole effluent toxicity provisions	☐	☐	☐	☐	☐	☐

Please provide any applicable comments regarding your selections, or other ideas that are not part of the list provided for ranking

Please provide your contact information so we may follow up as needed and send you a confirmation that your responses have been received.

Affiliation/Organization/Company Name (if applicable)

First Name

Last Name

Phone Number

Email

You may submit comments and supporting information through the upload section below or, submit comments or supporting information by email to dsw_rulecomments@epa.ohio.gov. If you have any problems using this form, please [email us](#).

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Please rank your top five choices - indicate one option each for first priority, second priority, etc. You may also indicate any number of items that you feel should not be a priority (not required).

	First	Second	Third	Fouth	Fifth	Not a priority
3745-01-01 Purpose and applicability	☐	☐	☐	☐	☐	☐
3745-01-04 Criteria applicable to all waters	☐	☐	☐	☐	☐	☐
3745-01-05 Antidegradation - NPDES discharges	☐	☐	☐	☒	☐	☐
3745-01-05 Antidegradation - Special high quality waters	☐	☒	☐	☐	☐	☐
3745-01-05 Antidegradation - Best available demonstrated control technology	☐	☐	☒	☐	☐	☐
3745-01-06 Mixing zone demonstration and sizing requirements	☐	☐	☐	☐	☐	☐
3745-01-07 Beneficial use designations and biological criteria (e.g.: Coldwater Habitat definition)	☒	☐	☐	☐	☐	☐
3745-01-35 Aquatic life and wildlife criteria - U.S. EPA recommended and Ohio EPA developed criteria for parameters finalized since the last rulemaking	☐	☐	☐	☐	☐	☐
3745-01-37 Water quality criteria for recreation use designations and aesthetic conditions	☐	☐	☐	☐	☐	☐

	First	Second	Third	Fouth	Fifth	Not a priority
3745-01-39 Site-specific modifications to criteria and values	☐	☐	☐	☐	☐	☐
3745-01-40 Methodologies for development of aquatic life criteria and values	☐	☐	☐	☐	☐	☐
3745-01-41 Methodology for deriving bioaccumulation factors	☐	☐	☐	☐	☐	☐
3745-01-42 Methodologies for development of human health criteria and values for the lake Erie drainage basin	☐	☐	☐	☐	☐	☐
3745-01-43 Methodology for the development of wildlife criteria for the lake Erie drainage basin	☐	☐	☐	☐	☐	☐
3745-01-44 Whole effluent toxicity provisions	☐	☐	☐	☐	☐	☐

Please provide any applicable comments regarding your selections, or other ideas that are not part of the list provided for ranking

The Agency has requested stakeholder input on Ohio EPA's Triennial Review through the online form. We have submitted our prioritization proposals through that form, however, we feel it is important to elaborate on three priorities that have been have been left on the shelf for way too long. Thus, MBI has also provided detailed comments, via email, on the following priority areas, including: 1) Aquatic Life Use Designations, and the need to support a data driven approach that will assure clarity and consistency in properly designating individual streams, and inconsistencies between how the WWH suite of uses and PHWH have been administered by the agency; 2) Nutrient Standards, where years of collaboration between government, regulated industry, agriculture, NGOs, and the concerned public have led to plans and proposals that are a step in the right direction but with no progress toward standards to implement those plans; and 3) Ammonia standards, published a decade ago by the US EPA, that, if implemented in Ohio, could play an important role in addressing mussel decline.

Please provide your contact information so we may follow up as needed and send you a confirmation that your responses have been received.

Affiliation/Organization/Company Name (if applicable)

Midwest Biodiversity Institute, Inc.

First Name

Trent

Last Name

Dougherty

Phone Number

(614) 330-6752

Email

tdougherty@mwbinst.com

Please rank your top five choices - indicate one option each for first priority, second priority, etc. You may also indicate any number of items that you feel should not be a priority (not required).

	First	Second	Third	Fouth	Fifth	Not a priority
3745-01-01 Purpose and applicability	☐	☐	☒	☐	☐	☐
3745-01-04 Criteria applicable to all waters	☐	☒	☐	☐	☐	☐
3745-01-05 Antidegradation - NPDES discharges	☐	☐	☐	☐	☐	☐
3745-01-05 Antidegradation - Special high quality waters	☐	☐	☐	☐	☐	☐
3745-01-05 Antidegradation - Best available demonstrated control technology	☐	☐	☐	☐	☐	☐
3745-01-06 Mixing zone demonstration and sizing requirements	☐	☐	☐	☐	☐	☐
3745-01-07 Beneficial use designations and biological criteria (e.g.: Coldwater Habitat definition)	☒	☐	☐	☐	☐	☐
3745-01-35 Aquatic life and wildlife criteria - U.S. EPA recommended and Ohio EPA developed criteria for parameters finalized since the last rulemaking	☐	☐	☐	☐	☐	☐
3745-01-37 Water quality criteria for recreation use designations and aesthetic conditions	☐	☐	☐	☐	☐	☐

	First	Second	Third	Fouth	Fifth	Not a priority
3745-01-39 Site-specific modifications to criteria and values	☐	☐	☐	☐	☐	☐
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3745-01-42 Methodologies for development of human health criteria and values for the lake Erie drainage basin	☐	☐	☐	☐	☐	☐
3745-01-43 Methodology for the development of wildlife criteria for the lake Erie drainage basin	☐	☐	☐	☐	☐	☐
3745-01-44 Whole effluent toxicity provisions	☐	☐	☐	☐	☐	☐

Please provide any applicable comments regarding your selections, or other ideas that are not part of the list provided for ranking

See attached comment letter.

Please provide your contact information so we may follow up as needed and send you a confirmation that your responses have been received.

Affiliation/Organization/Company Name (if applicable)

Northeast Ohio Regional Sewer District

First Name

Robin

Last Name

Halperin

Phone Number

(216) 881-6600

Email

halperinr@neorsd.org

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File Name	Size
NEORSD Comments_WQS Triennial Review_01-24-2023.pdf	1.70 MB

Please rank your top five choices - indicate one option each for first priority, second priority, etc. You may also indicate any number of items that you feel should not be a priority (not required).

	First	Second	Third	Fouth	Fifth	Not a priority
3745-01-01 Purpose and applicability	☐	☐	☐	☐	☐	☐
3745-01-04 Criteria applicable to all waters	☐	☐	☐	☐	☐	☐
3745-01-05 Antidegradation - NPDES discharges	☐	☐	☐	☐	☐	☐
3745-01-05 Antidegradation - Special high quality waters	☐	☐	☐	☐	☐	☐
3745-01-05 Antidegradation - Best available demonstrated control technology	☐	☐	☐	☐	☐	☐
3745-01-06 Mixing zone demonstration and sizing requirements	☐	☐	☐	☐	☐	☐
3745-01-07 Beneficial use designations and biological criteria (e.g.: Coldwater Habitat definition)	☐	☐	☐	☐	☐	☐
3745-01-35 Aquatic life and wildlife criteria - U.S. EPA recommended and Ohio EPA developed criteria for parameters finalized since the last rulemaking	☐	☐	☐	☐	☐	☐
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	First	Second	Third	Fouth	Fifth	Not a priority
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3745-01-43 Methodology for the development of wildlife criteria for the lake Erie drainage basin	☐	☐	☐	☐	☐	☐
3745-01-44 Whole effluent toxicity provisions	☐	☐	☐	☐	☐	☐

Please provide any applicable comments regarding your selections, or other ideas that are not part of the list provided for ranking

Please provide your contact information so we may follow up as needed and send you a confirmation that your responses have been received.

Affiliation/Organization/Company Name (if applicable)

U.S. EPA Region 5

First Name

Aaron

Last Name

Johnson

Phone Number

(312) 886-6845

Email

johnson.aaronk@epa.gov

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File Name	Size
OH_2023_TSR_EPA Comment Ltr_20230131.pdf	338.47 kB

34

Comments from organizations



Frank Greenland, PE
President, AOMWA
3900 Euclid Avenue
Cleveland, OH 44115
(216) 881-6600

January 31, 2023

VIA EMAIL ONLY

Rules Coordinator
Ohio EPA, Division of Surface Water
dsw_rulecomments@epa.ohio.gov
P.O. Box 1049
Columbus, OH 43216-1049

Re: Comments on Ohio EPA's Stakeholder Outreach Regarding Water Quality Standards Triennial Review

Dear Rules Coordinating Team:

The Association of Ohio Metropolitan Wastewater Agencies ("AOMWA") appreciates the opportunity to comment on Ohio EPA's Stakeholder Outreach regarding the Water Quality Standards Triennial Review. AOMWA is a not-for-profit trade association that represents the interests of public wastewater agencies across the state of Ohio, serving more than 4 million Ohioans and successfully treating more than 320 billion gallons of wastewater each year.¹ AOMWA writes to support comments raised in the letter submitted by NEORSD, including the requests that Ohio EPA:

1. Prioritize Revising Water Quality Standards ("WQS") in Accordance with the Combined Sewer Overflow ("CSO") Policy

As Ohio EPA is aware, there are approximately 1,053 permitted CSOs in seventy-one communities within Ohio. Many of our members contain CSO communities, including Akron, Avon Lake, Bowling Green, Columbus, Euclid, Lancaster, Lima, Marysville, Middletown, Newark, Portsmouth, Springfield, Butler County, Hamilton County, Summit County, the Metropolitan Sewer District of Greater Cincinnati, and the Northeast Ohio Regional Sewer District. Most of these CSO communities are spending millions, or billions, of dollars in ongoing implementation of Long-Term Control Plans ("LTCPs"), yet they remain at risk of an interpretation of noncompliance with Ohio's WQS upon completion of these LTCPs. AOMWA supports NEORSD's request that Ohio EPA revise Ohio WQS in accordance with the CSO Policy, including (1) establishing a CSO Wet

¹ AOMWA members include cities of Akron, Avon Lake, Bowling Green, Canton, Columbus, Dayton, Euclid, Fairfield, Hamilton, Lancaster, Lima, Loraine, Marysville, Middletown, Newark, Portsmouth, Solon, Springfield, Wadsworth, Warren, and Butler County, Greene County, Hamilton County, Summit County, the Metropolitan Sewer District of Greater Cincinnati, the Northeast Ohio Regional Sewer District, and the Tri-Cities Regional Wastewater Authority.

Weather Limited Use Subcategory under OAC 3745-1 and (2) removing the narrative “free from” criteria in future CSO NPDES permits following completion of an approved LTCP.

2. Continue Allowing Science to Direct the Development of WQS for Emerging Contaminants

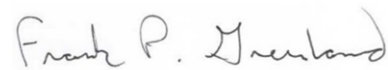
AOMWA appreciates Ohio EPA’s recognition that science and technology relating to emerging contaminants is continuing to evolve. AOMWA supports Ohio EPA waiting for science and technology to evolve more sufficiently before developing WQS for emerging contaminants.

3. Clarify Coldwater Habitat Definition

AOMWA recognizes that Ohio EPA is interested in receiving input regarding the aquatic life use coldwater designation under OAC 3745-1-07. AOMWA supports NEORSD’s request to further develop the definition of coldwater habitat therein, including to revise the current list of coldwater species and establish richness criteria for fish and macroinvertebrates.

AOMWA appreciates Ohio EPA’s consideration of these comments as it conducts the Water Quality Standards Triennial Review. Should you have any questions, please contact Rees Alexander at rees.alexander@squirepb.com or (614) 365-2798. Thank you again for your attention to and consideration of these comments.

Sincerely,



Frank Greenland, PE
President, AOMWA

cc: (via email)
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Columbus, Ohio 43216-1049
supora.hunter@epa.ohio.gov

Re: Two Ohio Waterways Nominated for Strongest Clean Water Act Protections, Outstanding National Resource Waters Status Sought for Big Darby, Little Darby Creeks

Dear Governor and Director:

The Center for Biological Diversity and its partners filed a formal request today with the Ohio Environmental Protection Agency seeking protective designations for the Big and Little Darby creeks near Columbus. The Outstanding National Resource Waters designations would afford the creeks the strongest level of protection under the Clean Water Act.

Thousands of supporters in Ohio, the Midwest and across the country joined the Center in calling for the designations.

The Big and Little Darby creeks are national treasures that deserve the highest level of protection. They're two of the most biologically diverse waterways in the country and the lifeblood of central Ohio. It's heartbreaking that increased pollution has caused steep declines in their rare and endangered species.

The Big and Little Darby creeks shelter more than 100 species of fish and 44 mussel species. Five of these mussels — rabbitsfoot, rayed bean, northern riffleshell, snuffbox and clubshell — are endangered. The U.S. Fish and Wildlife Service has also proposed protecting the longsolid, another imperiled mussel species in Big Darby Creek, under the Endangered Species Act. In addition, the Big and Little Darby creeks contain federally designated critical habitat for endangered mussels.

The Big and Little Darby creeks are already designated national scenic rivers because of their outstanding aquatic biodiversity. However, sprawling suburban development and pollution from sewage treatment plants have caused steep declines in fish and mussel populations. Big Darby Creek has twice been named one of the country's most endangered rivers in the past decade.

The Ohio Environmental Protection Agency should boost protections for the Big and Little Darby creeks as the agency considers its triennial water quality standards review. The Ohio Environmental Council, Darby Creek Association and American Rivers joined the Center in submitting a request for Outstanding National Scenic Waters designation, which provides stronger safeguards against new sewage treatment plants and other point sources of pollution.

More than 3,000 people submitted public comments to the Ohio Environmental Protection Agency during its triennial review. The agency is expected to make a decision on the proposed designation in the next few months.

Outstanding National Resources Waters designation is urgently needed to protect this world-class watershed in Columbus' backyard.

Yours sincerely,
Robert E. Rutkowski

cc:
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United States Department of the Interior



FISH AND WILDLIFE SERVICE

Ecological Services
4625 Morse Road, Suite 104
Columbus, Ohio 43230
(614) 416-8993 / FAX (614) 416-8994



January 31, 2023

Rule Coordinator
Ohio EPA
Division of Surface Water
P.O. Box 1049
Columbus, Ohio 43216-1049

Project Code: 2023-0038767

Re: Ohio Triennial Review of Water Quality Standards

To Whom It May Concern:

Please accept the following U.S. Fish and Wildlife comments on Ohio water quality standards, pursuant to Ohio Environmental Protection Agency's (OEPA) triennial review.

Ohio Administrative Code, Rule # 3745-1-35 Aquatic Life and Wildlife Criteria.

Ammonia – Ohio's water quality standards include ambient criteria for total ammonia-nitrogen (ammonia-N). Ammonia-N includes both the ionized form (ammonium, NH_4^+) and the more toxic unionized form (NH_3). As temperature and pH increase, the relative composition of NH_3 in ammonia-N also increases, resulting in greater overall toxicity to aquatic life. Ohio's water quality criteria for ammonia-N, therefore, vary based on the temperature and pH of the water. Ohio's water quality criteria for ammonia-N also vary with the tiered aquatic life use of the waterbody. Specific ambient criteria for ammonia-N are listed in Tables 35-2 through 35-8 in the rule.

The U.S. Environmental Protection Agency (USEPA) finalized recommended aquatic life ambient water quality criteria for ammonia in freshwater in 2013 (USEPA 2013). The 2013 criteria are a revision of USEPA's 1999 recommended criteria. The 1999 criteria were based on toxicity studies of the most sensitive endpoints known at that time, acute toxicity to salmonid fish, reproductive effects to the benthic invertebrate *Hyallela*, and survival and growth of early life stages of fish. The 2013 criteria incorporate more recent toxicology data that show several species of freshwater mussels and non-pulminate (gill-bearing) snails are particularly sensitive to the effects of ammonia. The 2013 criteria incorporate these data, as well as the results of other toxicity studies conducted between 1985 and 2012. Because of this, the 2013 are more fully protective than the 1999 criteria of the broad aquatic community, including freshwater mussels. Like Ohio's criteria, the USEPA criteria vary by temperature and pH.

Both Ohio and USEPA ammonia criteria are listed in tables that include a discrete ammonia-N concentration at a series of temperature and pH combinations (Figure 1). Ohio's criteria are also differentiated by the state's tiered aquatic life uses (Limited Resource Water (LRW), Modified Warmwater Habitat (MWH), Warmwater Habitat (WWH), Exceptional Warmwater Habitat

(EWH), Coldwater Habitat (CWH)) with less restrictive criteria applicable in lower quality waters (e.g., MWH) and more restrictive criteria applicable in higher quality waters (e.g., EWH and CWH). Additionally, Ohio's chronic criteria are different for winter (December to February) than for the rest of the year in LRW, MWH, WWH, and EWH waters (chronic criteria for CWH have one set of criteria that are applicable year-round).

Table 6. Temperature and pH-Dependent Values of the CCC (Chronic Criterion Magnitude).

Temperature (°C)																														
pH	0-7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30						
6.5	4.9	4.6	4.3	4.1	3.8	3.6	3.3	3.1	2.9	2.8	2.6	2.4	2.3	2.1	2.0	1.9	1.8	1.6	1.5	1.5	1.4	1.3	1.2	1.1						
6.6	4.8	4.5	4.3	4.0	3.8	3.5	3.3	3.1	2.9	2.7	2.5	2.4	2.2	2.1	2.0	1.8	1.7	1.6	1.5	1.4	1.3	1.3	1.2	1.1						
6.7	4.8	4.5	4.2	3.9	3.7	3.5	3.2	3.0	2.8	2.7	2.5	2.3	2.2	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.0						
6.8	4.6	4.4	4.1	3.8	3.6	3.4	3.2	3.0	2.8	2.6	2.4	2.3	2.1	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.0						
6.9	4.5	4.2	4.0	3.7	3.5	3.3	3.1	2.9	2.7	2.5	2.4	2.2	2.1	2.0	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1.0						
7.0	4.4	4.1	3.8	3.6	3.4	3.2	3.0	2.8	2.6	2.4	2.3	2.2	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.1	0.99						
7.1	4.2	3.9	3.7	3.5	3.2	3.0	2.8	2.7	2.5	2.3	2.2	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1.0	0.95						
7.2	4.0	3.7	3.5	3.3	3.1	2.9	2.7	2.5	2.4	2.2	2.1	2.0	1.8	1.7	1.6	1.5	1.4	1.3	1.3	1.2	1.1	1.0	0.96	0.90						
7.3	3.8	3.5	3.3	3.1	2.9	2.7	2.6	2.4	2.2	2.1	2.0	1.8	1.7	1.6	1.5	1.4	1.3	1.3	1.2	1.1	1.0	0.97	0.91	0.85						
7.4	3.5	3.3	3.1	2.9	2.7	2.5	2.4	2.2	2.1	2.0	1.8	1.7	1.6	1.5	1.4	1.3	1.3	1.2	1.1	1.0	0.96	0.90	0.85	0.79						
7.5	3.2	3.0	2.8	2.7	2.5	2.3	2.2	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1.0	0.95	0.89	0.83	0.78	0.73						
7.6	2.9	2.8	2.6	2.4	2.3	2.1	2.0	1.9	1.8	1.6	1.5	1.4	1.4	1.3	1.2	1.1	1.1	0.98	0.92	0.86	0.81	0.76	0.71	0.67						
7.7	2.6	2.4	2.3	2.2	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.1	1.0	0.94	0.88	0.83	0.78	0.73	0.68	0.64	0.60						
7.8	2.3	2.2	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1.0	0.95	0.89	0.84	0.79	0.74	0.69	0.65	0.61	0.57	0.53						
7.9	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1.0	0.95	0.89	0.84	0.79	0.74	0.69	0.65	0.61	0.57	0.53	0.50	0.47						
8.0	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.1	1.0	0.94	0.88	0.83	0.78	0.73	0.68	0.64	0.60	0.56	0.53	0.50	0.44	0.41	0.38						
8.1	1.5	1.5	1.4	1.3	1.2	1.1	1.1	0.99	0.92	0.87	0.81	0.76	0.71	0.67	0.63	0.59	0.55	0.52	0.49	0.46	0.43	0.40	0.38	0.35						
8.2	1.3	1.2	1.2	1.1	1.0	0.96	0.90	0.84	0.79	0.74	0.70	0.65	0.61	0.57	0.54	0.50	0.47	0.44	0.42	0.39	0.37	0.34	0.32	0.30						
8.3	1.1	1.1	0.99	0.93	0.87	0.82	0.76	0.72	0.67	0.63	0.59	0.55	0.52	0.49	0.46	0.43	0.40	0.38	0.35	0.33	0.31	0.29	0.27	0.26						
8.4	0.95	0.89	0.84	0.79	0.74	0.69	0.65	0.61	0.57	0.53	0.50	0.47	0.44	0.41	0.39	0.36	0.34	0.32	0.30	0.28	0.26	0.25	0.23	0.22						
8.5	0.80	0.75	0.71	0.67	0.62	0.58	0.55	0.51	0.48	0.45	0.42	0.40	0.37	0.35	0.33	0.31	0.29	0.27	0.25	0.24	0.22	0.21	0.20	0.18						
8.6	0.68	0.64	0.60	0.56	0.53	0.49	0.46	0.43	0.41	0.38	0.36	0.33	0.31	0.29	0.28	0.26	0.24	0.23	0.21	0.20	0.19	0.18	0.16	0.15						
8.7	0.57	0.54	0.51	0.47	0.44	0.42	0.39	0.37	0.34	0.32	0.30	0.28	0.27	0.25	0.23	0.22	0.21	0.19	0.18	0.17	0.16	0.15	0.14	0.13						
8.8	0.49	0.46	0.43	0.40	0.38	0.35	0.33	0.31	0.29	0.27	0.26	0.24	0.23	0.21	0.20	0.19	0.17	0.16	0.15	0.14	0.13	0.12	0.11	0.10						
8.9	0.42	0.39	0.37	0.34	0.32	0.30	0.28	0.27	0.25	0.23	0.22	0.21	0.19	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.12	0.11	0.10	0.09						
9.0	0.36	0.34	0.32	0.30	0.28	0.26	0.24	0.23	0.21	0.20	0.19	0.18	0.17	0.16	0.15	0.14	0.13	0.12	0.11	0.11	0.10	0.09	0.09	0.08						

Table 35-5.
Warmwater habitat
outside mixing zone 30-day average total ammonia-nitrogen criteria (mg/l).

pH	6.5	6.7	6.9	7.0	7.1	7.2	7.3	7.4	7.5	7.6	7.7	7.8	7.9	8.0	8.1	8.2	8.3	8.4	8.5	8.6	8.8	9.0
Temp. (°C)	The following criteria apply during the months of December to February:																					
0-10	13.0	13.0	13.0	12.6	11.7	10.7	9.7	8.6	7.6	6.6	5.6	4.8	4.0	3.3	2.8	2.3	1.9	1.5	1.2	1.0	0.7	0.5
11	13.0	13.0	12.4	11.6	10.8	9.9	8.9	8.0	7.0	6.1	5.2	4.4	3.7	3.1	2.6	2.1	1.7	1.4	1.2	0.9	0.6	0.4
12	13.0	12.6	11.5	10.8	10.0	9.2	8.3	7.4	6.5	5.6	4.8	4.1	3.4	2.9	2.4	2.0	1.6	1.3	1.1	0.9	0.6	0.4
13	12.3	11.6	10.6	10.0	9.2	8.5	7.7	6.8	6.0	5.2	4.5	3.8	3.2	2.7	2.2	1.8	1.5	1.2	1.0	0.8	0.6	0.4
14	11.4	10.8	9.8	9.3	8.6	7.9	7.1	6.3	5.6	4.8	4.2	3.5	3.0	2.5	2.1	1.7	1.4	1.1	0.9	0.8	0.5	0.4
15	10.6	10.0	9.1	8.6	8.0	7.3	6.6	5.9	5.2	4.5	3.9	3.3	2.8	2.3	1.9	1.6	1.3	1.1	0.9	0.7	0.5	0.3
16	9.8	9.3	8.5	8.0	7.4	6.8	6.1	5.5	4.8	4.2	3.6	3.0	2.6	2.1	1.8	1.5	1.2	1.0	0.8	0.7	0.5	0.3
17	9.1	8.6	7.8	7.4	6.8	6.3	5.7	5.1	4.5	3.9	3.3	2.8	2.4	2.0	1.7	1.4	1.1	0.9	0.8	0.6	0.4	0.3
18	8.5	8.0	7.3	6.9	6.4	5.8	5.3	4.7	4.2	3.6	3.1	2.6	2.2	1.8	1.5	1.3	1.1	0.9	0.7	0.6	0.4	0.3
19	7.9	7.4	6.8	6.4	5.9	5.4	4.9	4.4	3.9	3.3	2.9	2.4	2.1	1.7	1.4	1.2	1.0	0.8	0.7	0.5	0.4	0.3
20	7.3	6.9	6.3	5.9	5.5	5.0	4.6	4.1	3.6	3.1	2.7	2.3	1.9	1.6	1.3	1.1	0.9	0.8	0.6	0.5	0.4	0.3
The following criteria apply during the months of March to November:																						
10	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.0	1.7	1.4	1.1	0.9	0.7	0.6	0.5	0.4	0.2	0.2
11	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.0	1.7	1.4	1.1	0.9	0.7	0.6	0.5	0.4	0.2	0.2
12	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.0	1.7	1.4	1.1	0.9	0.7	0.6	0.5	0.4	0.2	0.2
13	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	1.9	1.6	1.4	1.1	0.9	0.7	0.6	0.5	0.4	0.2	0.2
14	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	1.9	1.6	1.4	1.1	0.9	0.7	0.6	0.5	0.4	0.2	0.2
15	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	1.9	1.6	1.4	1.1	0.9	0.7	0.6	0.5	0.4	0.2	0.2
16	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	1.9	1.6	1.4	1.1	0.9	0.7	0.6	0.5	0.4	0.2	0.2
17	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	1.9	1.6	1.4	1.1	0.9	0.7	0.6	0.5	0.4	0.3	0.2
18	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	1.9	1.6	1.4	1.1	0.9	0.7	0.6	0.5	0.4	0.3	0.2
19	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	1.9	1.6	1.4	1.1	0.9	0.7	0.6	0.5	0.4	0.3	0.2
20	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	1.9	1.6	1.4	1.1	0.9	0.7	0.6	0.5	0.4	0.3	0.2
21	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	1.8	1.5	1.3	1.0	0.8	0.7	0.5	0.4	0.4	0.2	0.2
22	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.6	1.2	1.0	0.8	0.6	0.5	0.4	0.3	0.2	0.2	0.2
23	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.5	1.3	1.1	0.9	0.7	0.6	0.5	0.4	0.3	0.2	0.2
24	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.4	1.2	1.0	0.8	0.7	0.5	0.4	0.4	0.3	0.2	0.1
25	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.3	1.1	1.0	0.8	0.6	0.5	0.4	0.3	0.3	0.2	0.1
26	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.2	1.1	0.9	0.7	0.6	0.5	0.4	0.3	0.3	0.2	0.1
27	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.2	1.1	0.9	0.8	0.6	0.5	0.4	0.3	0.2	0.2	0.1
28	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.1	0.9	0.8	0.6	0.5	0.4	0.3	0.3	0.2	0.2	0.1
29	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.0	0.9	0.7	0.6	0.5	0.4	0.3	0.3	0.2	0.2	0.1
30	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.0	0.8	0.7	0.6	0.5	0.4	0.3	0.3	0.2	0.2	0.1

At many temperature and pH combinations, Ohio’s ammonia-N criteria are less protective than USEPA’s criteria. For example, of the 682 different temperature and pH combinations for Ohio’s acute criteria in LRW, MWH, and WWH waters (Table 35-2 in Ohio’s standards), 57% are less protective than USEPA’s recommended criteria (Table 1). Of the 704 different temperature and pH combinations for chronic criteria in MWH (Table 35-5 in Ohio’s standards), 98% are less protective than USEPA’s recommended criteria (see Table 1). Even the most protective of Ohio’s criteria, (CWH chronic criteria), are still not as protective as the USEPA criteria at 22% of temperature and pH combinations.

Table 1. Percent of total temperature and pH combinations for which Ohio’s ammonia-N water quality standards (OAC 3754-1-35, Tables 35-2 – 35-8) are less protective than the USEPA (2013) criteria. There are no chronic ammonia-N criteria for Limited Resource Waters.

	Percent of Ohio’s ammonia-N criteria that are less protective than USEPA (2013)	
	Acute	Chronic
Limited Resource Waters (LRW)	57%	--
Modified Warmwater Habitat (MWH)	57%	98%
Warmwater Habitat (WWH)	57%	82%
Exceptional Warmwater Habitat (EWH)	36%	76%
Coldwater Habitat (CWH)	37%	22%

Eighty species of freshwater mussels have been reported from Ohio. The state is currently home to 60 species. Of these, 28 are state threatened or endangered and 10 are federally threatened or endangered. Research has shown that juvenile mussels are particularly susceptible to ammonia toxicity (Augspurger et al. 2003, Mummert et al. 2003, Newton et al. 2003, Newton and Bartsch 2007, Wang et al. 2007a, Wang et al. 2007b). The USEPA (2013) criteria were developed using much of this research. Because of mussels’ sensitivity to ammonia, and Ohio’s rich diversity of mussel fauna, including many state and federally threatened and endangered species, Ohio’s ammonia-N criteria should be revised so that it is protective of mussels. We believe that USEPA (2013) represents the current benchmark on which to base ammonia-N criteria in Ohio because mussel sensitivity to ammonia was incorporated into USEPA’s criteria. We request that Ohio revise its ammonia-N criteria to be at least as protective as the USEPA (2013) at all tiered aquatic life uses.

Chloride and Sulfate: Similar to ammonia, recent toxicity testing suggests that freshwater mussels are more sensitive than many other aquatic taxa to chloride and sulfate (Bringolf et al. 2022, Wang et al. 2016, Gillis 2011). Ohio currently does not have standards for chloride or sulfate. All states bordering Ohio have ambient aquatic life criteria for either chloride or sulfate, or both. Considering that other states have adopted chloride and sulfate criteria, and that freshwater mussels are sensitive to both chemicals, we recommend that Ohio adopt chloride and sulfate criteria that are protective of aquatic life, including freshwater mussels.

Thank you for the opportunity to provide comments during Ohio's triennial water quality standards review. If you have questions, or if we may be of further assistance in this matter, please contact Jeromy Applegate at extension 121 in this office.

Sincerely,

Patrice Ashfield
Field Supervisor

Cc: Aaron Johnson, EPA, Region 5
David Pfeifer, EPA, Region 5
John Navarro, ODNR-DOW

References:

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January 18, 2023

Re: Early Stakeholder Outreach — Water Quality Standards Triennial Review, OAC chapter 3745-1

To Whom It May Concern:

Thank you for the opportunity to participate and comment on Ohio's Water Quality Standards Triennial Review. The Midwest Biodiversity Institute (MBI) will submit further comments for the Agency's Early Stakeholder Outreach — Water Quality Standards Triennial Review that was published in December 2022. The following preliminary comments were provided via the oral testimony of MBI Research Associate, Anthony Sasson, at the Ohio EPA's Public Hearing on January 18, 2023. MBI reserves the right to submit, and plans on submitting, more detailed comments for the Triennial Review on or before the noticed deadline of January 31, 2023

MBI is a not-for-profit corporation specializing in applied research with aquatic bioassessments, water quality standards, monitoring and assessment, and state bioassessment program development. MBI applies and analyzes the content found in the Ohio rules covered by the Triennial Rule Review on a daily basis. As part of our mission, MBI has conducted in depth reviews of 28 state, three federal, and two tribal Clean Water Act implementation programs since 2002. These reviews have included the development and implementation of biological assessments and biological criteria in state and federal programs. In addition, MBI has also conducted a number of comprehensive watershed bioassessments in Ohio and other states that emulate the essential concepts and attributes of the Ohio EPA program that includes the proposed rule modifications. This experience applies to the standards under consideration in the Triennial Review. It is from this base of experience that we will offer the specific comments and suggestions which we believe will positively enhance and improve the proposed rule language and its application.

We understand that stakeholder input on Ohio EPA's Triennial Review is requested through the online form. Beyond that, MBI intends to provide priorities and offer additional comments in appropriate detail. Three of the general issues are listed below:

Nutrient standards - Ohio EPA offered Early Stakeholder Outreach on "Developing Rules to Reduce the Impacts of Nutrients in Surface Waters" in 2013. Given that there is a need to reduce near field (local stream segments) and far field (e.g., Gulf of Mexico) nutrients, this subject is an appropriate consideration for streams and large rivers in Ohio.

Ammonia – Ohio EPA should consider incorporating the U.S. EPA recommended national ammonia criteria published in 2013.

Use designations, Aquatic life habitat OAC 3745-1-07 - Use designations of WWH/EWH and Limited Resources Waters (LRW) need to be properly determined by Use Attainability Assessment, and need to be defined with clarity and consistency to properly distinguish these from Primary Headwater (PHW) streams.

We appreciate the opportunity to offer comments today and plan to provide more depth by January 31. MBI looks forward to working with the agency to develop priorities that protect waters of the state and the Waters of the United States within Ohio. If you or others in the Agency have questions or would like to discuss these issues further, please do not hesitate to contact me at tdougherty@mwbinst.com or MBI's Research Director, Chris Yoder, at cyoder@mwbinst.com.

Sincerely,

A handwritten signature in black ink on a light yellow background. The signature reads "Trent A. Dougherty" in a cursive script.

Trent A. Dougherty
Executive Director



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January 31, 2023

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Thank you for the opportunity to participate and comment on Ohio's Water Quality Standards Triennial Review. The Midwest Biodiversity Institute (MBI) is submitting additional comments for the Agency's Early Stakeholder Outreach — Water Quality Standards Triennial Review that was published in December 2022. Preliminary comments were provided via the oral testimony of MBI Research Associate, Anthony Sasson, at the Ohio EPA's Public Hearing, and by MBI in written form via email, on January 18, 2023.

MBI is a not-for-profit corporation specializing in applied research with aquatic bioassessments, water quality standards, monitoring and assessment, and state bioassessment program development. MBI applies and analyzes the content found in the Ohio rules covered by the Triennial Rule Review on a daily basis. As part of our mission, MBI has conducted in depth reviews of 28 state, three federal, and two tribal Clean Water Act implementation programs since 2002. These reviews have included the development and implementation of biological assessments and biological criteria in state and federal programs. In addition, MBI has also conducted a number of comprehensive watershed bioassessments in Ohio and other states that emulate the essential concepts and attributes of the Ohio EPA program that includes the proposed rule modifications. This experience applies to the standards under consideration in the Triennial Review. It is from this base of experience that we will offer the specific comments and suggestions which we believe will positively enhance and improve the proposed rule language and its application.

The Agency has requested stakeholder input on Ohio EPA's Triennial Review through the online form. We have submitted our prioritization proposals through that form, however, we feel it is important to elaborate on three priorities that have been left on the shelf for way too long. Thus, MBI provides the attached detailed comments on the following priority areas, including: 1) **Aquatic Life Use Designations**, and the need to support a data driven approach that will assure clarity and consistency in properly designating individual streams, and inconsistencies between how the WWH suite of uses and PHWH have been administered by the agency; 2) **Nutrient Standards**, where years of collaboration between government, regulated industry, agriculture, NGOs, and the concerned public have led to plans and proposals that are a step in the right direction but with no progress toward standards to implement those plans; and 3) **Ammonia standards**, published a decade ago by the US EPA, that, if implemented in Ohio, could play an important role in addressing mussel decline.

In today's State of the State Address, Governor DeWine addressed his Administration's Plans for expanding the relatively successful H2Ohio program – expanding it beyond Lake Erie; address the Quality of our rivers; and creating the H2Ohio Rivers Initiative. We agree with the Governor that this focus on Ohio's Streams is necessary, albeit overdue, for the environmental and human health of our state. We believe that the priorities that we raise in these comments should stand as an initial plan for the Administration when addressing the needs of our rivers and streams. MBI looks forward to working with the agency to develop priorities that protect waters of the state and the Waters of the United States within Ohio. If you or others in the Agency have questions or would like to discuss these issues further, please do not hesitate to contact me at tdougherty@mwbinst.com or MBI's Research Director, Chris Yoder, at cyoder@mwbinst.com.

Sincerely,

A handwritten signature in black ink on a light yellow background. The signature reads "Trent A. Dougherty" in a cursive, flowing script.

Trent A. Dougherty
Executive Director

Water Quality Standards Triennial Review, OAC chapter 3745-1 MBI Comments

Use designations, Aquatic life habitat OAC 3745-1-07 - Use designations of Warmwater Habitat (WWH), Exceptional Warmwater Habitat (EWH), Coldwater Habitat (CWH) and Limited Resources Waters (LRW) need to be properly determined by Use Attainability Assessment using the full suite of methods including the full set of biotic indices coupled with those described for Primary Headwater Habitat (PHWH) methodology. The methods used should not be based on arbitrary non-biological variables such as drainage area (e.g., <1 sq. mi., <2.5 sq. mi. or < 3 sq. mi.), but need to support a data driven approach that will assure clarity and consistency in properly designating individual streams and stream reaches. Incomplete methods have and will continue to lead to improper assignments of stream uses, some in conflict with the federal definition of existing use (40 CFR Part 131).

Since 2011, MBI has also made extensive recommendations for achieving a data driven framework for determining the appropriate and attainable aquatic life use, which is an outcome of MBI having collected *all* pertinent data (fish, macroinvertebrates, amphibians, QHEI, and HHEI as Level 3 data) at any site draining less than 2.5 square miles. This approach allows the resulting data to determine the use designation outcome as opposed to an *a priori* application of only the PHWH methodology. Relying only on the latter is a flawed practice that can result in erroneous use designation assignments in small headwater streams and result in conflict with the federal definition of existing use (40 CFR Part 131).

For example, see the MBI comments to Ohio EPA of November 25, 2020 re: “Great Miami River Drainage Basin, OAC 3745-1-21 (2017 Whitewater River survey)”:

“Seven of the sites that are unique to the MSDGC/MBI survey were determined to be Primary Headwater Habitat, five as PHW Class 2 and two as PHW Class 3A. While we are not expecting the agency to act on the PHWH recommendations, this study illustrates how to properly distinguish between WWH and PHWH as opposed to the current over-reliance on rules-of-thumb.”

MBI has submitted comprehensive watershed assessment reports and tabular results, which include recommendations for both the WWH suite of uses and Primary Headwater status based on Level 3 biological and habitat data. Most of the recommendations for WWH suite uses have been adopted into the Ohio WQS. In order to ensure that these data are readily available and useful in the future, we strongly recommend that these data be documented in a publicly available database with links to the data and reports. This would allow use of this information to compare to future sampling and future regulatory decisions (e.g., Section 401 certification) in these streams, as well as to provide statewide information about the results of sampling small headwater streams. Examples are detailed in individual MBI reports that have been submitted as NPDES permit requirements, mitigation credit assessments, 401 certification follow-up, and presentations.¹ As an example of the need for accuracy and proper procedures, both Ohio EPA and MBI has sampled Big Darby Creek at The Nature Conservancy’s Headwaters Preserve in Logan County, where the drainage areas is about 3 sq. mi. and less. The Big Darby mainstem scored IBIs and ICIs of 50+ for four sites in the 2010s. Two sites had 54 and 56 IBI scores. Tributaries clearly were different from each other, but procedures used showed the merit of full

¹ See <https://midwestbiodiversityinst.org/publications/articles/mbi-releases-new-primary-headwater-data> and Analysis of the Probabilities of the Classification of Small Headwater Streams as Primary Headwater Habitat (PHWH) and Warmwater Habitat (WWH) in Southwest Ohio, OWRC WWRM Meeting, April 6, 2016.

assessments. We suggest this example as illustrative of small drainage areas that should be properly assessed as to Aquatic Life Uses.

As far back as the 2016 Triennial Review, and as recently as this past July, MBI has recommended what we believe is a better solution to the inconsistencies between how the WWH suite of uses and PHWH have been administered by the agency. Our solution is most succinctly characterized by a July 6, 2022 email from MBI Research Director, Chris Yoder, to Ohio EPA Water Quality Standards Manager, Audrey Rush:

“The second attachment is proposed revisions to the aquatic life use designations that creates new subcategories of WWH and EWH thus effectively merging PHWH and eliminating the real and apparent conflicts that arise from the varied interpretations of PHWH and how to determine it. We believe that this would be a good topic for the current triennial review.”

The above referenced attachment was a redlined and annotated version of OAC 3745-1-07(B)(1), titled “Revised Aquatic Life Use Narratives - New Use Subcategories 20220706 MBI.pdf.” This document is attached to these comments as reference, and to again encourage these amendments. We firmly believe that the addition of subcategories to the existing WWH suite of uses and the addition of a Limited Aquatic Habitat will resolve the inconsistencies that currently exist in terms of how stream use designation assessments are conducted, either directly via watershed surveys or indirectly via baseline and follow-up monitoring as required for mitigation credits and 401 certifications.

Nutrient standards - Given that there is a need to reduce near field (local stream and large river segments) and far field (e.g., Gulf of Mexico) nutrients, the subject of nutrient standards is an appropriate consideration for streams and large rivers in Ohio and incorporation into the triennial rule review and OAC 3745-1.

Ohio EPA offered Early Stakeholder Outreach on “Developing Rules to Reduce the Impacts of Nutrients in Surface Waters” in 2013 through 2015, convening the Nutrient Technical Advisory Group (TAG) (<https://epa.ohio.gov/divisions-and-offices/surface-water/reports-data/nutrient-technical-advisory-group-tag>). The TAG resulted in the Stream Nutrient Assessment Procedure (SNAP) “to determine whether and to what degree a stream segment has been adversely affected by nutrients.” MBI believes this was a step in the right direction, but since 2015, we are not aware of progress for standards that would implement the SNAP. One advantage is that standards such as SNAP would ensure some consistency for point source nutrient dischargers.

In 2018, Ohio EPA initiated a proposal for a new rule, “Nutrients for Large Rivers (OAC 3745-1-36).” We have reviewed the documents and agree that there is clear evidence of over-enrichment in large rivers based on Ohio EPA data, and that the resultant eutrophication benchmarks are defensible. (<https://epa.ohio.gov/divisions-and-offices/surface-water/regulations/early-stakeholder/new-rule-nutrients-for-large-rivers-oac-3745-1-36>)

The Agency should prioritize taking these important initial steps, and implementing the measures that the state’s waters have needed for over a decade.

Ammonia – Ohio EPA should consider incorporating the U.S. EPA recommended national ammonia criteria published in 2013. As you are aware, in 2013 U.S. EPA published final national recommended water quality criteria for the protection of aquatic life from the toxic effects of ammonia in freshwater (<https://www.epa.gov/wqc/aquatic-life-criteria-ammonia>). A study conducted by MBI in 2009 identified that, based on field data, Unionid mussels in Ohio are among the most sensitive group of species in relation to ammonia. The figure below from that study shows that among key fish and macroinvertebrate groups in Ohio, mussels are among the most sensitive.

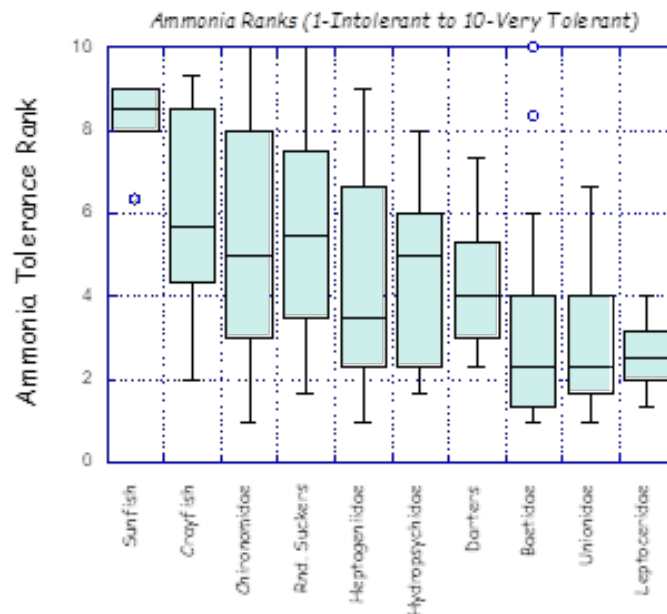


Figure 8. Ammonia tolerance rankings for taxa in selected families of macroinvertebrates or fish species groups. A rank of 1 (intolerant) indicates taxa is within upper 10th percentile of all taxa; rank of 10 (tolerant) indicates taxa above 90th percentile of all taxa

Although there are Ohio macroinvertebrates and fish species that are very sensitive to ammonia, the laboratory data studies used to generate the current water quality criteria generally focus on relatively tolerant test species, likely related to the ease of culture in a laboratory setting. The figure below illustrates this point with ammonia toxicity results color coded by Ohio species/taxa sensitivity rating.

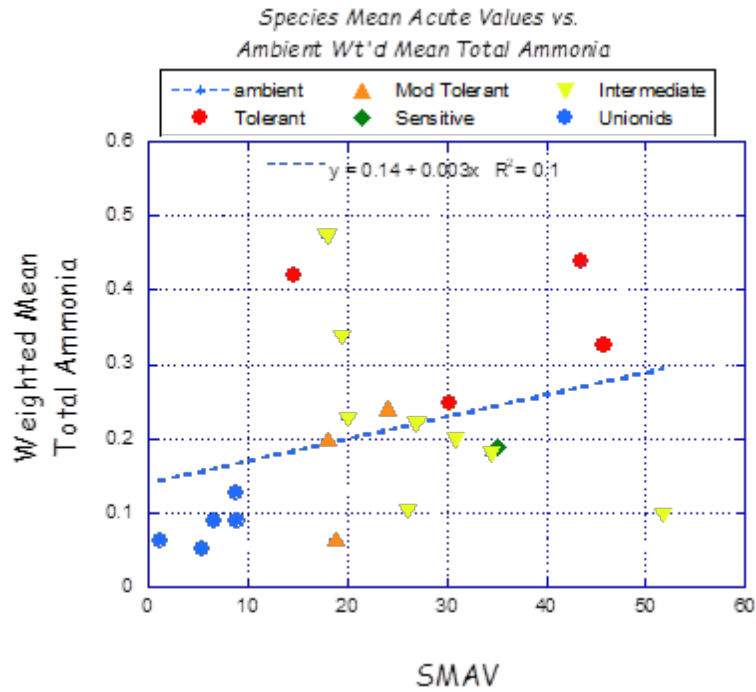


Figure 4. Scatter plot of geometric mean acute values for total ammonia vs. weighted mean total ammonia values from ambient data in Ohio for fish and Unionid mussel species found in Ohio waters

The decline of mussels species in waters across the United State including in Ohio (e.g., Big Darby Creek and the Little Miami River) creates an impetus to adopt the more sensitive U.S. EPA water quality criteria derived using Unionid mussels for Ohio.

Attachment

Revised Aquatic Life Use Narratives - New Use Subcategories 20220706 MBI.pdf.

Proposed Revisions to 3745-1-07(B) – Midwest Biodiversity Institute (Revised 7/6/2022)

NOTE: Existing rule language is in black, **proposed new rule language is in red**. This does not propose any changes to the existing rule language. See **Implementation Notes and Rationale** at end of proposed rules.

(1) Aquatic life habitat

- a) "Warmwater" - these are waters capable of supporting and maintaining a balanced, integrated, adaptive community of warmwater aquatic organisms having a species composition, diversity, and functional organization comparable to the twenty-fifth percentile of the identified reference sites within each of the following ecoregions: the interior plateau ecoregion, the Erie/Ontario lake plains ecoregion, the western Allegheny plateau ecoregion and the eastern corn belt plains ecoregion. For the Huron/Erie lake plains ecoregion, the comparable species composition, diversity and functional organization are based upon the ninetieth percentile of all sites within the ecoregion. For all ecoregions, the attributes of species composition, diversity and functional organization will be measured using the index of biotic integrity, the modified index of well-being and the invertebrate community index as defined in "Biological Criteria for the Protection of Aquatic Life: Volume II, Users Manual for Biological Field Assessment of Ohio Surface Waters," as cited in paragraph (B) of rule 3745-1-03 of the Administrative Code. In addition to those water body segments designated in rules 3745-1-08 to 3745-1-32 of the Administrative Code, all upground storage reservoirs are designated warmwater habitats. Attainment of this use designation (except for upground storage reservoirs) is based on the criteria in table 7-15 of this rule. A temporary variance to the criteria associated with this use designation may be granted as described in paragraph (F) of rule 3745-1-01 of the Administrative Code.

- i. For streams draining less than 2.5 square miles that cannot meet the index of biotic integrity criteria in Table 7-15 as the result of naturally limiting factors such as minimum pool depths and natural barriers that preclude access by fish, the assignment of this use will be based on the attainment of macroinvertebrate and salamander metrics as follows:

Warmwater A – The number of EPT (Ephemeroptera, Plecoptera, and Trichoptera) taxa should be greater than or equal to 9 and the number of sensitive taxa should be greater than or equal to 10 and at least one species of reproducing salamander species of the families Plethodontidae or Ambystomatidae present.

Warmwater B - The number of EPT (Ephemeroptera, Plecoptera, and Trichoptera) taxa should be greater than or equal to 9 and the number of sensitive taxa should be greater than or equal to 10 with no reproducing salamander species of the families Plethodontidae or Ambystomatidae present.

-
- c) "Exceptional warmwater" - these are waters capable of supporting and maintaining an exceptional or unusual community of warmwater aquatic organisms having a species

composition, diversity, and functional organization comparable to the seventy-fifth percentile of the identified reference sites on a statewide basis. The attributes of species composition, diversity and functional organization will be measured using the index of biotic integrity, the modified index of well-being and the invertebrate community index as defined in "Biological Criteria for the Protection of Aquatic Life: Volume II, Users Manual for Biological Field Assessment of Ohio Surface Waters," as cited in paragraph (B) of rule 3745-1-03 of the Administrative Code. In addition to those water body segments designated in rules 3745-1-08 to 3745-1-32 of the Administrative Code, all lakes and reservoirs, except upground storage reservoirs, are designated exceptional warmwater habitats. Attainment of this use designation (except for lakes and reservoirs) is based on the criteria in table 7-15 of this rule. A temporary variance to the criteria associated with this use designation may be granted as described in paragraph (F) of rule 3745-1-01 of the Administrative Code.

- i. For streams draining less than 2.5 square miles that cannot meet the index of biotic integrity criteria in Table 7-15 as the result of naturally limiting factors such as shallow pool depths and natural barriers that preclude access by fish, the assignment of this use will be based on attainment of the macroinvertebrate and salamander metrics as follows:

Exceptional A – The number of EPT (Ephemeroptera, Plecoptera, and Trichoptera) taxa should be greater than or equal to 13 and the number of sensitive taxa should be greater than or equal to 15 and at least two reproducing salamander species of the families Plethodontidae or Ambystomatidae present.

- g) "Limited resource water" - these are waters that have been the subject of a use attainability analysis and have been found to lack the potential for any resemblance of any other aquatic life habitat as determined by the narrative descriptions of Warmwater and Exceptional or the biological criteria in table 7-15 of this rule. The use attainability analysis must demonstrate that the extant fauna is substantially lacking or degraded and that the potential for recovery of the fauna to the level characteristic of any other aquatic life habitat is realistically precluded due to natural background conditions or irretrievable human-induced conditions. For water bodies in the Lake Erie drainage basin, the designation of water bodies as limited resource waters shall include demonstrations that the "Outside Mixing Zone Average" water quality criteria and values and chronic whole effluent toxicity levels are not necessary to protect the designated uses and aquatic life pursuant to rule 3745-1-35 of the Administrative Code. All water body segments designated limited resource water will be reviewed on a triennial basis (or sooner) to determine whether the use designation should be changed. Limited resource waters are also termed nuisance prevention for some water bodies designated in rules 3745-1-08 to 3745-1-30 of the Administrative Code. A temporary variance to the criteria associated with this use designation may be granted as described in paragraph (F) of rule 3745-1-01 of the Administrative Code. Waters designated limited resource water will be assigned one or more of the following causative factors. These causative factors will be listed as comments in rules 3745-1-08 to 3745-1-30 of the Administrative Code.

- i. "Acid mine drainage" - these are surface waters with sustained pH values below 4.1 s.u. or with intermittently acidic conditions combined with severe streambed siltation, and have a demonstrated biological performance below that of the modified warmwater habitat biological criteria.
- ii. "Small drainageway maintenance" - these are highly modified surface water drainageways (usually less than three square miles in drainage area) that do not possess the stream morphology and habitat characteristics necessary to support any other aquatic life habitat use. The potential for habitat improvements must be precluded due to regular stream channel maintenance required for drainage purposes.
- iii. **Limited Aquatic Habitat – these are unmodified waters that cannot meet the criteria for Warmwater B due to naturally limiting conditions such as minimum pool depths and frequently recurring ephemeral flows.**
- iv. Other specified conditions.

Implementation Notes and Rationale:

1. The goal is to fill the glaring gap between a WWH or LRW “UAA” outcome. Simply assuming a default WWH for these streams does not close that gap.
2. Avoids the ongoing entanglements between PHWH and WWH/EWH.
3. Implementation would not assume any particular *a priori* outcome – adequate data collection (fish, bugs, salamanders, QHEI/HHEI) will support a data driven outcome. It has been tried and tested at numerous sites and it works,
4. Eliminates the *a priori* reliance on rules-of-thumb such as drainage area and pool depth. However, it recognizes the effect of naturally occurring limitations in the proposed Limited Aquatic Habitat subcategory under LRW.
5. The 2015 Biocriteria Users Manual Volume III would need to be modified to include salamander collecting and HHEI in addition to fish, bugs, and QHEI. We would assume the agency is adding this given that salamanders are now a Level 3 specialty.
6. This implicitly overrides the hydrological classification of small streams (ephemeral, intermittent) making the outcome, once again, data driven.
7. It will be up to Ohio EPA to decide what is allowable in each subcategory I terms of chemical criteria and policy requirements. I believe one result would be *some* Class II PHW and all Class I PHW translating to the Limited Aquatic Habitat subcategory of LRW.
8. This does not require fish being present, which is presently the linchpin for designating WWH. U.S. EPA has been clear about not needing have fish to meet a 101[a][2] goal – this is in the EPA WQS Handbook.
9. Would be a good idea to query the Ohio database to determine how many streams this might include. The biological indicator criteria for WWH-A and WWH-B were extracted from the curves in the 2015 Users Manual revision. These curves stop at 1 sq. mi. – suggest some additional analysis to confirm any drainage area related expectations at <1 sq. mi. as they are likely influential, but variable from stream to stream.

January 31, 2023

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Columbus, Ohio 43216-1049

Transmitted via email to dsw_rulecomments@epa.ohio.gov

RE: Triennial Review of Ohio EPA's Water Quality Standards

To Whom It May Concern:

I am writing on behalf of the Metropolitan Sewer District of Greater Cincinnati ("MSD") to provide comments in response to Ohio EPA's request for public input regarding the triennial review of its Water Quality Standards ("WQS"). MSD is a ratepayer-funded local wastewater utility that provides sewer service to approximately 230,000 households and businesses in the greater Cincinnati area, including 43 of the 49 communities in Hamilton County as well as small parts of Butler, Clermont, and Warren counties. MSD's service area encompasses more than 290 square miles with more than 3,000 miles of public sewers, approximately 100 pump stations, nine wet weather facilities, and nine wastewater treatment plants.

We offer the following comments for Ohio EPA's consideration in developing priorities:

1. Review & revise WQS to be consistent with the CSO Policy

MSD submits that review of existing WQS and revision of the same in accordance with U.S. EPA's 1994 *Combined Sewer Overflow (CSO) Control Policy* (the "CSO Policy") should be among Ohio EPA's top priorities. Specifically, MSD recommends and requests establishment of a CSO wet weather limited use subcategory and removal of narrative "free from" criteria from future CSO NPDES permits for communities that have completed an approved Long Term Control Plan ("LTCP").

Like many older cities in Ohio and across the country, MSD's sewer system includes many combined sewer overflows ("CSOs"). Since 2010, MSD has been implementing plans and projects to reduce CSOs in accordance with a comprehensive Wet Weather Improvement Program ("WWIP") approved by Ohio EPA, U.S. EPA, and ORSANCO and consistent with requirements of a federal Consent Decree. MSD has invested over \$1.1B in system improvements to reduce sewer overflows and is currently preparing for implementation of the next phase of improvements, which is expected to exceed another \$1B. CSO reduction represents a significant component of MSD's remaining wet weather obligations and comes at a significant cost to our ratepayers. Under Ohio EPA's current application of narrative "free from" water quality standards to CSOs controlled in compliance with the CSO Policy, CSO permittees have little assurance that successful implementation of approved plans with established performance metrics will in fact represent the "completion" of the CSO reduction program. Therefore, MSD requests that Ohio EPA advance review and revision of water quality standards for CSO impacted waters to a priority issue during this triennial review process. Providing this regulatory certainty is a vital component of utility management and fiscal stewardship.

We submit that this requested review and revision is required by the CSO Policy and Clean Water Act and consist with guidance developed by U.S. EPA regarding the process of performing water quality standards reviews. A key principle of the CSO Policy includes the "[r]eview and revision, as appropriate of water

quality standards and their implementation procedures when developing CSO control plans to reflect the site-specific wet weather impacts of CSOs.” Section III of the CSO Policy, titled *Coordination with State Water Quality Standards*, states, “EPA regulations and guidance provide States with the flexibility to adapt their WQS, and implementation procedures to reflect site-specific conditions including those related to CSOs.” The CSO Policy further notes, “[d]evelopment of the long-term plan should be coordinated with the review and appropriate revision of WQS and implementation procedures on CSO-impacted waters to ensure that the long-term controls will be sufficient to meet water quality standards.”

The CSO Policy was ultimately incorporated into Section 402(q) of the Clean Water Act through the Water Quality Act of 2000 as follows:

(1) REQUIREMENT FOR PERMITS, ORDERS, AND DECREES. — Each permit, order, or decree issued pursuant to this Act after the date of enactment of this subsection for a discharge from a municipal combined storm and sanitary sewer shall conform to the Combined Sewer Overflow Control Policy signed by the Administrator on April 11, 1994 (in this subsection referred to as the “CSO control policy”).

(2) WATER QUALITY AND DESIGNATED USE REVIEW GUIDANCE. — Not later than July 31, 2001, and after providing notice and opportunity for public comment, the Administrator shall issue guidance to facilitate the conduct of water quality and designated use reviews for municipal combined sewer overflow receiving waters.

Pursuant to subsection (2), U.S. EPA published *Coordinating CSO Long-Term Planning with Water Quality Standards Reviews* in 2001, which states, “EPA’s goal is for CSO communities to develop and implement cost-effective LTCPs that achieve compliance with applicable water quality standards and with other CWA requirements, and for states to review and revise water quality standards as appropriate to ensure they are attainable.”

Despite the regulatory guidance and legal requirements cited above as well as examples set by other permitting agencies, Ohio EPA has not yet initiated efforts to address this issue in any of its past triennial reviews. We believe that this effort is overdue as MSD and other CSO communities across Ohio continue to aggressively implement CSO reduction programs at significant cost to our ratepayers while having little assurance that such efforts will ultimately result in compliance. MSD requests that Ohio EPA advance review and revision of WQS for CSO impacted waters to a priority issue during this triennial review process. Such revisions should provide CSO communities the ability to attain compliance upon satisfactory completion of an approved LTCP.

a. Development of a CSO wet weather limited use subcategory

As discussed above, U.S. EPA has said that federal regulations and guidance provide states with the flexibility to adapt their WQS and implementation procedures to be tailored to site-specific conditions, specifically including CSO impacted waters, and that review and revision of WQS to ensure attainability is a stated goal. In order to accomplish this goal, MSD recommends the development of a CSO Wet Weather Limited Use Subcategory, similar to that which Indiana has recently implemented (see Indiana Code §§ 13-18-3-2.3 & 2.5). Under current application and practices, even CSOs that are appropriately controlled following the completion of a LTCP may result in non-compliance during or after wet weather events that exceed the approved LTCP’s design and performance criteria. Development and implementation of a CSO Wet Weather Limited Use Subcategory would provide assurance to CSO communities that the extensive efforts and financial expense of implementing a regulator approved LTCP will achieve compliance.

b. Removal of narrative “free from” criteria from CSO NPDES permits following LTCP completion

The practice of including “free from” effluent limits, as set forth in O.A.C. 3745-1-04, in CSO NPDES permits is another example of the current WQS not being attainable for CSO communities that continue to have CSO discharges, even following successful completion of a LTCP and while otherwise operating in permit compliance. MSD requests the removal of “free from” criteria in favor of criteria that reflects site-specific conditions, namely those associated with CSOs, and ensures approved and implemented long-term controls will meet WQS. We believe this approach is in accordance with U.S. EPA guidance, as outlined above.

2. WQS for emerging contaminants

Lastly, in regard to Ohio EPA’s development of WQS for emerging contaminants, MSD further submits that the development of approved laboratory methodologies, treatment technologies, and the science regarding human and environmental health effects should be prerequisites to the development of WQS and we do not feel these items have been fully developed at this time. Without allowing these fundamental items to evolve, there will not be an adequate basis or justification for any developed WQS and the imposition of related compliance requirements and associated costs on the utilities and their ratepayers. As such, we believe Ohio EPA’s facilitation of and participation in the development of the science and technology related to emerging contaminants should take priority over the development of related WQS at this time.

We appreciate Ohio EPA’s consideration of these comments and welcome any future opportunities to collaborate and share information related to these critical issues. If you have any questions or would like to discuss these matters further, feel free to contact me at diana.christy@cincinnati-oh.gov or (513) 244-5123.

Sincerely,



Diana R. Christy

Director

Metropolitan Sewer District of Greater Cincinnati

c:

Lou McMahon, McMahon DeGulis LLP

January 24, 2023

Rules Coordinator
Ohio EPA, Division of Surface Water
P.O. Box 1049
Columbus, Ohio 43216-1049
dsw_rulecomments@epa.ohio.gov

RE: Early Stakeholder Outreach – Water Quality Standards Triennial Review

To Whom It May Concern,

The Northeast Ohio Regional Sewer District (NEORSRD) appreciates the opportunity to participate in the Early Stakeholder Outreach public comment period on the Ohio Environmental Protection Agency's (EPA) Triennial Review of Water Quality Standards (WQS). NEORSRD is a ratepayer-funded political subdivision of the State of Ohio responsible for wastewater treatment facilities, regional stormwater management, and interceptor sewers across Cleveland and 61 suburban communities. NEORSRD's mission is to provide progressive regional management of sewage and stormwater that protects the environment and serves our community. As a regional sewer district with three large wastewater treatment plants and over 100 permitted combined sewer overflow (CSO) outfalls in the Lake Erie Central Basin subject to Ohio EPA National Pollutant Discharge Elimination System (NPDES) permits, we are an interested stakeholder in Ohio's Water Quality Standards.

NEORSRD offers the following comments for Ohio EPA's consideration to help guide the agency and prioritize rule making for the following three years under Ohio Administrative Code (OAC) 3745-1.

1. Prioritize Revising WQS in Accordance with CSO Policy

The CSO Policy established a national framework for controlling discharges from CSOs to achieve compliance with the Clean Water Act (CWA). In accordance with the CSO Policy, NEORSRD developed a CSO Long-term Control Plan (LTCP) to significantly reduce CSOs from 4.5 billion gallons to less than 0.5 billion gallons resulting in 98% capture of CSOs in a Typical Year. NEORSRD, like many CSO communities in Ohio, is implementing its LTCP (known as Project Clean Lake), a 25-year, \$3 Billion program to achieve compliance with the CWA. Ten years into the program, three (3) of the required tunnels are complete and fully operational, two (2) tunnels are under construction, one (1) tunnel is under design and the final tunnel is scheduled to commence design in 2024. NEORSRD is on track to finish Project Clean Lake ahead of schedule and to achieve 99% capture of CSOs by 2034.

This level of control is having and will continue to have a significant impact on the health of the streams, rivers, and Lake Erie in Northeast Ohio. However, unless there is an appropriate revision of Ohio WQS on CSO-impacted waters, NEORSD's extraordinary work and ratepayer investment may not result in compliance with Ohio's WQS or the CWA, as written and commonly applied.

To prevent this untenable situation from occurring, Congress, in endorsing the CSO Policy, directed States to undertake the CSO Policy's specified review and revision of WQS to ensure that implementation of long-term controls on CSOs will be sufficient to meet WQS. USEPA regulations and guidance provides States with the flexibility to adapt their WQS and implementation procedures to reflect site-specific conditions including those related to CSOs. The absence today of the WQS revision and reforms contemplated by the CSO Policy creates serious regulatory uncertainty, placing ratepayer expenditures at risk but also complicating Ohio EPA's program implementation during negotiations now and determination of compliance in the future.

Therefore, in accordance with USEPA regulations and guidance and Congressional intent, **NEORSD requests that Ohio EPA revise Ohio WQS to ensure compliance with WQS and CWA upon completion of a CSO LTCP.**

a) CSO Wet Weather Limited Use Subcategory

Ohio EPA adopted numeric *E. coli* water quality standards in OAC 3745-01-37 that apply during the recreation season (May – October). These criteria are intended to protect full-body immersion bathing and have been applied to all waters in the State regardless of whether they are used for primary contact recreation. Although it may be appropriate for some waters during certain periods, this designation is not attainable in all waters at all times, especially during and following wet weather events. Properly controlled CSOs that remain after full implementation of an LTCP will occur during storm events that exceed the LTCP design storm and performance criteria. These overflows will result in limited periods when CSOs combine with other pollutant sources, as well as conditions such as high stream flow and velocity, to render streams unsuitable for the primary contact recreational designated use.

Federal and state laws provide a process for refining designated uses, therefore, **NEORSD requests that Ohio EPA establish a CSO Wet Weather Limited Use Subcategory under OAC 3745-1.** The goal for creating a CSO wet weather limited use subcategory is to realize the full scope of the CSO Control Policy of the CWA by defining a limited use under Ohio's general recreation designated use in OAC 3745-1-07. During a short, defined period after a wet weather event that triggers a permitted CSO discharge (i.e., storm events exceeding the LTCP design criteria), the subcategory could apply to receiving waters in CSO communities that have fully implemented their

LTCP and have demonstrated through a Use Attainability Analysis (UAA) that recreation is not an existing use and that the designated use is not attainable immediately following the storm event.

This has been successfully accomplished in other USEPA Region 5 states including Indiana. NEORSRSD proposes to work collaboratively with Ohio EPA and other CSO communities across the state to replicate the framework used in Indiana. Creation of a wet weather limited use subcategory is critically important to CSO communities in Ohio as several have already completed or are nearing the end of their LTCP. Without this change, CSO communities will not be able to comply with the numeric bacteria criteria for recreational uses despite significant investment and completion of their LTCP. The regulatory certainty also greatly benefits Ohio EPA. Therefore, the creation of a CSO Wet Weather Limited Use Subcategory should be a priority for Ohio EPA over the next year.

b) Narrative Water Quality Criteria (3745-1-04)

All NPDES permits in Ohio contain the generic, narrative water quality-based effluent limits (WQBELs) found in OAC 3745-1-04. This creates regulatory uncertainty and compliance issues for CSO communities after implementation of an approved LTCP even if they are operating in accordance with all other terms and conditions of their permits. Consequently, unless there are changes to Ohio's Narrative WQS and how they are applied to CSO NPDES permits, post-LTCP CSO discharges cannot comply with an unconditional narrative "free from" criteria in OAC 3745-1-04 for all uses.

Therefore, NEORSRSD requests that the narrative "free from" criteria be removed from future CSO NPDES permits following completion of an approved LTCP. This request is supported by the CSO Policy, which requires that an NPDES permit for a permittee who is implementing an approved LTCP be transitioned to a Phase II permit. In a Phase II permit, Ohio EPA should develop WQBELs specific to the permittee in terms of a maximum number of overflow events per year, a minimum percentage capture of combined sewage by volume, or a minimum removal of the mass of pollutants discharged. Relatedly, Ohio EPA would remove the narrative "free from" criteria in 3745-1-04 from post-LTCP CSO NPDES permits. This could potentially be accomplished with the addition of an exemption for CSO communities post-LTCP in 3745-1-04. NEORSRSD advocated for these changes to its CSO NPDES permit during the last permit renewal cycle.

2. Allow Science to Direct the Development of WQS for Emerging Contaminants

NEORSRSD fully supports Ohio EPA in allowing the science and technology behind emerging contaminants to sufficiently evolve before developing WQS. This is important to ensure that the human health and aquatic life justification for such limits exists, approved laboratory methodologies exist, and treatment technologies have been developed. NEORSRSD also encourages

the use of variances for emerging contaminants when WQS are established but are not technically or financially feasible to achieve.

3. Clarify Coldwater Habitat Definition

NEORSO requests that Ohio EPA consider further developing the definition of coldwater habitat under OAC 3745-01-07 to assist with determinations of that designated use. Specifically, Ohio EPA should consider reviewing and revising the current list of coldwater species and establishing richness criteria for both fish and macroinvertebrates.

NEORSO appreciates Ohio EPA's consideration of these comments as you finalize the Maumee TMDL and welcomes the opportunity to discuss them further. Should you have any questions or concerns, please do not hesitate to contact our legislative affairs manager, Danielle Giannantonio at giannantoniod@neorsd.org or (216) 881-6600 ext. 6407.

Kind Regards,



Kyle Dreyfuss-Wells
Chief Executive Officer

cc: Eric Luckage, Chief Legal Officer, NEORSO
Frank Greenland, Director of Watershed Programs, NEORSO
Robin Halperin, Manager of Environmental, Health and Safety, NEORSO
Tamar Gontovnik, Assistant General Counsel, NEORSO
Danielle Giannantonio, Legislative Affairs Manager, NEORSO



January 31, 2023

Ms. Melissa Harris
Ohio EPA, Division of Surface Water
50 W. Town Street, PO Box 1049
Columbus, Ohio 43216-1049

Re: The Ohio Coal Association Stakeholder Outreach Public Comments for OEPA Water Quality Standards Triennial Review

Dear Ms. Harris:

The Ohio Coal Association (OCA) appreciates the opportunity to submit this letter in providing recommendations for OEPA's Water Quality Standards Triennial Review. The focus of these recommendations relates to the OEPA's practice of using a "biology only" standard for measuring water quality that does not consider the role of stream physical integrity in providing water quality or habitat benefits, which directly influences biological outcomes. The OCA is available to discuss and to provide additional explanation and technical literature to support these recommendations.

The Ohio Coal Association is a trade organization that adheres to the best interests of the coal mining companies who operate in the State of Ohio. Our coal companies all utilize the 401 Program, where applicable, to obtain permission for fills and activities that impact aquatic life, habitat, and waters of the State. It is through the years of application of these rules and working with Ohio EPA personnel, both directly or through our respective coal operators and their consultants, that we are submitting these concerns. In efforts to create a focused value we have provided you with a straightforward reaction to areas in need of improvement with these draft rules, moving forward. It is with this persevered experience that we share our perspective and honest recommendations.

Again, thank you for the opportunity and your sincere consideration of OCA's comments. Please contact me at 330-339-2100 or pleist@buckeyemineral.com or OCA at the contact information provided below with any questions you may have.

Sincerely,

Paul Leist

OCA Environmental Committee Chair
Encl. (1)

OCA Public Comments for OEPA's Water Quality Standards Triennial Review

January 31, 2023

Introduction

The Ohio Coal Association (OCA) is providing recommendations for the OEPA's Water Quality Standards Triennial Review. The primary focus of these comments relates to the OEPA's practice of using a "biology only" standard for measuring water quality. The *objective* of the Clean Water Act (CWA) is to restore and maintain the chemical, biological, and physical integrity of the Nation's waters. This objective clearly does not state a "biology only" integrity standard, and it does not align with the foundational objective of the CWA.

The major water quality aspect that the OEPA does not address in its water quality standards is an objective assessment of stream *physical integrity*. Stream physical integrity requires assessment of both the stream hydrologic (rainfall-runoff) condition and geomorphic condition (i.e., is the stream stable, unstable or in some degree of instability). These conditions must be evaluated to determine whether the stream structure and functions are providing the best potential water quality functions and habitat (e.g., geomorphically stable). Conversely, if the stream is not providing the best potential water quality functions and habitat, then the stream is in some degree of instability (e.g., geomorphically unstable). Thus, aquatic biology must be assessed in the context of the stream hydrologic and geomorphic condition. Literature explains that as stream structure and functions degrade, so do the water quality functions and aquatic biology (e.g., Cluer & Thorne (2014), Asmus, et al. (2009), Sullivan & Watzin (2009)). That is, as the stream structure and functions that the aquatic biology utilize degrade and become less hospitable, the aquatic biology moves to other, more stable locations in the stream system or potentially perishes. In other words, if stream physical integrity is not a factor that influences aquatic biology (biological integrity), then why do we have Federal and State requirements to mitigate/restore stream impacts?

Recommendations

1. The OEPA's Headwater Habitat Evaluation Index (HHEI) contained in the Primary Headwater (PHW) Manual (most recent Version 4.1, 2020) was developed to only determine the flow regime of geomorphically stable streams with drainage areas less than 1.0 square miles, yet this HHEI tool is utilized to determine the flow regime of geomorphically unstable streams in this area, which is beyond the HHEI's limitation.
 - a. It is *recommended* that the OEPA only use the HHEI within the limits of its development (i.e., use only on geomorphically stable streams to determine flow regime).
 - b. It is *recommended* that the OEPA perform the proper research to utilize the HHEI to assess flow regimes on geomorphically unstable streams, which requires that the hydrologic and geomorphic condition of the stream be identified (i.e., objectively determine whether a stream is geomorphically stable, unstable or in some degree of instability).

2. The OEPA requires that the HHEI assessment score for an impacted stream be utilized as a stream mitigation/design criterion when the HHEI provides no assessment of the hydrologic or geomorphic condition of the stream being impacted. Thus, the OEPA in many cases is requiring that characteristics from a geomorphically unstable stream be included in stream mitigation/restoration project designs, which is not a sound approach. Additionally, the use of HHEI scores for stream mitigation/restoration criteria is beyond the limitation of the HHEI.
 - a. It is *recommended* that the OEPA stop using the HHEI score obtained from an impacted stream assessment as a stream mitigation/restoration design criterion.
 - b. If the OEPA desires to use an HHEI score for stream mitigation/restoration criteria, then it is *recommended* that the OEPA perform the necessary research that includes obtaining objective stream hydrologic and geomorphic condition assessments along with the HHEI assessment so that the HHEI scoring system is measured within the context of its hydrologic and geomorphic (physical integrity) context and then subsequently recalibrate the HHEI scoring system. But again, only HHEI criterion from geomorphically stable streams should be used in stream mitigation/restoration criterion.
3. The HHEI flow regime assessment tool is developed to assess flow regimes for single-thread streams, but as described above in Item 2, this tool has been improperly used for stream mitigation/restoration design criteria. Thus, the HHEI due to its improper usage has created the perception that only single-thread streams are to be mitigated/restored in the headwaters. This perception has directly precluded the mitigation/restoration of much higher functioning and historically correct stream types, such as, wetland streams, beaver impounded streams or analogs, braided streams, and log jams that produce braided streams.
 - a. It is *recommended* that the OEPA eliminate this single-thread stream bias for headwater stream types by encouraging the mitigation/restoration of *other* stream types, such as, the stream types mentioned above in Item 3.
 - b. It is *recommended* that the OEPA develop assessment tools that are properly designed to assess and support the develop of higher functioning and historically correct stream types, such as, the stream types mentioned above in Item 3.
4. The Headwater Macroinvertebrate Field Evaluation Index (HMFEl) is also presented in the PHW Manual as a supplemental rapid bio-assessment for flow regime. However, the HMFEl assessment methodology is biased toward higher flow regimes (e.g., ephemeral flow regimes appear as intermittent flow regimes, or intermittent flow regimes appear as perennial flow regimes). This bias is due to the HMFEl methodology using a fixed 200-foot headwater stream assessment length. As the stream drainage area increases so does the streambed width, and thus, so does the biological streambed assessment area (refer to Table 1 below). That is, as a stream becomes larger, the streambed sampling area increases dramatically, thereby, increasing the likelihood that more aquatic insects will be sampled, which suggests a higher flow regime or bias.
 - a. It is recommended that the OEPA stop using the HMFEl until such time that it is recalibrated to eliminate this bias.
 - b. It is *recommended* that the OEPA eliminate this HMFEl 200-foot stream assessment length and recalibrate the methodology so that it samples a consistent streambed area (e.g., 200 square feet).

TABLE 1				
Headwater Stream Drainage Area (square miles)	HMFEI Assessment Length (feet)	Typical Streambed Width (feet)	Typical Streambed Area to be sample for Aquatic Insects (square feet)	Increased sampling area ratio relative to 0.10 acre DA streambed width
0.10	200	6	1200	1.0
0.50	200	12	2400	2.0
0.90	200	16	3200	2.67

5. The OEPA's Qualitative Habitat Evaluation Index (QHEI), which is utilized for habitat assessments on streams with drainage areas greater than 1.0 square mile, is significantly biased towards single-thread streams with high unit stream powers (refer to Figure 1 below). That is, higher QHEI scores suggest better aquatic or physical habitat. That is, higher QHEI scores suggest that the OEPA has a preferred stream type that has fast moving water and large substrate (i.e., this preferred condition looks more like a trout stream). This bias suggests that stream mitigation/restoration designs contain larger substrate, have faster moving water, and steeper gradients, which is typically not what should be designed, or is typically or historically not found except in unique conditions. Additionally, this bias precludes the restoration of multi-thread streams that were historically associated with log jams or beaver impounded streams. Literature indicates that streams with drainage areas towards 500 square miles (5th order) were historically impounded by beavers (e.g., Allan, D. (1995), Gurnell, A. (1998)). Again, 33 CFR Part 332 states that mitigation/restoration include the restoration of historic and/or other lost aquatic resources (i.e., stream types other than single-thread streams).
- It is *recommended* that QHEI not be utilized in any stream mitigation/restoration designs.
 - It is *recommended* that stream reference reaches be used to design the appropriate structure and functions for stream mitigation/restoration projects, which simultaneously provide the appropriate aquatic habitat.
 - It is *recommended* that the OEPA encourage historic and/or other lost aquatic resources with stream drainage areas larger than 1.0 square mile.

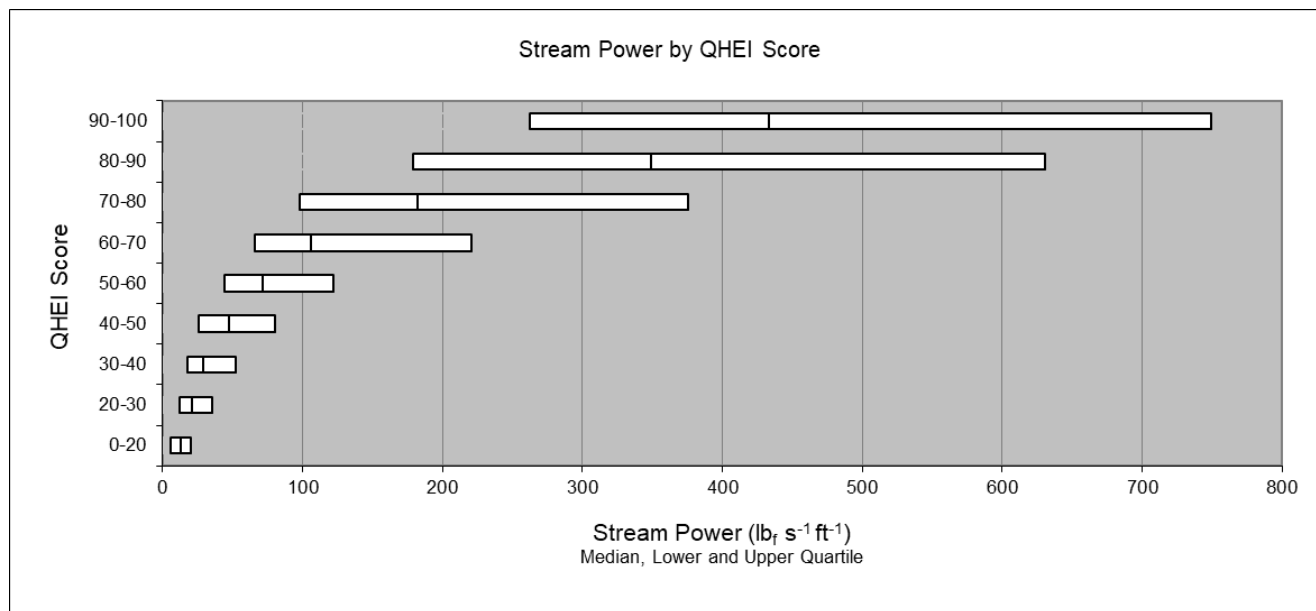


Figure 1 – OEPA QHEI scores graphed vs Stream Power. Graph shows that as QHEI score increases, so does the unit stream power, which demonstrates the strong QHEI bias. Mecklenburg, D., ODNR, 2010, Evaluation of QHEI stream assessment scores vs stream power from OEPA for the period from 1978 to 2007 of 10269 QHEI assessments.

6. The QHEI does not perform an objective hydrologic (rainfall-runoff) or geomorphic condition assessment to determine whether a stream is geomorphically stable, unstable or in some degree of instability. The QHEI does have limited ability to *subjectively* suggest instability, but this suggestion cannot be quantified. Specifically, the QHEI makes no evaluation of the degree of channel incision, which is necessary to quantify channel instability. As discussed in the *Introduction*, literature explains that as stream structure and functions degrade, so do water quality functions and aquatic biology.
 - a. It is *recommended* that the OEPA perform stream hydrologic (rainfall-runoff) and geomorphic condition assessments to objectively determine the degree of channel incision so that aquatic biology assessments are made in the context of the hydrologic and geomorphic condition as required by the CWA.
7. More than ten years ago, the OEPA had prioritized fish passage through culverts as one of the major impacts to stream biology due to the physical barrier created by poorly functioning culverts (e.g., large elevation drops below culvert outlets, high culvert velocities, upstream headcuts generated due to lack of grade control upstream of culverts, etc.). Although the OEPA had made this a priority issue, this issue has seemingly gone by the wayside. Around 2008, the Ohio DOT sponsored an extensive high quality training program on how to mitigate culvert fish passage barriers and reduce upstream and downstream channel culvert impacts. This training was based on the USDA Forest Service's manual entitled *Stream Simulation: An Ecological Approach to Providing Fish Passage for Aquatic Organisms at Road-Stream Crossings*, 2008. Ohio DOT has tremendous ability to set the standards for Ohio so that this issue could be significantly mitigated over time (e.g., in the next 50 years most all culverts will reach their useful life and be replaced) if the regulatory agencies provide

the proper incentives. Subsequently, County Engineers would follow the standards developed by ODOT, which in-turn, would work with the Townships to help apply these standards.

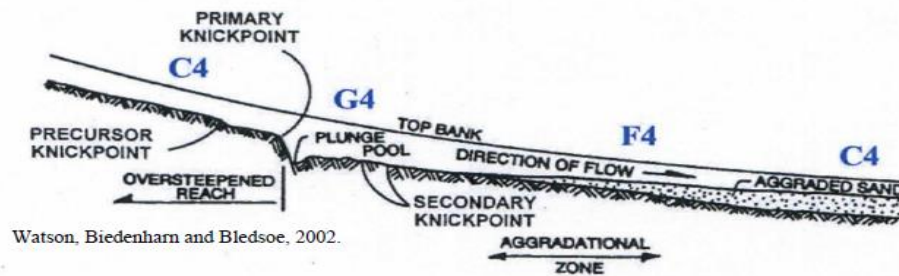
- a. It is *recommended* that the OEPA develop criteria to prevent or minimize fish passage barriers at culvert road stream crossings.
8. Channel incision has been observed advancing upstream for several miles upstream in larger streams (e.g., DA of 20 to 50 square miles) within 2- to 5-year time periods (refer to the Channel Evolution Model profile in Figure 2 below). This typically headward advancing stream channel degradation could have easily been prevented with the installation of a channel grade control structure (e.g., in-stream placement of large rock) that would have stopped the headward incision advancement, maintained the upstream geomorphically stable stream, prevented tens of thousands of tons of sediment being eroded downstream, and prevented major property and infrastructure damage.
 - a. It is *recommended* that the OEPA utilize stream geomorphic condition assessments to identify unstable streams to highlight where grade control structures can be placed as mitigation/restoration to stop the advancement of channel degradation, thereby, saving millions of dollars of channel degradation, downstream sediment impacts, lost water quality processes, degraded aquatic biology, and property and infrastructure damage.
 9. It is *recommended* the OEPA DSW diversify its staff to included disciplines other than biology. The DSW should build a diverse team that is necessary to evaluate and manage streams, which is what a consulting company involved in stream restoration would do. For example, the DSW staff should include engineer(s) with experience in hydrology, hydraulics, sediment transport, geotechnical and/or stream geomorphology, geologists experienced in geomorphology and ideally, an environmental historian to research historic and lost aquatic resources that should be restored as required by the 2008 Federal Compensatory Mitigation Rules.
 10. It is *recommended* that the OEPA and other agencies along with business and industry work together to develop a multiple-day Statewide Conference to educate regulatory staff, technical professionals, and others about the history, roles and benefits of beavers (a keystone species) in our watersheds as well as beaver management aspects. Also, discussion on Stage 0 mitigation/restoration should be included. Some initial thoughts for potential speakers include, but are not limit to, the following:
 - a. Denise Burchsted, University of Connecticut;
 - b. Eric Jay Dolan, author of Fur, Fortune and Empire (beaver trade);
 - c. Ben Goldfarb, author of Eager, Beavers and Why They Matter;
 - d. Ellen Wohl, Colorado State University;
 - e. Joe Wheaton, Utah State University;
 - f. Mark Beardsley, Ecometrics, Colorado;
 - g. Michael M. Pollock, N.O.A.A.;
 - h. Art Parola, University of Louisville;
 - i. Gregory Hood, Skagit Climate Science Consortium, Washington;
 - j. Frances Backhouse, author Once They Were Hats, In Search of the Mighty Beaver;
 - k. Robert Hawley, Sustainable Streams, LLC., Louisville, KY;
 - l. Paul Powers, US Forest Service, Oregon; and,
 - m. Colin Thorne, University of Nottingham, UK.

11. To obtain more detailed information regarding these OCA *recommendations* for the OEPA DSW Triennial Review, the OCA recommends that the OEPA refer to OCA's previous public comments provided over the past several years that explain most, if not all, of these topics in more detail.

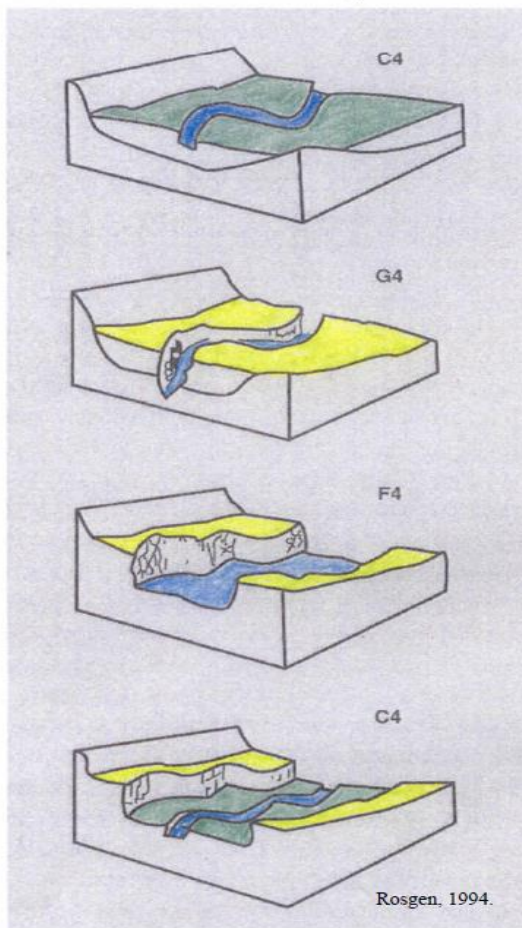
These previous public comments include the following:

- a. OCA comments provided February 25, 2019 for the OEPA's Interested Party Review of the proposed *Water Quality Certified Professional Program*;
- b. OCA comments provided June 10, 2020 for the OEPA's draft *General Permit for Impacts to Ephemeral Streams and Isolated Wetlands*;
- c. OCA comments (two sets) provided October 7, 2020 to the OEPA's *Proposed Rulemaking Governing the Credible Data Program – Wave 2* (OAC 3745-4);
- d. OCA comments provided January 5, 2023 for Interested Party Review (IPR) for the OEPA's WQS Definitions, Methods, and other Rules (OAC 3745-1); and,
- e. OCA comments provided January 18, 2023 for Early Stakeholder Outreach (ESO) for Section 401 Water Quality Certification Rules (OAC 3745-32) and Wetland Water Quality Standard Rules (OAC 3745-1-50, -51, -52, -54).

Channel Evolution Model using Rosgen Stream Channel Classification System



Channel Evolution Sequence



Typical Width/Depth Ratios
by Stream Type

Rosgen, 1996.

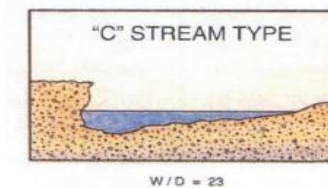
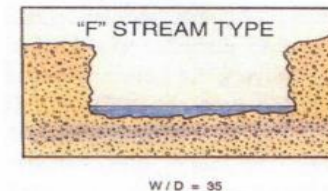
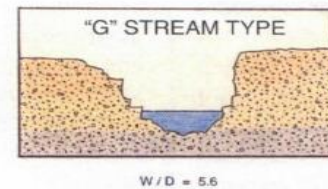
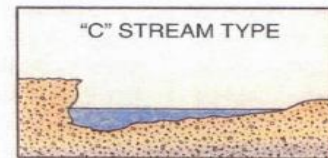


Figure 2 – The top drawing is the stream profile with the streambed eroding and advancing headward with resultant aggradation downstream. The left drawing provides a 3D view of the physical stream condition along the stream profile at the various stream types locations in the top drawing (C4, G4, F4 and C4). The right drawing shows the typical cross-section form and W/D ratio representative of each stream type.



January 18, 2023

RE: Triennial Review Hearing Testimony of the Ohio Environmental Council

Dear Ohio EPA,

The Big and Little Darby Creeks are some of the most important streams in not just Ohio, but in the entire Midwest and the nation. They are both designated as National and State Scenic Rivers. Big Darby Creek has twice been named one of the nation's "Most Endangered Rivers" by American Rivers. The Nature Conservancy has declared the Big and Little Darby Creeks as one of the "Last Great Places" worth saving.

The Big and Little Darby Creeks comprise one of the highest quality river systems in Ohio. This river system contains the greatest diversity of freshwater mussels for any stream of its size in the Midwest, including five federally listed species.

An academic journal article from 1994 stated that the "Big Darby Creek, for its size, has the greatest diversity of freshwater mussels in North America" (Watters 1994).

Current regulations have not been adequate to protect the Big and Little Darby. Over the past four decades, many mussel species have disappeared from the creeks, and nearly all mussel populations are declining.

Suburban and urban development in the watershed is on the cusp of substantial expansion – as evidenced by Ohio EPA's Draft 2023 Program Management Plan for the Water Pollution Control Loan Fund.

The Darby Creeks are currently categorized as Outstanding State Resource Waters. This categorization is not proper because it does not recognize the national significance of the Big and Little Darby Creeks.

The OEC respectfully requests that Ohio EPA categorize the Big and Little Darby Creeks as Outstanding National Resource Waters. This is the strongest level of antidegradation protection available under the Clean Water Act. And, it is the proper categorization of these nationally significant – and imminently threatened – rivers.

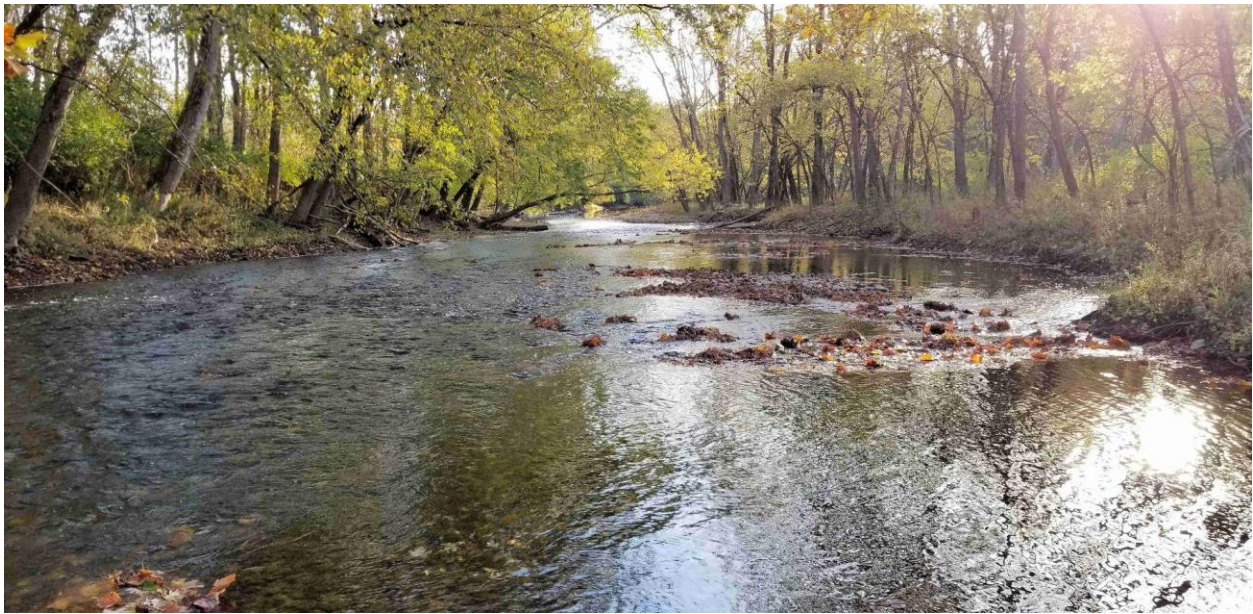
Respectfully Submitted,

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TRIENNIAL REVIEW COMMENTS

BIG AND LITTLE DARBY CREEKS

OUTSTANDING NATIONAL RESOURCE WATERS (ONRW)



Request to the Ohio Environmental Protection Agency to Designate Big and Little Darby Creeks, or portions thereof, as an Outstanding National Resource Water Under OAC § 3475-1-05(E)(2).

Submitted By: The Ohio Environmental Council, Darby Creek Association, Center for Biological Diversity, American Rivers, Forest Keeper, Ohio Scenic Rivers Association, Sierra Club Ohio, and the Nature Conservancy.



Anne M. Vogel, Director
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Tiffani Kavalec, Chief
Division of Surface Water

Rules Coordinator, Ohio EPA
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To Ohio EPA Director Anne M. Vogel, Tiffani Kavalec, Chief of the Division of Surface Water,
and the Rules Coordinator for the Division of Surface Water:

The comments contained herein comprehensively explain why both Big and Little Darby Creeks must be designated as Outstanding National Resource Waters during the upcoming Triennial Review conducted under OAC § 3475-1-05(E)(2). The signatory organizations look forward to engaging in productive discussions with the Ohio EPA to provide these two creeks with the protections they deserve moving forward. These technical comments support the thousands of Americans who submitted public comments over the past few weeks in support of the designation for the Big and Little Darby Creeks.

The Big and Little Darby Creeks form one of the most important ecological and recreational watersheds in Ohio, the Midwest, and the United States as a whole. Because of their outstanding aquatic biodiversity, the state has classified both creeks as State Scenic Rivers, Exceptional Warm-water Habitats, and Outstanding State Resource Waters. Despite these protections and designations, the creeks are currently facing an uncertain future. With increasing urban and suburban development in the area, many of the watershed's protected mussel species are in decline, and in some cases species are in imminent danger of disappearing.

Without stronger protections, including appropriate antidegradation tier categorization as ONRWs, we will lose one of the most biologically significant stream systems in the Midwest and

the nation. The Big and Little Darby Creeks' current Outstanding State Water antidegradation categorization does not appropriately reflect or protect their national significance. Both creeks are textbook examples of the Clean Water Act's most protective designation—they are Outstanding National Resource Waters. It is long past time for the Ohio EPA to provide them both with the protection due such waters, making them the first in Ohio to receive the designation.

If your team has any additional questions regarding the need to designate the Big and Little Darby Creeks as Outstanding National Resource Waters, our team would welcome the opportunity to meet with them.

Respectfully submitted,

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INTRODUCTION

The Big Darby and Little Darby Creek watershed is one of the most biologically diverse in Ohio, the Midwest, and the Nation. The watershed shelters more than 100 species of fish and 45 mussel species, including five federally endangered aquatic species. It is one of the most ecologically significant watersheds in the Midwest—with unique geology, high stream gradients, intact landscapes, and minimal industrial development. Both creeks are textbook examples of the Clean Water Act’s most protective designation—they are Outstanding National Resource Waters. It is long past time for the Ohio EPA to provide them both with the protection due such waters, making them the first in Ohio to receive the designation.

And without further and appropriate protection, existing trends suggest that the water quality of the Big and Little Darby Creeks is at great risk for further degradation. If appropriate protections are not put in place, we will likely lose key components of one of the most biodiverse stream systems in the Midwest and the nation. Categorizing the Big and Little Darby Creeks as Outstanding National Resource Waters (ONRW) is necessary if we wish to maintain them as the rare, nationally significant gems they are. Therefore, we respectfully request that the Ohio EPA Director categorize the Big and Little Darby Creeks (the main stems, from headwaters to their confluence with the Scioto River) as Outstanding National Resource Waters.

The Big and Little Darby Creeks form one of the most important ecological and recreational watersheds in Ohio, the Midwest, and the United States as a whole. Located west of Columbus, Ohio, 45 mussel species and over 100 species of fish have been recorded in the watershed,

many of which are state and federally threatened and endangered species as well as declining species.¹ This highly diverse aquatic fauna is present due to the fortuitous combination of limited dense development and wastewater, few dams, favorable geology, good connectivity to the historically diverse Scioto River and Ohio River systems, and diverse surrounding upland ecosystems with protected riparian land. In addition, the streams, which flow through mostly agricultural land, have thus far largely been spared extensive industrial and residential development. Despite these advantages, the watershed is showing signs of stress, and massive proposals for new development threaten to forever alter the landscape and instream habitat that supports the Big and Little Darby Creeks' nationally significant biodiversity and recreational values.

Because of their outstanding aquatic biodiversity, the state has classified both creeks as State Scenic Rivers, Exceptional Warmwater Habitats, and Outstanding State Waters.² In addition, the National Park Service has designated the Big and Little Darby Creeks National Scenic Rivers.³ Despite these protections and designations, the creeks are currently facing an uncertain future. With increasing urban and suburban development in the area, many of the watershed's protected mussel species are in decline, and in some cases species are in imminent danger of disappearing. Citing these declines, and the imminent expansion of residential development into the watershed,

¹ At least 45 mussel species and over 100 fish species have been recorded, though there may be unrecorded species in the watershed. Mussel sources include historical records and specimens from the Ohio Museum of Biological Diversity (OSUM), Ohio EPA, Ohio Department of Natural Resources, and Metro Park staff (Mac Albin and others). Fish sources include OSUM, Ohio EPA, and ODNR. See also Table 5 in the Appendix; twenty-two fish species recorded in the Big Darby Creek watershed are found on OAC § 3745-1-05's Table 5-2 (Declining Fish Species).

² Table 5-5, OAC § 3745-1-05. See also OAC § 3745-1-09. See also *List of Ohio's Scenic Rivers*, Ohio Department of Natural Resources, available at: <https://ohiodnr.gov/discover-and-learn/safety-conservation/about-odnr/nature-preserves/scenic-rivers/list-ohio-scenic-rivers>.

³ See *Big and Little Darby Creeks, Ohio*, National Wild and Scenic Rivers System, available at: <https://www.rivers.gov/rivers/big-darby.php>.

the non-profit conservation group American Rivers has twice named Big Darby Creek one of the nation's 10 "Most Endangered Rivers," most recently in 2019.⁴

To borrow a phrase from the Ohio EPA, the Darby is at a crossroads.⁵ Without stronger protections, including appropriate antidegradation tier categorization as ONRWs, we will lose one of the most biologically significant stream systems in the Midwest and the nation. The Big and Little Darby Creeks' current Outstanding State Water antidegradation categorization does not appropriately reflect or protect their national significance. Time is of the essence if we wish to preserve this nationally significant resource that flows through our proverbial and literal backyard. Ohio EPA's current triennial review is a timely opportunity to correct the Creeks' existing antidegradation categorization.

I. LEGAL BACKGROUND

A. ONRWs are Surface Waters with National Ecological or Recreational Significance, or Waters with Biological Characteristics that Exceed those Required of Superior High Quality Waters.

Ohio's Antidegradation Rule is found at Ohio Administrative Code § 3745-1-05. That rule, at OAC § 3745-1-05(A)(10)(d), defines "Outstanding national resource waters" as "surface waters that have a national ecological *or* recreational significance[.]" (emphasis added). This same section of the Antidegradation Rule elaborates that national ecological significance:

may include providing habitat for populations of federal endangered or threatened species or displaying some unique combination of biological characteristics in addition to those factors listed in [the definition of 'superior high quality waters' found at OAC § 3745-1-05(A)(10)(b)].⁶

⁴ *America's Most Endangered Rivers of 2019 spotlights climate change threats*, American Rivers, (April 16, 2019), available at: <https://www.americanrivers.org/2019/04/americas-most-endangered-rivers-of-2019-spotlights-climate-change-threats/>

⁵ See *Darby at the Crossroads: A Summary of Ohio EPA's Work and Collaboration to Protect and Restore an Important Water Resource*, The Ohio EPA, (June 30, 2004), available at: https://epa.ohio.gov/static/Portals/35/documents/Darby%20Crossroads_june04.pdf.

⁶ OAC § 3745-1-05(A)(10)(b) defines "superior high quality waters" as "surface waters that possess exceptional ecological values[.]" The same section further provides that the following factors shall be considered in determining exceptional ecological value:

The OAC definition of ONRW further provides that national recreational significance “may include designation in the national wild and scenic river system.” OAC § 3745-1-05(A)(10)(d). And, the same definition provides that ONRWs are to be categorized pursuant to paragraph (E) of Ohio’s Antidegradation Rule.

B. Triennial Review Is a Formal Opportunity for Ohio EPA to Determine Appropriate ONRW Categorizations.

Paragraph (E)(2) of Ohio’s Antidegradation Rule delineates the *triennial review* process for determining high quality water categorizations, including ONRW categorizations:

At least once every three years, the director, in consultation with the director of the department of natural resources, **shall consider available information on water bodies in Ohio and determine appropriate high quality water categorizations. Each determination shall consider** attributes of exceptional recreational or ecological value, **the national significance of the water body**, and other existing and planned uses of the water body. **If the director identifies any waters not properly categorized, the director shall public notice the director's intent to categorize them to the appropriate category upon consideration of public comment.** The director shall categorize outstanding national resource waters, outstanding state waters and superior high quality waters in tables 5-4 to 5-7 of this rule.

OAC § 3745-1-05(E)(2) (emphasis added). As is provided in the rule language above and pursuant to the triennial review process, if the Ohio EPA director identifies any waters not properly categorized, “the director shall public notice the director’s intent to categorize them to the appropriate category upon consideration of public comment.” *Id.*

providing habitat for Ohio or federal endangered species; providing habitat for Ohio threatened species; harboring stable populations of a declining fish species that coincide with the presence of suitable habitat for that species, or that coincide with an essential migration path between areas of suitable habitat for that species; and displaying a level of biological integrity equivalent to the exceptional warmwater habitat index of biotic integrity or invertebrate community index criteria values listed in rule 3745-1-07 of the Administrative Code.

Additionally, this code section further provides that:

Water bodies that exhibit a pattern of biological integrity equivalent to index of biotic integrity and, where applicable, invertebrate community index scores of fifty-six or greater at most sites are characteristic of a near-pristine aquatic habitat. Such waters, as well as other ecologically unique water bodies that have essentially undisturbed native faunas, but for which the biological criteria in rule 3745-1-07 of the Administrative Code do not apply, may be considered as possessing exceptional ecological values without the presence of threatened or endangered species.

II. BIG AND LITTLE DARBY CREEKS SATISFY THE REQUIREMENTS TO BE DESIGNATED AS OUTSTANDING NATIONAL RESOURCE WATERS.

A. The Darby Creeks Are Improperly Categorized as Outstanding State Waters.

The Big and Little Darby Creeks are currently categorized as Outstanding *State Waters*.

Ohio Administrative Code § 3745-1-05(A)(10)(c) defines “Outstanding state waters” as:

Waters that have special significance for the state because of their exceptional ecological values or exceptional recreational values, and that have been so categorized pursuant to paragraph (E) of this rule. To qualify on the basis of exceptional ecological values they must meet the qualifications for superior high quality waters and be further distinguished as being demonstratively among the best waters of the state from an ecological perspective. To qualify on the basis of exceptional recreational values they must provide outstanding or unique opportunities for recreational boating, fishing or other personal enjoyment.

Certainly, both the Big and Little Darby Creeks satisfy the requirements of the Outstanding State Waters categorization. Both water bodies are among the best waters in Ohio from an ecological perspective. And both water bodies provide outstanding and unique recreational opportunities. In short, Big and Little Darby Creeks are waters of special significance for Ohio. If that were all to be said of the Big and Little Darby’s significance, then their current Outstanding State Waters categorizations might well be appropriate. But, of course, that characterization stops well short of their full and true significance. The significance of the Big and Little Darby Creeks extends well beyond Ohio’s boundaries. These are demonstrably two of the most significant waters in the Midwest. And they are two of the most significant waters in the Nation. The Darby Creeks’ current antidegradation categorization as Outstanding State Waters does not reflect their *national* significance. These waters are therefore not properly categorized under Ohio’s Antidegradation Policy. See OAC § 3745-1-05(E)(2).

B. The Darby Creeks Have National Ecological Significance.

1. The national ecological significance of the Darby Creeks is well established.

According to the Ohio EPA, “natural resource professionals from private, public and academic institutions are unanimous in citing these streams as among the most biologically diverse streams of their size in the Midwest.”⁷ G. Thomas Watters, well-known malacologist, wrote that the Darby, “for its size, has the greatest diversity of freshwater mussels in North America, perhaps on Earth.”⁸ The Nature Conservancy has declared the Big and Little Darby Creeks as one of the “Last Great Places” worth saving.⁹ Big Darby Creek has twice been named one of the nation’s “Most Endangered Rivers” by American Rivers.¹⁰

In addition, the National Park Service has recognized both Big Darby Creek and Little Darby Creek as National Scenic Rivers, based on their remarkable aquatic diversity and their importance as refugia for rare and endangered species, specifically the watershed’s remarkable and federally endangered mussel fauna.¹¹ On March 10, 1994, both Big and Little Darby Creeks were designated National Scenic Rivers, following the Governor of Ohio’s initial request on October 1, 1990.¹² The National Park Service found that the creeks met the requirements of the Wild and Scenic Rivers Act (WSRA),¹³ a law which describes Scenic Rivers as “certain selected rivers of

⁷ *Darby at the Crossroads: A Summary of Ohio EPA’s Work and Collaboration to Protect and Restore an Important Water Resource*, The Ohio EPA, (June 2004), available at: https://epa.ohio.gov/static/Portals/35/documents/Darby%20Crossroads_june04.pdf.

⁸ G.T. Watters, *Freshwater Mussel Survey of Big Darby Creek*, The Ohio State University, at 1 (1996).

⁹ See *Big Darby and Little Darby Creeks, Ohio*, The National Wild and Scenic Rivers System, available at: <https://www.rivers.gov/rivers/big-darby.php>

¹⁰ Supra FN 4.

¹¹ *National Wild and Scenic Rivers System: Big and Little Darby Creeks, OH*, Department of Interior, Federal Register Volume 59, Number 66 (Wednesday, April 6, 1994).

¹² *Id.*

¹³ *Id.*

the Nation” with “outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values.”¹⁴ This requirement of “outstandingly remarkable” values closely resembles and reinforces the ONRW designation criteria of “national ecological or recreational significance” in OAC § 3745-1-05(A)(10)(d). The National Scenic Rivers program references the Big Darby’s biodiversity, especially its biological quality, in its listing on the registry for the category.¹⁵

2. The Darby Creeks provide habitat for populations of federal endangered *and* threatened species.

The watershed of the Big and Little Darby Creeks provides critical habitat for multiple federally threatened and endangered species,¹⁶ including at least four federally endangered and one federally threatened native freshwater mussel species.¹⁷ This fact alone qualifies the creeks as an Outstanding National Resource Waters, according to OAC § 3475-1-05(A)(10)(d), satisfying the definition of “national ecological significance.” Currently, Big Darby Creek is home to at least eight species that are on federal lists, including the four endangered mussels (northern riffleshell,

¹⁴ 16 USC § 1271.

¹⁵ See *Big & Little Darby Creeks, Ohio*, The National Wild and Scenic Rivers System, available at: <https://www.rivers.gov/rivers/big-darby.php>.

¹⁶ This section relies in part on the G. Thomas Watters surveys, The Ohio State University Museum of Biological Diversity data, Ohio EPA, ODOT and other data from mussel surveys of the Big Darby Creek watershed. See Milton B. Trautman, *The Fishes of Ohio*, Ohio State University Press 782 pp. (1981); G.T. Watters, *The Distribution and Relative Abundance of the Unionid Mollusks of the Big Darby Creek System in Ohio*, The Ohio State University 158 (1986); G.T. Watters, *1990 Survey of the Unionids of the Big Darby Creek System*, The Ohio State University 36 pp. (1990); G.T. Watters, *Unionidae of the Big Darby Creek System in Central Ohio, U.S.A.*, Malacological Review 99-107 (1996); G.T. Watters, *Freshwater Mussel Survey of Big Darby Creek*, The Ohio State University (1996); G.T. Watters, *Freshwater Mussel Survey of the Big Darby Creek System in Central Ohio*, Ohio Biological Survey 19-24 (1998), available at: http://www.ohiobiologicalsurvey.org/wp-content/themes/ohio/images/Watters_1_1998.pdf; Ohio EPA Fish Surveys (1979-Present); Tetzloff, *2000 Survey of the Freshwater Mussels of the Lower Big Darby Creek*, Ohio Department of Natural Resources 32 (2000); Communications with Dr. David H. Stansbery; Communications with Dr. Ted Cavender; Ohio Listed Species, Ohio Dept. of Natural Resources Div. of Wildlife (July 2020) <https://ohiodnr.gov/static/documents/wildlife/state-listed-species/Ohio's%20Listed%20Species%20pub356.pdf>.

¹⁷ See Table 2.

clubshell, snuffbox, and rayed bean), one endangered fish (Scioto madtom), two endangered mammals that rely on its riparian corridors for reproductive colonies (Indiana bat, northern long-eared bat), and one threatened mussel (rabbitsfoot). In addition, one Big Darby fish species is listed as federally monitored (paddlefish), and two freshwater mussels are currently under consideration for federal listing (round hickorynut and longsolid).¹⁸

Each federally listed mussel species has declined in recent decades within the watershed. Current protections, including designation of the creeks as Outstanding State Resource Waters, have not proven to be sufficient to meet the state's antidegradation responsibilities. The assessments of species in the watershed and associated ecosystem expand on the watershed's role in protecting nationally significant natural resources, and highlight the need for the both Big and Little Darby Creeks to be designated Outstanding National Resource Waters. All species assessments are available in the Appendix.

3. The Darby Creeks display a “unique combination of biological characteristics” in addition to those listed under OAC § 3475-1-05(A)(10)(b).

Ohio Administrative Code OAC § 3475-1-05(A)(10)(d) provides that national ecological significance may include “displaying some unique combination of biological characteristics” *in addition to* those listed OAC § 3475-1-05(A)(10)(b).¹⁹ In this section we will discuss how the Big Darby Creek watershed displays a unique combination of biological characteristics in addition to those listed in the State's Superior High Quality Waters definition.

¹⁸ *Listed Animals*, U.S. Fish and Wildlife Service, available at: <https://ecos.fws.gov/ecp0/reports/ad-hoc-species-report?kingdom=V&kingdom=I&status=E&status=T&status=EmE&status=EmT&status=EXPE&status=EXPN&status=SAE&status=SAT&mapstatus=3&fcrithab=on&fstatus=on&fspecrule=on&finvpop=on&fgroup=on&header=Listed+Animals>.

¹⁹ Supra FN 6.

First and foremost, Big and Little Darby Creeks are *unique* in that they provide critical habitat for an unprecedented number of Ohio endangered, threatened, and species of concern, as well as declining species. In fact, the Big and Little Darby Creeks repeatedly demonstrate the highest level of biotic integrity in the state according to Ohio EPA monitoring data.²⁰ IBI Fish Community Scores are a “multi-metric” classification system that ranks the ecological condition of streams. The Midwest Biodiversity Institute (MBI)’s October 2022 review of Ohio stream quality scores indicated the “endangered and threatened unionid mussel species” populations and “high quality fish assemblage data” distinguish Big and Little Darby Creeks “from other high quality streams in Ohio.”²¹ The mainstem of Little Darby Creek, followed by that of Big Darby Creek, has had the highest recorded mean IBI (Index of Biotic Integrity) scores among *all* Ohio streams. A refinement of the IBI, the CIBI,²² helps separate index scores at the highest levels of biological condition. Using this measure, data from the most recent Big and Little Darby Creek Ohio EPA survey *have the highest CIBI scores and the only mean scores > 90*. The October MBI document says it best: “It is clear that Big and Little Darby Creeks possess the most consistent high quality fish assemblages in Ohio in relation to the CIBI and intolerant species.”²³ The report also speaks to the dangers that the continued central Ohio urbanization might have if protections are not adequate.

²⁰ *Evidence Towards an Outstanding National Resource Water Antidegradation Tier for Big and Little Darby Creeks in Ohio: Avoiding Ecological Mediocrity in Ohio’s Best Streams and Rivers*, Midwest Biodiversity Fact Sheet, Midwest Biodiversity Institute, (October 10, 2022)

²¹ *Id.*

²² Rankin, E. T., *The calibration of the Ohio IBI and ICI using continuous scoring methods*, ILGARD, Voinovich School, Bldg 21, The Ridges, Ohio University, Athens, Ohio 45701 (2010).

²³ *Id.* at 2.

The Big and Little Darby Creeks exemplify “biological significance” in Ohio. Besides achieving the top IBI scores in Ohio, the watershed is home to thirty-nine species protected in the State of Ohio, including thirteen fish species, twenty-five mussel species, and one amphibian species, many of which are also on Ohio endangered and threatened lists.²⁴ The Ohio-listed species found in Big and Little Darby Creeks are cataloged in Tables 1-3 in the Appendix.

The largest group of state and federal listed species are freshwater mussels. According to Wendell R. Haag, a research fishery biologist for the U.S. Forest Service, “North America is home to the most diverse freshwater mussel fauna on Earth.”²⁵ But this community is in decline and at considerable risk: “finding a stream with a significant mussel fauna is an event to be remembered.”²⁶ Freshwater mussels are also the most imperiled group of animals in the country, with over 70% of species listed on various watch lists.²⁷ The Big Darby system is a critical refuge for numerous species. According to the late G. Thomas Watters, one of the foremost malacologists in Ohio, **“For its size, no other North American system has more reported species.”**²⁸ Of the eleven species of mussels listed as federally endangered or threatened in Ohio, five have been recorded in the Big and Little Darby Creeks.²⁹ Two of these, northern riffleshell and clubshell,

²⁴ *Ohio's Listed Species*, Ohio Dept. of Natural Resources, Div. of Wildlife, (July 2022), available at: https://ohiodnr.gov/static/documents/wildlife/state-listed-species/Pub+5356+Ohio+Listed+Species_R0722.pdf. See also OAC § 1501:31-23-02; OAC § 1501:31-23.

²⁵ Wendell R. Haag, *North American Freshwater Mussels: Natural History, Ecology, and Conservation*, U.S. Forest Service, Cambridge University Press, (2012), at 60, available at: https://www.srs.fs.usda.gov/pubs/books/2012/book_s_2012_haag_001.pdf

²⁶ *Id.* at 318.

²⁷ J.D. Williams, M.L. Warren Jr., K.S. Cummings, J. Harris and R.J. Neves. 1993. Conservation Status of Freshwater Mussels of The United States and Canada. September 1993. Fisheries 18(9):6-22. DOI: 10.1577/1548-8446(1993)018<0006:CSOFMO>2.0.CO;2

²⁸ Watters, G.T. 1994, *Unionidae of the Big Darby Creek system in central Ohio, USA*, Malacological Review 27: 99-107 (emphasis added).

²⁹ *Listed species believed to or known to occur in Ohio*, ECOS Environmental Conservation Online System, available at: <https://ecos.fws.gov/ecp/report/species-listings-by-state?stateAbbrev=OH&stateName=Ohio&statusCategory=Listed>. Accessed 12/5/2022.

were recorded as widely distributed and sometimes abundant in these streams' mainstems in the recent past.³⁰ Both these species likely have their last Ohio populations in the Big Darby system.

The following tables detail the biodiversity of Big and Little Darby Creeks. Importantly, Tables 1 - 4 (located in the Appendix) do not include every species recorded within the watershed, instead only specifically highlighting all species included on various state and federal lists.

To note an example of Big Darby's high quality habitat the Ohio EPA has emphasized how the Big Darby Creek watershed provides key habitat to the endangered spotted darter in a way few ecosystems can:

The state listed spotted darter (endangered) is highly intolerant to a wide range of disturbances and its presence is indicative of very high stream quality. Of the 48 instances statewide where the spotted darter has been collected by Ohio EPA since 1979, 40 (83%) have occurred in the Big Darby Creek basin. Historically, this species has been limited to only the very lowest reaches of Big Darby Creek, having been regularly recorded at State Route 104 (RM 3.2) since 1979. The 2001 survey recorded the spotted darter as far up Big Darby Creek as RM 25.7; however, occurrences still appeared relatively sporadic on a site-by-site basis (Figure 15). During the 2014 survey, the abundance of the spotted darter throughout the Big Darby Creek basin increased dramatically. They are now found as far upstream in Big Darby Creek as RM 34.2 and have even expanded their range as far as RM 8.2 into Little Darby Creek (Figure 15). These were the first spotted darter records by Ohio EPA in Little Darby Creek. In addition to the large adult individuals collected (above picture), other year classes were also recorded, with specimens as small as 3 cm collected.³¹

Moreover, Honick et al (2017) documented the expansion of the ranges of three darter species in the middle Scioto system, with Big Darby Creek serving as a historical refuge. In fact, the expansion of the spotted darter into new populations (nine new populations have been discovered since 1990, and several of these were in central Scioto streams and the Scioto River itself) was cited as the primary reason the USWFS declined to list spotted darter as federally threatened. At least two other uncommon fishes—the bluebreast darter and Tippecanoe darter—have seen similar expansions from Darby into the central Scioto system. Darby's role as refuge and source of

³⁰ Watters, G.T., M.A. Hoggarth & D.H. Stansbery, *The Freshwater Mussels of Ohio*, (2009).

³¹ *Id.* at 61.

expansions of the ranges of sensitive species is one “in addition to” that drives the need to designate the watershed Outstanding National Resource Water.

In addition to Ohio’s official listed species, the Ohio EPA maintains a list (included here as Table 5, located in the Appendix) of declining fish species consisting of “native species that have declined in distribution across Ohio based on collection records since 1978 compared to historical distributions of fish species.”³² Of the thirty-one species currently considered “declining” and listed in OAC § 3745-1-05, twenty have been recorded in the Darby Watershed, and many have substantial, thriving populations in the watershed. The number of sensitive and declining fish species residing in Big and Little Darby Creeks is outstanding, making the Darby Watershed a critical resource in protecting multiple species from ending up on watch lists in the state.³³

Table 5 (located in the Appendix) compares Ohio’s list of thirty-one declining fish species compared to the twenty species found in the Big Darby Creek Watershed (which occupies about 1.2% of the State of Ohio’s land area). The creeks’ role as a stronghold of declining fish is a leading reason why the Ohio EPA must classify them as Outstanding National Resource Waters.³⁴ Declining fish species “have similar properties to the threatened and endangered species, and will likely follow suit if conditions continue to decline in Ohio’s high quality waters.”³⁵ Figure 2 (located in the Appendix) shows how Big Darby Creek harbors a higher number of sensitive fish species than some other outstanding Midwestern streams in other states.³⁶

³² OAC § 3745-1-05 (A)(5).

³³ Table 5-2, OAC § 3745-1-05.

³⁴ *Id.*

³⁵ *Methods and Documentation used to Propose State resource water (SRW) and Superior High Quality Water (SHQW) Classifications for Ohio Water Quality Standards*, The Ohio EPA, (2002), available at: https://epa.ohio.gov/static/Portals/35/rules/SRW_SHQW_methods.pdf

³⁶ *Assessment of the Biological Assemblage Condition of Small Headwater Streams in Ohio Subject to the Proposed General Use Provisions of Ohio’s Water Quality Standards*, Midwest Biodiversity Institute, (2020), available at:

Figure 2: Ohio EPA Survey Data Plot for QHEI and Sensitive Fish in HUC-11 Watersheds³⁷

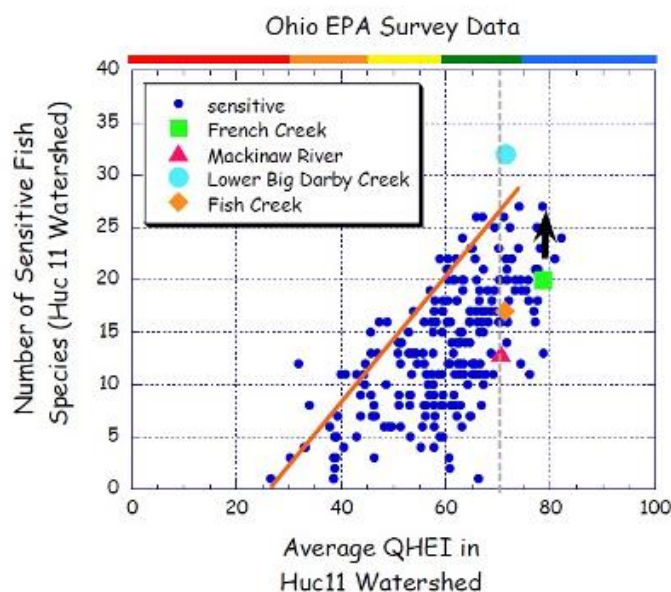


Figure 1 displays a plot of mean QHEI in Huc-11 watersheds and the cumulative number of sensitive fish species in each Huc-11 watershed. The orange line is a threshold “ceiling” drawn by eye. This graphic compares Big Darby Creek to outstanding streams in other states, including French Creek (NY), Mackinaw River (IL), and Fish Creek (IN/MI/OH).

But in addition to these metrics, Big Darby’s ecological importance is underscored by its unique mussel fauna, which is not explicitly measured by or factored into any state water quality standard. Big Darby’s nationally significant mussel fauna, by definition, exceeds the criteria in

<https://midwestbiodiversityinst.org/reports/assessment-of-the-biological-assemblage-condition-of-small-headwater-streams-in-ohio/MBI%20Assessment%20of%20Ohio%20Headwater%20Streams%20WQS%20FINAL%20FINAL%2020141009.pdf>

³⁷ *Assessment of the Biological Assemblage Condition of Small Headwater Streams in Ohio Subject to the Proposed General Use Provisions of Ohio’s Water Quality Standards*, MBI Technical Report. MBI/2011-6-6. Available at: <https://midwestbiodiversityinst.org/reports/assessment-of-the-biological-assemblage-condition-of-small-headwater-streams-in-ohio/MBI%20Assessment%20of%20Ohio%20Headwater%20Streams%20WQS%20FINAL%20FINAL%2020141009.pdf>

OAC § 3475-1-05(A)(10)(b), and qualifies the watershed for ONRW designation. Freshwater mussels are the most endangered fauna in the country, with an estimated 70 percent of species currently imperiled to various degrees.³⁸ Mussels are frequently described as the “canaries in the coal mine” in our freshwater streams, meaning they are the most sensitive animals and the first animals to show problems with water quality. This role as the most sensitive bioindicator in Big Darby Creek is evident in the fact that most fish and bug species are doing well, as demonstrated by IBI and ICI scores, but freshwater mussels continue to decline. This role qualifies as the “in addition to” required in OAC § 3745-1-05(A)(10)(d) to be designated as an Outstanding National Resource Water. Moreover, the OEPA does not factor mussels into its assessment of water quality in any meaningful or systematic way, so this decline in Darby’s mussel fauna has not been specifically monitored, assessed, or diagnosed by the agency.

Given the above factors, the Darby Watershed clearly displays “some unique combination of biological characteristics” *in addition to* characteristics described under OAC § 3475-1-05(A)(10)(b).

4. The Darby Creeks possess unique geological features that contribute to their national ecological significance (including to their unique combination of biological characteristics, above).

The high level of aquatic biodiversity in Big Darby Creek is due to many factors, but a leading factor is that Big Darby and its tributaries straddle several geobiological regions, resulting in an unusually rich cumulative aquatic biodiversity in the watershed. Overall, the watershed is in glaciated land in Central Ohio, but the watershed is not uniformly flat. In its headwaters the Darby streams flow out of the Bellefontaine Escarpment, a region of high elevation (the highest elevation

³⁸ *Freshwater Mollusks*, The Freshwater Mollusk Society, available at: <https://molluskconservation.org/MUSSELS/Conservation.html>

in the state) described as “an erosional remnant of Devonian limestone, dolomite, and shale.”³⁹ Downstream, Little Darby and portions of Big Darby flow through the Darby Plains, an extremely flat area dominated by prairie and oak savanna that is rare in Ohio (see below). Big Darby in its upper third nestles along the Powell end moraine, another geologic zone that influences aquatic communities. The lower Big Darby is characterized by steeper valleys and floodplains filled with deep deposits of glacial outwash. Finally, at its mouth Big Darby is fortuitously situated only 15 miles from the end of glaciation in Ohio, providing a connection to additional aquatic influences from the Appalachian foothills that will be described below.

As mentioned, in its headwaters both Big and Little Darby and some of their tributaries originate in the Bellefontaine Escarpment. These areas are home to cold water faunas, characterized by cold tolerant or cold dependent fishes. Most notably, an isolated colony of least brook lampreys, which are more typically found in colder streams in the Appalachian foothills, are present in this area. Other fish in this category include the brook stickleback and northern mottled sculpin.

Portions of the watershed (especially the Big Darby Creek upper and middle mainstem and Little Darby Creek and its tributaries) are situated in the largest easternmost extension of the Prairie Peninsula (see Figure 2).⁴⁰ This unusually flat landscape was characterized by extensive wetlands and unique fish communities not found in many Ohio streams (examples include blacknose shiner, lake and creek chubsuckers, least darter, golden shiner, hornyhead chub, central mudminnow, tadpole madtom).⁴¹ The prairie areas were characterized by deep grass and forb-derived soils that

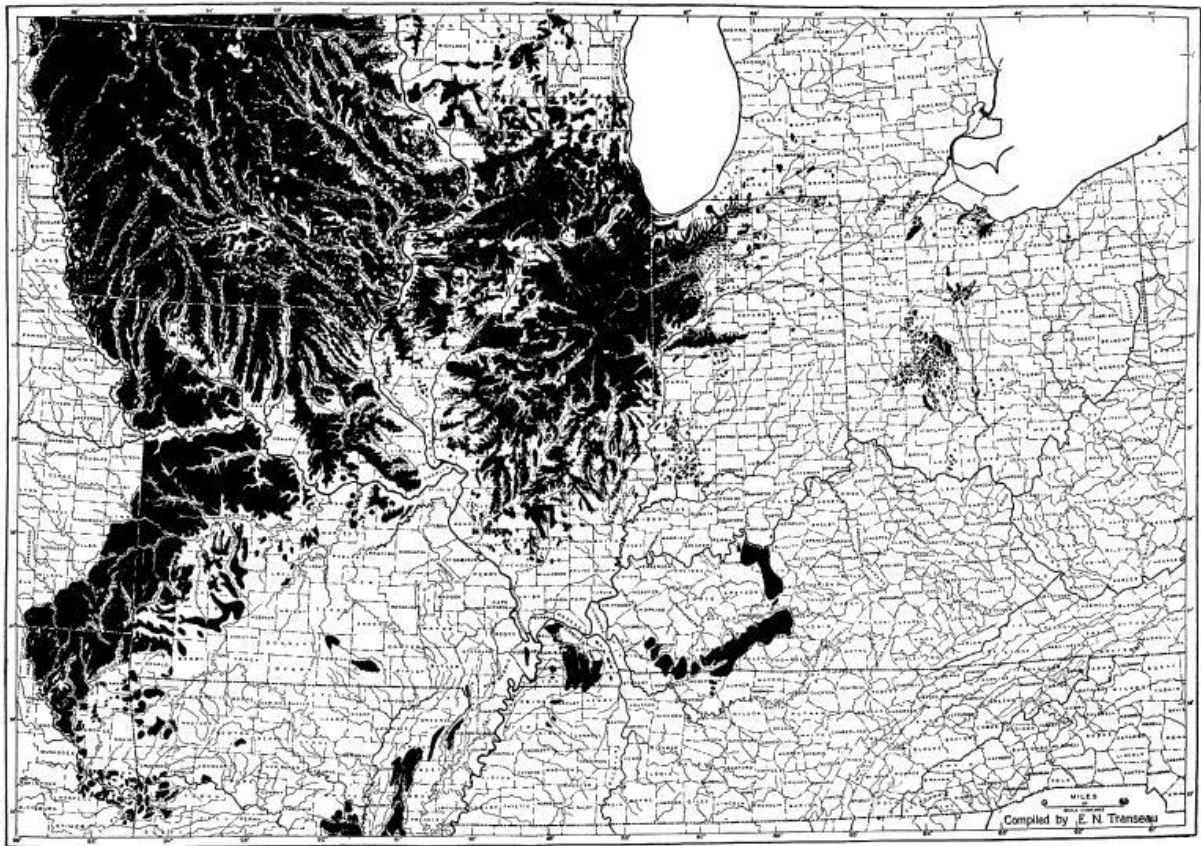
³⁹*Shaded Elevation Map of Ohio*, Ohio Department of Natural Resources, Division of Geological Survey, at 2.

⁴⁰ Roger C. Anderson, USDA Forest Service, GTR-SRS-161, available at: https://www.srs.fs.usda.gov/pubs/gtr/gtr_srs161/gtr_srs161_175.pdf

⁴¹ Applegate, et al, *Conservation and Restoration Plan for Ohio's Native Glacial Lake and Wetland Fishes*, 2019.

promote infiltration and retention of stormwater. The prairies themselves are largely gone, but remnants have been preserved and groups like ODNR and Metro Parks have been working to restore many of the rare or unusual plant assemblages that were once common in the area but rare in Ohio.

Figure 1: Map of the Prairie Peninsula ⁴²



In the mid and lower sections of Big Darby relatively high gradient and favorable stream substrate quality are defining factors. The Big Darby Creek headwaters are near the Bellefontaine

⁴² *Map of the Prairie Peninsula showing eastern extension of tallgrass prairie in the Big Darby Creek watershed, created by Edward Transeau, 1935.*

outlier at a relatively high elevation for Ohio, and enters the Scioto River several hundred feet lower in elevation, creating a relatively high gradient for an Ohio stream of this size. Groundwater-fed reaches related to glacial gravel deposits are found throughout this section of the stream, especially in areas like the Powell end moraine and in large gravel deposits in many of the valley, resulting in the creeks' cobbly and fine-grained substrates. Water percolating through the glacial deposits provide the Darby streams a plentiful supply of groundwater, which filtered of pollutants, regulated in temperature, and consistently flows even in times of drought. The glacial till is also rich in minerals and is quite alkaline, providing aquatic organisms with foundational materials for their life cycles, especially mussels which are known to thrive in mineral-rich, alkaline waters.

The gravel substrate itself helps determine stream habitat quality. The glacial deposits are suitable for lithophilic fish species such as sensitive darters and suckers, some species of which contribute to higher IBI scores. Ohio EPA's 2014 survey documented that habitat quality was "excellent throughout the middle and lower mainstem. The mean mainstem QHEI score (80.1) indicated generally excellent habitat quality throughout."⁴³ Gradient and substrate habitat factors, and others, are significantly positively correlated with IBI scores in the Big Darby Creek watershed and are related to the Big Darby Creek watershed geographic location:

The overwhelming presence of natural stream features (i.e., good riffle quality, floodplain and riparian quality, good amounts and types of instream cover) throughout Big Darby Creek are necessary to support high quality aquatic communities found in this system. A majority of streams in the Big Darby Creek study area have substantial ground water input because of the glacial history and setting of the watershed. Substantial groundwater connectivity can ameliorate effects from negative habitat attributes that may be present, especially in smaller headwater streams."⁴⁴

As mentioned, Big Darby's proximity to unglaciated Ohio has added to the availability of a number of fish species characteristic of Ohio's hilly southern portion. Examples include least

⁴³ *Biological and Water Quality Study of the Big Darby Creek Watershed 2014*, Ohio EPA, (2018), at 202.

⁴⁴ *Id.*

brook lamprey, northern brook lamprey, gravel chub, northern madtom, trout-perch, and sand darter. Many of these fish species are not present in other Central Ohio streams or in Ohio's glaciated streams in general.

Finally, the fact that Big Darby is situated in the middle section of the Scioto River drainage—as opposed to being further upstream—has made the watershed an important spawning location for a number of large river fish. Examples include many of the buffalo, carpsucker, and redhorse suckers, as well as spotted bass, sauger, freshwater drum, and slenderhead and dusky darters. Many of these species are rarely or never recorded for streams that are situation farther from the Ohio River or lower Scioto River.

To summarize, the Darby Creeks are nationally significant due to their uniquely rich and rare biodiversity. First, the national ecological significance of the Darby Creeks is well established. Second, the Darby Creeks provide habitat for populations of several federally endangered and threatened species. Third, the Darby Creeks display a unique combination of biological characteristics. And, fourth, the Darby Creeks possess unique geological features that influence their unique biological values. These Creeks have more than “a national significance,” which is the operative language in the Antidegradation Policy. Indeed, these Creeks are nationally ecologically significant, and deeply so. Because the Darby Creeks are nationally ecologically significant, ONRW is their only appropriate antidegradation tier category. *See* OAC § 3745-1-05(A)(10)(d).

C. Big and Little Darby Creeks Have National Recreational Significance.

The Ohio Administrative Code definition of ONRW provides that national recreational significance “may include designation in the national wild and scenic river system.” OAC § 3745-1-05(A)(10)(d). The National Park Service has recognized both Big Darby Creek and Little Darby Creek as National Scenic Rivers, based on their remarkable aquatic diversity and their importance

as refuges for rare and endangered species.⁴⁵ Through its designation as a State Scenic River, Ohio has recognized how Big Darby Creek is “highly valued for [its] aesthetic and recreational enjoyment, as well as the many ecological attributes [it] possess[es].”⁴⁶ In fact, in the same report in 2002, the Ohio EPA remarked that “this water is clearly a SRW at a minimum and should be considered for Outstanding National Resource Water.”⁴⁷

In 1993, the creeks’ classification as a National Scenic River occurred based primarily on its ecological significance and its recreational significance. The Rivers, Trails, and Conservation Programs office of the National Park Service conducted a Wild and Scenic River Evaluation and Environmental Assessment for the Big and Little Darby Creeks, finding that the creeks met the criteria for such designation.⁴⁸ In its assessment, the National Parks Service analyzed Upper Big Darby Creek (River Mile 71.8 to 39.7), Lower Big Darby Creek (River Mile 34.1 to the Scioto River), and Little Darby Creek (River Mile 20.5 to 0.8).⁴⁹ All three creek segments considered met both the “free-flowing” and “outstanding resources” criteria needed to be designated as a Scenic River. But in addition, the National Parks Service proposed the Upper Big Darby Creek segment receive the “recreational” designation, one of three possible classifications National Scenic Rivers can receive (recreational, scenic, or wild).⁵⁰ Because roads parallel this section of the creek 82% of the time, the creek is readily accessible to visitors.⁵¹ Thus, through its designation as a National

⁴⁵ *National Wild and Scenic Rivers System: Big and Little Darby Creeks, OH*, Department of Interior, Federal Register Volume 59, Number 66 (Wednesday, April 6, 1994).

⁴⁶ *Appendix 1: Ohio Streams and Rivers Antidegradation Tier Justification, SRW & SHQW*, The Ohio EPA, (2002), at 18, available at: https://epa.ohio.gov/static/Portals/35/rules/antideg_justif_appendix1.pdf

⁴⁷ *Id.*

⁴⁸ *Big and Little Darby Creeks, Ohio: Wild and Scenic River Evaluation and Environmental Assessment*, The National Parks Service, (May 1993).

⁴⁹ *Id.* at 3.

⁵⁰ *Id.* at 13.

⁵¹ *Id.*

Scenic River, Big Darby Creek received special recognition for its particular recreational capabilities.

Importantly, Big and Little Darby Creeks have national recreational significance that goes beyond their National Scenic River designation. Multiple parks, nature preserves, and beyond run along the two creeks, most prominently Battelle Darby Creek Metro Park and Prairie Oaks Metro Park, part of the Franklin County Metro Parks system. Battelle Darby Creek Metro Park features over 7,000 acres of forests, wetlands, and prairies, including 1,600 acres of restored wetlands and prairies, and a pasture for bison reintroduced into the region.⁵² Nearly three dozen miles of trails traverse Battelle Darby Creek Metro Park, and visitors can participate in many different activities, from canoeing and kayaking to hunting and fishing.

In 2021 and 2022, over 1.8 and 1.6 million visits, respectively, were made to Battelle Darby Creek and Prairie Oaks Metro Parks.⁵³ Prairie Oaks Metro Park, also borders Big Darby Creek further upstream from Battelle Darby Creek Metro Park, with over 2200 acres of forest and prairie habitat. The Ohio Department of Natural Resources maintains nearly 1600 acres of fee simple ownership and conservation easement acres in the watershed. The Nature Conservancy maintains 1200 acres of Big Darby watershed conservation land, mainly with the Big Darby Creek Headwaters Nature Preserve, encompassing 1000 acres of streams, wetlands and forests northwest of Marysville, Ohio.⁵⁴ The Appalachian Ohio Alliance owns over 1100 acres along Big Darby Creek, mostly in Pickaway County. Other organizations, such as the City of Columbus, Franklin County Soil and Water Conservation District and Prairie Township in Franklin County own conservation

⁵² See *Battelle Darby Creek*, available at: <https://www.metroparks.net/parks-and-trails/battelle-darby-creek/>

⁵³ Steve Studenmund, Metro Parks, personal communication, January 25, 2023

⁵⁴ *Big Darby Creek Headwaters Nature Preserve*, The Nature Conservancy, available at: <https://www.nature.org/en-us/get-involved/how-to-help/places-we-protect/big-darby-headwaters-nature-preserve/>

land along Hellbranch Run and tributaries. In total, at least 13,000 acres of conservation land are held by conservation organizations and state and local governments.

Big Darby Creek in Battelle Darby Metro Park is a popular area for canoeing and kayaking, including a busy canoe livery at Darbydale. Prairie Oaks Metro Park further upstream on Big Darby also provides paddling access and is popular with paddlers. Boating access is available near Plain City. These are considered among the most scenic and high natural quality paddling experiences in central Ohio.⁵⁵

III. THE BIG AND LITTLE DARBY CREEKS ARE NOT ADEQUATELY PROTECTED BY THEIR CURRENT ANTIDEGRADATION CATEGORY, EXISTING STORM-WATER CONTROL STANDARDS, OR BENEFICIAL USE DESIGNATIONS.

A. Ohio's Beneficial Use Definitions Are Insufficient to Protect the Darby's National Ecological Significance.

At present, the Big and Little Darby Creeks are not adequately protected by the beneficial use classification system. Big Darby Creek and Little Darby Creek and many of their tributaries are currently classified by the state of Ohio as Exceptional Warmwater Habitat and as an Outstanding State Resource Water. Nevertheless, long-term declines in some critical species, particularly federally listed freshwater mussels, show evidence of a long-term problem. These declines have been well documented, and evidence shows both a persistent gradual pattern of decline and at least one swift die-off of freshwater mussels.

Ohio has one of the most advanced water quality assessment systems of any state in the country. The state uses a system of biocriteria to categorize, assess, and set protections for most of its streams. The purpose of the system is to provide a check on regulations governing stresses from

⁵⁵ *A float down Big Darby Creek is the perfect pick-me-up*, Metro Parks, (2017), available at: <https://www.metro-parks.net/blog/float-big-darby-creek-perfect-pick/> Accessed January 25, 2023.

pollutant loading and improve stream quality to the point of achievement of use designations or better, and to protect a stream antidegradation status. If the aquatic life in a stream thrives under a given loading regime, then limits are judged adequate, i.e., in attainment, whereas if the aquatic life declines, or expected species are absent, pollutant loading limits are inadequate. Unfortunately, while this system has been very effective at achieving significant improvement in many streams across the state, evidence shows that it is not protective of a high quality streams like those in the Big Darby system. This is why the initial recommendation of Ohio EPA aquatic biologists in 2002 (see earlier reference) was to consider the ONRW tier for Big Darby Creek: the baseline biocriteria were not sufficient to protect Big Darby by themselves.

While the biocriteria set the baseline for aquatic life uses, the antidegradation tiers are designed to help protect quality above this baseline. The reasons are threefold. First, Ohio's biocriteria system does not specifically address or monitor specific sensitive species, such as state or federally listed species. For example, if a listed species declines or disappears from a stream, that stream can still meet its prescribed biocriteria scores and be determined to be in attainment of its use designation. Second, the state's biocriteria system uses three assessment tools: the Index of Biotic integrity (IBI), the Modified Index of wellbeing (MIwb) and the Invertebrate Community Index (ICI). These tools do not factor in a water body's use or assess native freshwater mussels. Third, this approach might not comprehensively and adequately address the combinations of multiple point and nonpoint sources—a likely cause of species losses, degradation, and nonattainment.

As a result of these shortcomings, Ohio's water quality standards have allowed many of the Big and Little Darby Creeks' rare and endangered species to decline, even as the mainstems of the creeks meet and exceed their water quality standards. Deficiencies in Ohio's Designated Use definitions and in the Darby stormwater permit—compounded by imminent substantial proposed

urban/suburban development in and adjacent to the Darby Watershed—only highlight the importance and the urgency of properly categorizing the Big and Little Darby Creeks’ antidegradation tier.

As early as the 1980s and 1990s, mussel surveys by G. Thomas Watters indicated declines over time in some of Darby’s freshwater mussel species.⁵⁶ In 2000, a survey of the lower portions of Big Darby Creek demonstrated significant mussel declines in that section of the river, and also showed shifts in the fauna toward more tolerant big river species.⁵⁷ The 2000 survey also found evidence that stormwater was a likely cause of mussel declines.⁵⁸ In 2014, as part of the Ohio EPA’s water quality assessment for an updated TMDL, the Department of Natural Resources commissioned a mussel survey, in recognition of the importance of this fauna to Darby’s overall health. The survey showed clear and widespread declines in mussel populations, as well as shifts in fauna makeup toward more common species.⁵⁹ Although the Ohio EPA declined to include the survey results in its technical document for an upcoming TMDL, the Nature Conservancy produced a report comparing results to the earlier Watters’ surveys.⁶⁰ The report included statements and quotes by Watters: “The decline seems to be ‘overall; it looks like diversity has declined.’ It’s ‘almost a system-wide thing;’ high water or techniques can’t explain all (of the decline).”⁶¹ Finally,

⁵⁶Watters, G. Thomas, *Freshwater Mussel Survey of Big Darby Creek*, The Ohio State University (1996).

⁵⁷Tetzloff, John, *2000 Survey of the Freshwater Mussels of the Lower Big Darby Creek*, Final Report to the Division of Wildlife, the Ohio Department of Natural Resources, at 18-19.

⁵⁸*Id.* at 10-19.

⁵⁹EnviroScience, *Freshwater Mussel Survey Darby System in Logan, Champaign, Madison, Fr Pickaway Counties to Monitor 40 Sites Previously Surveyed by Watters*, 2015.

⁶⁰Sasson, Anthony, *Comparison of EnviroScience 2014-15 Freshwater Mussel Surveys on the Big Darby System ...* ” to Watters’ 1986-1996 Surveys, prepared for The Nature Conservancy, 2015, unpublished.

⁶¹*Id.* at 1.

in 2016 an unexplained die-off of mussels resulted in the death of thousands of mussels and individuals of at least two federally endangered species “perish[ing] without warning or explanation.”⁶² Under present conditions, Big Darby’s most sensitive and endangered species are clearly heading in the wrong direction.

Present conditions are not expected to continue, as current and predicted central Ohio development pressure is rising. The Mid-Ohio Regional Planning Commission (MORPC) has projected the population in the Central Ohio region will grow rapidly between 2018 and 2050, with overall population increasing by at least 634,000 resulting in a need for at least 270,000 additional residential units.⁶³ Much of this new development is already occurring, and the Building Industry Association (BIA) projects that much of the growth will occur in the first decade of MORPC’s projection, at an average of 14,000 new residential units per year over that period.⁶⁴

Even with the present protections provided by Darby’s Outstanding State Water Resource designation and conditions in the Ohio EPA stormwater permit, the Big Darby watershed has not been and will not be immune to development pressure. In fact, the area is already a target for new development due to the relatively low land prices in the watershed. In recognition of this threat, in 2002 the OEPA put a moratorium on new development in the Franklin County portion of the watershed until a stakeholder group (the External Advisory Group) could reach consensus on protective measures, including comprehensive stormwater planning.⁶⁵

⁶² Marion Renault, *Freshwater Mussels are Dying-Which is the Likeliest Culprit?*, Wired, (April 2020) <https://www.wired.com/story/freshwater-mussels-are-dying-which-is-the-likeliest-culprit/>.

⁶³ Mid-Ohio Regional Planning Commission, 2018–2050 Population Growth Projections (nd), <https://www.morpc.org/wordpress/wp-content/uploads/2020/09/MORPC-POPULATION-PROJECTIONS.pdf>

⁶⁴ *Id.*

⁶⁵ *Water Quality Management Plan Scioto River Basin and Blacklick Creek*, Ohio Environmental Protection Agency, at 43, (2002).

In 2006, the Franklin County jurisdictions signed on to the historic Big Darby Accord, a land use plan that caps development in that portion of the watershed.⁶⁶ However, outside the Franklin County area, development in places such as West Jefferson, Plain City, and in the area along the US 33 and State Route 161 corridors in Union and Logan Counties, is proposed or progressing without adequate environmental planning demonstrating that rare and sensitive species would be protected.⁶⁷ In Logan, Madison and Union Counties, about \$170 million in sewer extensions and wastewater treatment plant loans are included in Ohio EPA's Program Management Plan for 2023.⁶⁸ This proposed development will potentially add thousands of acres of impervious surface and stormwater runoff in the near future. This pattern of rapid, unplanned and under-planned development puts the rare species and water quality of the Big and Little Darby Creeks at significant risk, and makes proper categorization of the Creeks all the more important and timely.

Residential and other development bring impervious surfaces and increased stormwater runoff, which add pollutants, and fundamentally alter thermal and flow regimes and in-stream habitat of waterways. This "hardening" of a watershed has well-researched impacts on water quality and biological performance at relatively low levels. The impacts extend to freshwater mussel faunas.⁶⁹ These impacts are described by the U.S. EPA:

Watershed modifications that increase the volume and change the timing of stormwater runoff may initiate substrate instability, increase bank erosion, and promote the siltation of downstream habitats. Strayer (1999) found mussels to be correlated closely with areas of hydraulic stability, more so than other habitat features such as depth and substrate size. While American cities and suburbs continue

⁶⁶ *Big Darby Accord Master Plan*, 2006; available at: <https://bigdarbyaccord.org/EDP-big-darby-website/media/BDA-documents/Big%20Darby%20Accord%20Master%20Plan/High%20Resolution/Big-Darby-Accord-complete-hires.pdf>

⁶⁷ *Id.*

⁶⁸ *2023 Program Management Plan*, Ohio EPA, available at: <https://epa.ohio.gov/static/Portals/29/documents/ofa/WPCLF-PMP-DRAFT.pdf>

⁶⁹ Stepenuck, K.F., Crunkilton, R.L., and L. Wang. (2002). *Impacts of urban land use on macroinvertebrate communities in southeastern Wisconsin streams*. *Journal of the American Water Resources Association* 38(4):1041-1051.

to expand, stable habitat will likely become increasingly rare to the detriment of freshwater mussel communities.⁷⁰

In addition, greater imperviousness can interrupt natural patterns of stormwater flow and infiltration, leading to flashier and more erosive flooding and lower groundwater recharge of streams. Typical stormwater management can unintentionally raise temperatures in a stream, lead to lower baseflow during drought, and reduce the natural filtering of stream contaminants, all of which can adversely affect mussels. Finally, stormwater runoff is a vector for the delivery of a host of pollutants, according to the US EPA, including⁷¹:

- Sediment
- Oil, grease and toxic chemicals from motor vehicles
- Pesticides and nutrients from lawns and gardens
- Viruses, bacteria and nutrients from pet waste and failing septic systems
- Road salts⁷²
- Heavy metals from roof shingles, motor vehicles and other sources
- Thermal pollution from impervious surfaces such as streets, rooftops and stormwater units

All of the listed pollutants negatively impact aquatic life, particularly mussels. Gillis et al (2017)⁷³ and others have cited urban stresses as key reasons for declines of mussels in streams.

Changes in flow regimes related to increases in stormwater runoff from both residential, commercial and agricultural land uses are already evident in the Big Darby watershed, and are

⁷⁰Grabarkiewicz, Jeffrey D. and Wayne S. Davis, *An Introduction to Freshwater Mussels as Biological Indicators*, U.S. Environmental Protection Agency, 2008, p. 18

⁷¹<https://www.epa.gov/nps/nonpoint-source-urban-areas>

⁷² Gillis found that chloride concentrations measured at mussel beds in Canada periodically reached acutely toxic levels for the mussel species tested. Gillis, P.L., *Assessing the toxicity of sodium chloride to the glochidia of freshwater mussels: Implications for salinization of surface waters*, Environ. Pollut. 159: 1702–1708. Available at: https://www.researchgate.net/publication/50831030_Assessing_the_Toxicity_of_Sodium_Chloride_to_the_Glochidia_of_Freshwater_Mussels_Implications_for_Salinization_of_Surface_Waters

⁷³Gillis, P.L., R. McInnis, J. Salerno, S.R. de Solla, M.R. Servos and, E.M. Leonard, *Freshwater mussels in an urban watershed: Impacts of anthropogenic inputs and habitat alterations on populations*, Science of the Total Environment 574: 671-619, (2017), available at: <https://www.sciencedirect.com/science/article/abs/pii/S0048969716320381>

already leading shifts in the mussel fauna, including declines in rare and federally endangered species.⁷⁴ These declines are clear evidence that current protections are not adequate.

While work needs to be done to determine the exact cause of ongoing declines in the mussel fauna in the Big Darby watershed, it is clear that current protections offered by its designation as Exceptional Warmwater Habitat and Outstanding State Resource Water has not been sufficient to avoid degradation of the watershed.

B. The Ohio EPA's Stormwater Permit for the Big Darby Watershed Is Inadequate to Protect the Creeks' Nationally Significant Character.

The statewide general permit includes two specific conditions in Appendix A Big Darby Creek Watershed (A.4 Riparian Setback Requirements, and A.6 Groundwater Recharge Requirement). While, generally speaking, these are appropriate types of conditions to include, their effectiveness has not been shown through comparison of biological data from stormwater-affected areas. Their adequacy for protection of rare and sensitive species has not been proven, such as through data analysis from Ohio EPA's extensive stream database. These permit requirements also can be avoided through mitigation that can be inappropriate and limited in effectiveness. The permit allows development at high levels of imperviousness that are well known to show lower biotic index scores based on Ohio EPA data. See the two following graphs, based on Ohio EPA stream data, that show rapid declines in stream fish biodiversity even at relatively low to modest levels of development.

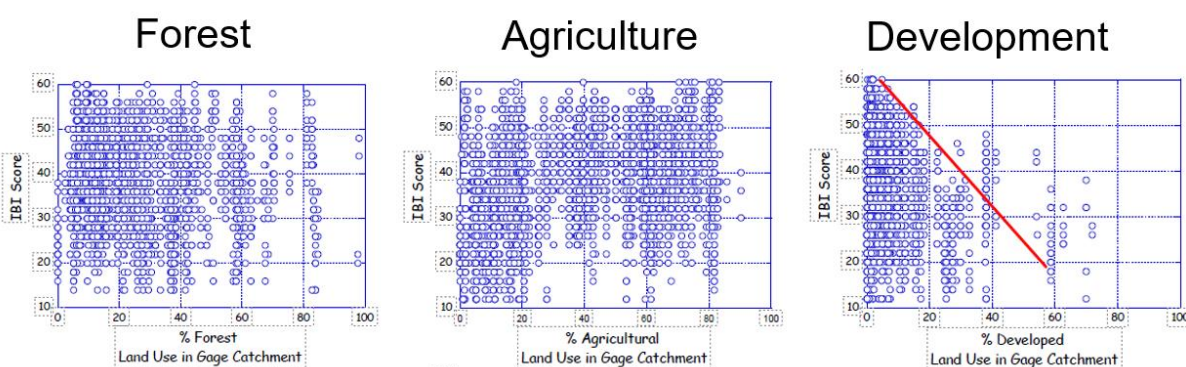
Concerns remain high that this permit for the Big Darby Creek watershed, while well-meaning, has not been shown to be sufficient to protect rare and sensitive species, including the

⁷⁴Tetzloff, John, *2000 Survey of the Freshwater Mussels of the Lower Big Darby Creek*, Final Report to the Division of Wildlife, the Ohio Department of Natural Resources, at 19.

species that help establish Big and Little Darby Creeks as Outstanding.⁷⁵ Data from developed sub-watershed areas affected predominantly by urban/developed land use must be compared to areas of lower levels of urban/developed land use to determine how much development/impervious surface and stormwater that species can tolerate and survive.

Figure 3⁷⁶

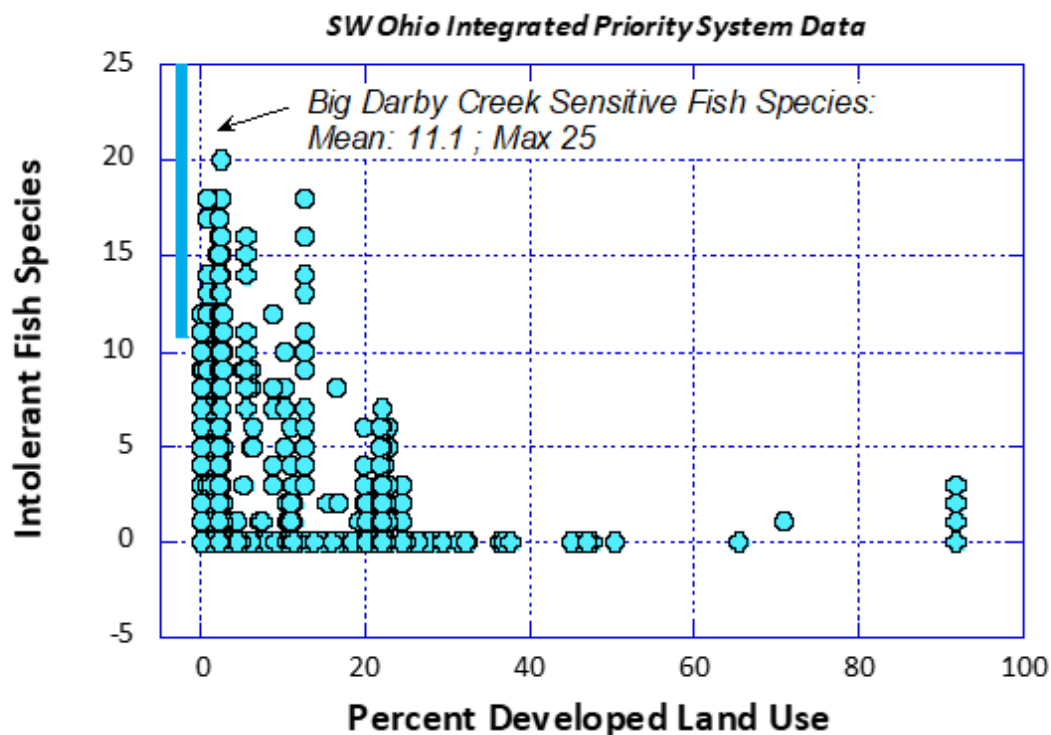
Comparison of agricultural and forested land use stream quality to that in developed (“urban”) areas



Additional points: Urban impact is cumulative/additive (not mitigated or “cancelled out” by natural area); decline is very likely after a few percent “development”; above graphs do not measure sensitive or “high quality” species.

⁷⁵ Appendix 1: Ohio Streams and Rivers Antidegradation Tier Justification, SRW & SHQW, Ohio EPA, (2002): available at: https://epa.ohio.gov/static/Portals/35/rules/antideg_justif_appendix1.pdf

⁷⁶ Graphs using Ohio EPA data comparing forest agricultural and development land uses and resultant stream fish scores, based on Ohio’s Index of Biotic Integrity (IBI) scores for fish. Note the failure of streams to reach the Exceptional Warmwater Habitat attainment level in the “Development” graph after a relatively low level of development. Plots of IBI vs forested land covers (left), agricultural land covers (middle) and developed land covers (right). Land cover represents percent in upstream catchments at gage locations; biological data represents any data on the same river within 10 miles of the gage. Line on developed land plot approximates a threshold line drawn by eye. Rare and sensitive species are not specifically addressed in this graph. *The Development of a Framework for Managing Flows under the Great Lakes Compact: Issues, Concepts, and Tool Development*, MBI 2009 Technical Report MBI/2009-1.

Figure 4⁷⁷

⁷⁷ Graph showing MBI-collected “Intolerant Fish Species” data collected by MBI in southwest Ohio (Cincinnati area) (green circles) compared to the number of Intolerant Fish Species known in the Big Darby Creek watershed. This compares the range of Big Darby Creek numbers of Intolerant Fish Species to the number of individual sites in southwest Ohio (site land use ranged from urban to exurban/rural). *Integrated Prioritization System (IPS) Documentation and Atlas of Biological Stressor Relationships for Southwest Ohio*, Midwest Biodiversity Institute (MBI), (2015), Technical Report MBI/2015-12-15, available at: http://www.msdbg.org/initiatives/water_quality/index.html.

CONCLUSION

The Ohio EPA has an obligation, under the Clean Water Act, “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” 33 USC § 1251(a). The Big and Little Darby Creeks have national ecological significance and national recreational significance. If the agency fails to designate Big and Little Darby Creeks as Outstanding National Resource Waters, it fundamentally misses the mark in its core mission under federal law. The Outstanding National Resource Water designation was designed precisely for waters like these two creeks. Neighboring states have taken the necessary steps to protect their best streams and rivers; it is well past time that Ohio took similar action, and Big and Little Darby Creek represent the best of what Ohio, the Midwest, and the United States has to offer.

By classifying these two creeks as Outstanding National Resource Waters, Ohio EPA will play a role in facilitating how Central Ohio should develop in its western regions. Development will happen, but it must happen sustainably in relationship with the surrounding environment and ecosystems. The ONRW designation will provide additional protections necessary to help facilitate that goal.

The organizations signing this technical comment look forward to the Ohio EPA’s response. Specifically, we hope the Ohio EPA director will understand the weight of evidence backing up the necessity for categorizing Big and Little Darby Creeks as Outstanding National Resource Waters by issuing “public notice [of] the director's intent to categorize them to the appropriate category upon consideration of public comment.” OAC § 3745-1-05(E)(2). The agency must take action now to protect Big and Little Darby Creeks, before it is too late. If appropriate protections are not put in place, we will likely lose one of the most biodiverse stream systems in Ohio, the Midwest, the United States, and the world.

Respectfully submitted,

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APPENDIX

Northern Riffleshell.

The northern riffleshell (*Epioblasma rangiana*) was once widespread throughout the Ohio River and Lake Erie basins. Today, it is limited to perhaps half a dozen scattered and small populations globally, with the exception of one sizable population in the Allegheny system in Pennsylvania.⁷⁸ It was added to the federal endangered species list in 1993. In Ohio, it is now likely limited to Big Darby Creek. Within Big Darby, the species was once widespread and locally abundant as recently as the 1970s, but thereafter it began disappearing throughout the stream.⁷⁹ The last living individual was observed in 2000.⁸⁰ However, an opportunity arose to augment this dwindling population in 2008 when a bridge project in the Allegheny River in Pennsylvania required the relocation of thousands of northern riffleshells. The U.S. Fish and Wildlife Service, the Ohio Department of Natural Resources, the Ohio State University, and the Columbus and Franklin County Metro Parks cooperated on a project to relocate thousands of individuals in the middle sections of Big Darby Creek on park property.⁸¹ These have shown good survival, and many were located in the 2017 survey efforts by the late Dr. Watters of the Ohio State University. However, reproduction has not yet been observed, suggesting that mussel reproduction may be a special water quality

⁷⁸Northern Riffleshell 5-year Review, U.S. Fish and Wildlife Service, 2008.

⁷⁹G.T. Watters, *Freshwater Mussel Survey of Big Darby Creek*, The Ohio State University (1996). See also Watters, G.T., M.A. Hoggarth and D.H. Stansbery, *The Freshwater Mussels of Ohio*. The Ohio State University Press, Columbus (2009).

⁸⁰Tetzloff, John, *2000 Survey of the Freshwater Mussels of the Lower Big Darby Creek*, Final Report to the Division of Wildlife, the Ohio Department of Natural Resources, p. 1.

⁸¹Watters et al. 2009. *Recovering the Riffleshell: The propagation and translocation of a federally endangered freshwater mussel to Ohio*, The NABS 57th Annual Meeting (16-23 May, 2009). Available at: <https://nabs.confex.com/nabs/2009/techprogram/P4354.HTM>

issue in the creek. This augmented population is critical for the global continuance of this extremely imperiled species. Three northern riffleshell individuals were recorded in the 2014-15 EnviroScience survey.⁸²



This photo shows part of the over 800 northern riffleshell mussels that Dr. David Stansbery of the Ohio State University collected at River Mile 19 of Big Darby Creek in August 1962. This illustrates the abundance of the species in Big Darby during that period of time.

Clubshell.

Like the northern riffleshell, the clubshell (*Pleurobema clava*) was once widely spread throughout the Ohio River and Lake Erie drainage systems. And like the northern riffleshell, the clubshell has seen dramatic declines throughout its range, resulting in federal listing in 1993. In a

⁸² *Freshwater Mussel Survey Darby System in Logan, Champaign, Madison, Fr Pickaway Counties to Monitor 40 Sites Previously Surveyed by Watters, EnviroScience, at 49 (2015).*

2008 US Fish and Wildlife reassessment, it was determined that there were about eight populations showing recent recruitment nationwide, which included both Big and Little Darby Creek.⁸³ It is likely that the Darby populations are the last in Ohio. The Little Darby population is sizable, extending over 20 miles and into at least one tributary, Treacle Creek. Recruitment is ongoing and the clubshell is relatively common in this stream. The Big Darby population is far more precarious. Watters did not find it in any of his surveys in the 1980s and 90s and it was feared that the species had been extirpated. A single aged specimen was finally located in 2000 in Prairie Oaks Metro Park,⁸⁴ and in 2006 Hoggarth made the surprising discovery of a juvenile specimen in Plain City.⁸⁵ Along with the northern riffleshell, in 2008 through 2015 thousands of individuals were translocated from the Allegheny River into Metro Parks sections of Big Darby to augment the population.⁸⁶ Many of these transplants have survived and it is hoped that recruitment will occur. Given the small number of viable populations across its range, the Big and Little Darby populations are critical to the global survival of this imperiled species. Seven clubshell were recorded in the 2014-15 EnviroScience report.⁸⁷

Snuffbox.

⁸³ *Clubshell (Pleurobema clava) 5-Year Review: Summary and Evaluation*, U.S. Fish and Wildlife Service, 2008.

⁸⁴ John Tetzloff and David Stansbery, personal observation.

⁸⁵ Hoggarth, M.A. *Report on a mussel survey and relocation for UNI 42-1.49 (PID 13500)*, Big Darby Creek. For TransSystems Corporation, Cleveland, Ohio, (2006).

⁸⁶ “They will be placed in the creek at Battelle Darby Creek Metro Park in clusters to give them a better chance to reproduce, said John Navarro, a program administrator with the Ohio Division of Wildlife.” *See Darby’s mussel population to grow*, The Columbus Dispatch, (2008) available at: <https://www.dispatch.com/story/news/2008/06/24/darby-s-mussel-population-to/24131148007/>

⁸⁷ Supra FN 82.

Like the northern riffleshell, the snuffbox mussel (*Epioblasma triquetra*) is a member of a highly sensitive genus of mollusks in which all species are either federally endangered or extinct. The entire genus is dependent on high quality water and undisturbed habitat. The snuffbox has a wider range than the northern riffleshell and clubshell, extending into the upper Mississippi and Tennessee and Cumberland systems. Nevertheless, it has declined precipitously and its current range is a shadow of its former area, and in 2012 it became the final member of its genus to garner federal endangered species status. In Ohio, it is still present in 10 or fewer streams, and in every case it exists in low numbers.⁸⁸ In the Big Darby system, the snuffbox was fairly common and widespread until about the 1970s. As recently as Watters's first systemwide survey in 1986 he did not include the species in a list of endangered, threatened or special interest species, and he found the species at over half of his 46 Big Darby survey sites. A decade later, in his last survey, he found the species at only five locations. Since 2000, the species continues to show up in very low numbers, mostly from Metro Parks areas of the stream (i.e. below Plain City to Harrisburg).⁸⁹ The snuffbox has become extremely scarce in Little Darby. It is clear that this species is slowly but surely declining throughout the watershed and it is critically important that water quality be improved to save the species. This species was only recorded once in the 2014-15 EnviroScience survey.⁹⁰

Rayed bean.

The rayed bean (*Villosa fabalis*) was formerly widespread but sporadically distributed in the Lake Erie, Ohio, and Tennessee River systems. In 2012 it was placed on the federal endangered

⁸⁸Watters, G.T., M.A. Hoggarth & D.H. Stansbery, *The Freshwater Mussels of Ohio*, (2009), p. 224-26.

⁸⁹ John Tetzloff, Jeff Gordon, Mac Albin, Charles Staudt, personal observations.

⁹⁰ Supra FN 82.

species list due to drastic declines in range and numbers. Within Ohio, the species has also declined precipitously and it is now on the state endangered species list. Recent data suggest it has seven or eight small to moderate-sized isolated populations in Ohio.⁹¹ In Central Ohio, the rayed bean was once widespread in small to medium sized creeks in the central Scioto River basin. Within the Darby system, the rayed bean was widespread throughout the Big Darby mainstem and a few weathered shells indicate it was also present in Little Darby Creek). By the mid-1980s, a complete survey of the watershed by G. Thomas Watters found only a few fresh dead shells in Big Darby (at Plain City and in Battelle-Darby Metro Park) and none in Little Darby. In two subsequent surveys by Watters in 1990 and 1996, the species was not found at all. Fortunately, in a 2006 report to the Ohio Department of Transportation, Hoggarth reported living specimens at Watters' upstream site at Plain City near US Route 42.⁹² This species was not recorded in the 2014-15 EnviroScience survey.⁹³

Rabbitsfoot.

Historically, the rabbitsfoot mussel (*Theliderma cylindrica*) was widespread in the Mississippi, Ohio, and Tennessee/Cumberland systems. Declines across its range led to it being added to the federal threatened species list in 2013. Declines in Ohio have been even more pronounced, and today it is present in perhaps five or six locations.⁹⁴ In Big Darby, it appears to be limited to a very small range between Battelle-Darby and Prairie Oaks Metro parks, where it has been observed in

⁹¹Watters, G.T., M.A. Hoggarth & D.H. Stansbery, *The Freshwater Mussels of Ohio*, (2009), p. 328-29.

⁹² Hoggarth, M.A. *Report on a mussel survey and relocation for UNI 42-1.49* (PID 13500), Big Darby Creek. For TransSystems Corporation, Cleveland, Ohio, (2006).

⁹³ Supra FN 82.

⁹⁴Watters, G.T., M.A. Hoggarth & D.H. Stansbery, *The Freshwater Mussels of Ohio*, (2009), p. 268-9.

the last decade.⁹⁵ A larger population exists in the same 20-mile stretch of Little Darby as the clubshell, although it is far less common than that species, and evidence suggests that it is in decline there.⁹⁶ This range has been identified as critical habitat for the species by the USFWS.⁹⁷ This species, like so many endangered mussels, has declined to a precarious state in the Big Darby system, and immediate action is needed to reverse this trend. Seven individuals of this species were recorded in the critical habitat area of the upper Little Darby in the 2015 EnviroScience survey.⁹⁸

Round hickorynut.

The round hickorynut mussel (*Obovaria subrotunda*) was approved for federal listing as a threatened species in 2020.⁹⁹ According to a recent assessment by the USFWS, “precipitous declines and extirpations of Round Hickorynut populations have been documented in the Great Lakes, Ohio, Cumberland, Tennessee, and Lower Mississippi basins.”¹⁰⁰ The assessment identifies 65 extant populations remaining nationwide, only 20 of which are in moderately stable condition. For comparison, the assessment estimates that in Ohio alone an estimated 59 populations have disappeared in recent decades.¹⁰¹ Within the two creeks, the round hickorynut was once a common element of the fauna from its mouth to the confluence with Little Darby Creek, judging by OSUM

⁹⁵ John Tetzloff, personal observation.

⁹⁶ EnviroScience, *Freshwater Mussel Survey Darby System in Logan, Champaign, Madison, Fr Pickaway Counties to Monitor 40 Sites Previously Surveyed by Watters*, 2015, p.49

⁹⁷ Federal Register Vol. 80, No. 83, April 30, 2015, p. 24693.

⁹⁸ Supra FN 82.

⁹⁹ Federal Register / Vol. 85, No. 189 / Tuesday, September 29, 2020 / Proposed Rules, p. 1.

¹⁰⁰ *Species Status Assessment Report for the Round Hickorynut Mussel (Obovaria subrotunda)*, Version 1.0, U.S. Fish and Wildlife Service, Asheville Ecological Services Field Office, Asheville, North Carolina, at 120, (2009).

¹⁰¹ *Id.*

records and the first surveys by Watters. In the last two decades it has become rare, with little evidence of recruitment.¹⁰² The 2015 EnviroScience survey found only one individual.¹⁰³ Like other globally rare mussels, the survival of the Big Darby population is critical for the long-term future of this species.

Longsolid.

Like the round hickorynut, the longsolid (*Fusconaia subrotunda*) was proposed for listing as a federally threatened species in 2020.¹⁰⁴ The longsolid was once widespread throughout the Ohio, Tennessee, and Cumberland systems, but has lost an estimated 98 out of 162 populations.¹⁰⁵ In the state of Ohio the mussel has fared even worse, losing 22 populations, and it currently does not have a sizable, stable population. In Big Darby, the species is known from a subfossil specimen in the lower reaches of the stream, and it might no longer occur in the system. However, the longsolid was once one of the more common species in the Scioto River, and given that stream's recent improvement it is not unreasonable to think that the longsolid could one day repopulate Big Darby Creek.

Scioto madtom.

¹⁰² Tetzloff, John, *Survey of the Freshwater Mussels of the Lower Big Darby Creek, Final Report to the Division of Wildlife, the Ohio Department of Natural Resources*, at 28 (2000). See also Supra FN 82.

¹⁰³ Supra FN 82.

¹⁰⁴ Federal Register Vol. 85, No. 189, September 29, 2020. Proposed Rules, p. 61384. Available at: <https://www.fws.gov/project/decision-listing-longsolid-fusconaia-subrotunda-freshwater-mussel>

¹⁰⁵ *Draft Species Status Assessment Report for the Longsolid Mussel (Fusconaia subrotunda), Version 1.X3.*, U.S. Fish and Wildlife Service (Service). Asheville Ecological Services Field Office, Asheville, North Carolina, at 35 (2018).

The federally endangered Scioto madtom (*Noturus trautmani*) is Big Darby's most enigmatic species. First detected in 1943 at a single location in the lower mainstem, this small fish in the catfish family was last seen in 1957. It was added to the federal endangered species list in 1975, and it is currently under review and has been proposed for removal as an endangered species and possibly be declared extinct by the U.S. Fish and Wildlife Service.¹⁰⁶ The Scioto madtom is unusual, if not unique, in that it is the only endemic species with a range limited to the glaciated region of North America.

Indiana bat.

The Indiana bat (*Myotis sodalis*) is an eastern U.S. tree roosting species that is federally listed as endangered by the U.S. Fish and Wildlife Service. Since the 2019 winter census:

The current population has declined by half compared to when the species was listed as endangered. Threats to the species include human disturbance of hibernating bats, commercialization of caves where the bats hibernate, loss of summer habitat, pesticides and other contaminants, and most recently, the disease white-nose syndrome. The range-wide population has declined by 19% since 2007, when white-nose syndrome first arrived in North America.¹⁰⁷

The Indiana bat has been recorded since the late 2000s along Big Darby Creek in Pickaway County, with roosts largely clustered in riparian woodland habitat along the Big Darby.¹⁰⁸ It also has been recorded in Battelle-Darby Creek Metro Park along Big Darby.¹⁰⁹ The Indiana bat is

¹⁰⁶ *Proposed rule: Endangered and Threatened Wildlife and Plants; Removal of 23 Extinct Species From the Lists of Endangered and Threatened Wildlife and Plants*, 50 CFR Part 17, Fish and Wildlife Service, Department of Interior, available at: <https://www.govinfo.gov/content/pkg/FR-2021-09-30/pdf/2021-21219.pdf#page=1>.

¹⁰⁷ *Indiana Bat*, U.S. Fish & Wildlife Service, available at: <https://www.fws.gov/species/indiana-bat-myotis-sodalis>.

¹⁰⁸ Kniewski, A.B. and S.D. Gehrt, *Summer Ecology of Indiana Bats in Ohio*, Ohio DOT Research Executive Summary, (2011), available at: <https://rosap.nrl.bts.gov/view/dot/21038>.

¹⁰⁹ Morrow, C., *Endangered bat found lurking in Metro Park*, Columbus Dispatch, (August 29, 2009), available at: <https://www.dispatch.com/story/news/2007/07/28/endangered-bat-found-lurking-in/24220812007/>. See also *Finding new species*, MetroParks Parkscope, Winter 2008.

strictly insectivorous, and in some populations it depends heavily on aquatic insects, especially adult caddisflies.¹¹⁰ For this reason, the survival of the Indiana bat is greatly advanced by the persistence of healthy, fecund aquatic ecosystems, particularly systems with high ICI scores such as Big Darby Creek.

Northern long-eared bat.

Northern long-eared bat (*Myotis septentrionalis*) also inhabits wooded areas along and near Big Darby Creek at Battelle-Darby Metro Park¹¹¹. The species is listed as endangered by the State of Ohio¹¹² and US Fish and Wildlife Service. “During the summer and portions of the fall and spring, northern long-eared bats may be found roosting singly or in colonies underneath bark, in cavities or in crevices of both live trees and snags, or dead trees.”¹¹³ Like the Indiana bat, the northern long-eared bat preys on aquatic insects, especially caddisflies.¹¹⁴

Little brown bat.

The little brown bat (*Myotis lucifugus*) has a widespread range in North America and was once very abundant, but has experienced severe declines particularly in eastern North America due to white-nose syndrome, a novel fungal disease. It has been recorded along Big Darby Creek in Battelle Darby Metro Park.¹¹⁵ Foraging habitat requirements are generalized, occurring primarily

¹¹⁰ Supra FN 107.

¹¹¹ Columbus and Franklin County Metro Parks. 2020 BDC Species List.

¹¹² OAC § 1501:31-23-01.

¹¹³ *Northern long-eared bat*, U.S. Fish & Wildlife Service, available at: <https://www.fws.gov/species/northern-long-eared-bat-myotis-septentrionalis>. Accessed January 25, 2023.

¹¹⁴ *Id.*

¹¹⁵ 2020 BDC Species List, Columbus and Franklin County Metro Parks.

over streams and other bodies of water. Like the Indiana bat, the little brown bat utilizes aquatic insects in its diet, especially caddisflies and midges.¹¹⁶ Listed as endangered by the State of Ohio,¹¹⁷ the U.S. Fish and Wildlife Service is currently reviewing the status of the little brown bat.¹¹⁸

TABLE 1: Listed fish recorded in the Big Darby Creek Watershed¹¹⁹

Fish - 13 Species		
Common Name	Scientific Name	Status
American eel	<i>Anguilla rostrata</i>	OT
Blacknose shiner	<i>Notropis heterolepis</i>	OE
Goldeye	<i>Hiodon alosoides</i>	OE
Lake chubsucker	<i>Erimyzon sucetta</i>	OT
Least darter	<i>Etheostoma microperca</i>	OSC
Muskellunge	<i>Esox masquinongy</i>	OSC
Northern brook lamprey	<i>Ichthyomyzon fossor</i>	OE
Northern madtom	<i>Noturus stigmosus</i>	OE
Paddlefish	<i>Polyodon spathula</i>	OT, M
Scioto madtom	<i>Noturus trautmani</i>	OE, FE, EX*
Spotted darter	<i>Etheostoma maculatum</i>	OE, M

¹¹⁶ *Little brown bat*, U.S. Fish & Wildlife Service, available at: <https://www.fws.gov/species/little-brown-bat-myotis-lucifugus>. Accessed January 25, 2023.

¹¹⁷ OAC §1501:31-23-01.

¹¹⁸ Supra FN 116.

¹¹⁹ OE—Ohio endangered; OT—Ohio threatened; OSC—Ohio Species of Concern; FE—Federal endangered; FT—Federal threatened; M—federally monitored; EX—proposed extinct

Tippecanoe darter	<i>Etheostoma tippecanoe</i>	OSC
Western creek chubsucker	<i>Erimyzon clariformis</i>	OSC

TABLE 2: Listed mussels recorded in the Big Darby Creek Watershed

Mussels - 25 Species		
Common Name	Scientific Name	Status
Black sandshell	<i>Ligumia recta</i>	OSC
Clubshell	<i>Pleurobema clava</i>	OE, FE
Creek heelsplitter	<i>Lasmigona compressa</i>	OSC
Deertoe	<i>Truncilla truncata</i>	OSC
Elephant-ear	<i>Elliptio crassidens crassidens</i>	OE
Elktoe	<i>Alasmodonta marginata</i>	OSC
Fawnsfoot	<i>Truncilla donaciformis</i>	OSC
Kidneyshell	<i>Ptychobranhus fasciolaris</i>	OSC
Longsolid	<i>Fusconaia maculata</i>	OE
Northern riffleshell	<i>Epioblasma rangiana</i>	OE, FE
Ohio pigtoe	<i>Pleurobema cordatum</i>	OE
Pocketbook	<i>Lampsilis ovata</i>	OE
Pondhorn	<i>Unimerus tetralasmus</i>	OT
Purple wartyback	<i>Cyclonaias tuberculata</i>	OSC
Rabbitsfoot	<i>Theliderma cylindrica</i>	OE, FT
Rainbow	<i>Villosa iris</i>	OSC
Rayed bean	<i>Villosa fabalis</i>	OE, FE

Round hickorynut	<i>Obovaria subrotunda</i>	OT
Round pigtoe	<i>Pleurobema sintoxia</i>	OSC
Salamander mussel	<i>Simpsonaias ambigua</i>	OT
Slippershell mussel	<i>Alasmidonta viridis</i>	OT
Snuffbox	<i>Epioblasma triquetra</i>	OE, FE
Threehorn wartyback	<i>Obliquaria reflexa</i>	OSC
Washboard	<i>Megaloniais nervosa</i>	OE
Wavy-rayed lampmussel	<i>Lampsilis fasciola</i>	OSC

TABLE 3: Listed amphibians recorded in the Big Darby Creek Watershed

Amphibians - 1 Species		
Common Name	Scientific Name	Status
Eastern hellbender	<i>Cryptobranchus alleganiensis alleganiensis</i>	OE

TABLE 4: Formerly listed species recorded in the Big Darby Creek Watershed

Common name	Scientific name	Former status
Bluebreast darter	<i>Etheostoma camurum</i>	OT; ODNR removed this species from list as of August 2012.
Eastern sand darter	<i>Ammocrypta pellucida</i>	OSC; ODNR removed this species from list as of July 1, 2022.
River redhorse	<i>Moxostoma carinatum</i>	OSC; ODNR removed this species from list as of July 1,

		2022.
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TABLE 5: OAC § 3745-1-05 Antidegradation, Table 5-2. Declining fish species.

Common name	Latin name	Comment	Recorded in Big Darby Creek Watershed
Bigeye chub	<i>Hybopsis amblops</i>		X
Bigeye shiner	<i>Notropis boops</i>		
Blacknose shiner	<i>Notropis heterolepis</i>		X
Bluebreast darter	<i>Etheostoma camurum</i>		X
Brindled madtom	<i>Noturus miurus</i>		X
Brook trout	<i>Salvelinus fontinalis</i>	Natives only	
Creek chubsucker	<i>Erimyzon oblongus</i>		X
Eastern sand darter	<i>Ammocrypta pellucida</i>		X
Goldeye	<i>Hiodon alosoides</i>		X
Hornyhead chub	<i>Nocomis biguttatus</i>		X
Lake chubsucker	<i>Erimyzon sucetta</i>		X
Least brook lamprey	<i>Lampetra aepyptera</i>		X
Least darter	<i>Etheostoma microperca</i>		X
Mimic shiner	<i>Notropis volucellus</i>		
Mooneye	<i>Hiodon tergisus</i>	Lake Erie drainage basin	
Mountain madtom	<i>Noturus eleutherus</i>		
Muskellunge	<i>Esox masquinongy</i>	Natives only	X
Northern brook lamprey	<i>Ichthyomyzon fossor</i>		X
Northern madtom	<i>Noturus stigmosus</i>		X
Popeye shiner	<i>Notropis ariommus</i>		

Pugnose minnow	<i>Opsopoeodus emiliae</i>		
Redside dace	<i>Clinostomus elongatus</i>		
River chub	<i>Nocomis micropogon</i>		X
River darter	<i>Percina schumardi</i>	Lake Erie drainage basin	
Rosyface shiner	<i>Notropis rubellus</i>		X
Silver lamprey	<i>Ichthyomyzon unicuspis</i>		X
Southern redbelly dace	<i>Phoxinus erythrogaster</i>		X
Streamline chub	<i>Erimystax dissimilis</i>		X
Tonguetied minnow	<i>Exoglossum laurae</i>		
Variegate darter	<i>Etheostoma variatum</i>		X
Western banded killifish	<i>Fundulus diaphanous menona</i>		

Supplemental Comments in support of ONRW status for Big and Little Darby Creeks

These comments supplement those included in the January 31, 2023, comments from Chris Tavenor of the OEC. They are provided to provide additional information on the Big and Little Darby Creeks' fish species diversity and richness compared to other streams in Ohio, underscoring the appropriateness of categorizing the Big and Little Darby Creeks (the mainstems, from headwaters to their confluence with the Scioto River) as Outstanding National Resource Waters (ONRW) under OAC § 3475-1-05(E)(2). We provide them as additional evidence of the appropriateness of Big and Little Darby Creeks as ONRW.

Fish

While Big Darby Creek fish species richness compares favorably to some outstanding streams in other nearby states (Figure 1), we emphasize that Big and Little Darby Creeks are the top two streams in Index of Biotic Integrity (IBI) and Continuous Index of Biotic Diversity (CIBI)¹²⁰ scores in Ohio (Table 1; “Key IBI and CIBI statistics for streams by year for the top 23 results in the Ohio fish database ...”). These scores are determined by species diversity, native species richness, which often includes rare and sensitive species (such as declining species in OAC 3745-1-05, Table 5-2), and species composition, trophic composition and the presence of anomalies. These creeks are well beyond the base levels for Clean Water Act attainment and have been recognized as such since the late 1970s, when they were first sampled by Ohio EPA and included biocriteria development as reference sites (among others in Ohio) due to their high biological diversity. These scores, as well as rare and sensitive species that are a component of the CIBI, are not found to this extent in other Ohio streams of this size. They must be maintained, and even improved - such as from near Plain City to the dam at River Mile 37, a segment where many fish and mussel species are missing.

¹²⁰ Rankin, E. T. 2010. Calibration of the Ohio IBI and ICI Using Continuous Scoring Methods. ILGARD, Voinovich School, Ohio University, Athens.

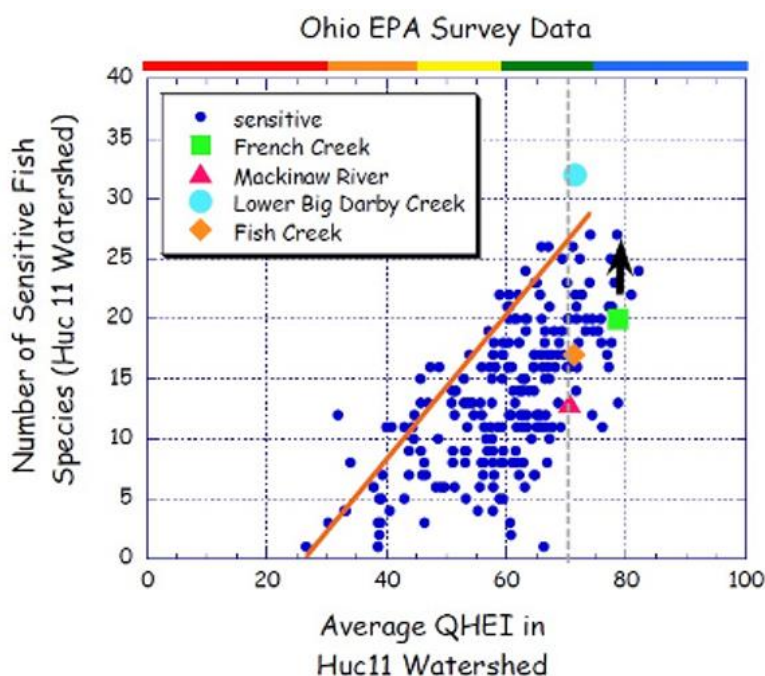


Figure 1 - Comparison of sensitive fish numbers in Big Darby Creek to other outstanding watersheds in other states (French Creek - New York; Mackinaw River – Illinois; Fish Creek – Indiana/Ohio).¹²¹

¹²¹ Page 32, Figure 18 in MBI. 2011/2014. Assessment of the Biological Assemblage Condition of Small Headwater Streams in Ohio Subject to the Proposed General Use Provisions of Ohio's Water Quality Standards MBI Technical Report MBI/2011-6-6.
<https://midwestbiodiversityinst.org/reports/assessment-of-the-biological-assemblage-condition-of-small-headwater-streams-in-ohio/MBI%20Assessment%20of%20Ohio%20Headwater%20Streams%20WQS%20FINAL%20FINAL%2020141009.pdf>

Basin Code	Stream Code	River	Mean Drainage Area (sq mi)	Sample Year	No. Sites	Mean IBI	Max. IBI	IBI Scores ≥ 56	Percent of IBI Scores ≥ 56	IBI Scores = 60	Percent of IBI Scores = 60	Mean CIBI	Max. CIBI
02	200	Big Darby Creek	321.5	2014	34	54.9	60	16	47.1	1	2.9	92.5	101.2
02	210	Little Darby Creek	125.6	2014	11	56.5	60	9	81.8	4	36.4	90.6	100.6
14	200	Stillwater River	629.1	2010	12	53	58	6	50.0	0	0.0	87.2	99.7
02	600	Salt Creek	236.1	2005	20	53.3	56	6	30.0	0	0.0	86.7	95.2
14	200	Stillwater River	334.4	2013	34	53.1	60	16	47.1	1	2.9	86.4	100.5
02	200	Big Darby Creek	334.3	1992	39	52.5	60	15	38.5	2	5.1	85.4	100.8
14	001	Great Miami River	1008.4	2009	35	53.7	58	14	40.0	0	0.0	85.4	95.6
14	500	Twin Creek	167.2	2005	28	53.6	58	12	42.9	0	0.0	83.4	92.4
02	210	Little Darby Creek	125.1	2001	10	53.6	58	5	50.0	0	0.0	83.1	89.8
02	200	Big Darby Creek	219.7	1993	24	51.1	56	4	16.7	0	0.0	82.8	90.7
14	001	Great Miami River	773.5	1994	52	51.3	60	23	44.2	2	3.9	82.6	95.4
02	210	Little Darby Creek	124.1	1992	16	51.6	60	5	31.3	1	6.3	80.8	101.5
02	200	Big Darby Creek	284.8	2001	44	49.8	58	6	13.6	0	0.0	80.7	97.8
02	001	Scioto River	2272.1	1999	11	48.4	54	0	0.0	0	0.0	80.4	92.8
10	200	Ohio Brush Creek	240.3	2007	23	52	60	7	30.4	2	8.7	80.4	92.1
02	600	Salt Creek	243.7	1992	19	50.1	56	2	10.5	0	0.0	80.1	86.2
14	400	Fourmile Creek	109.1	2005	13	49.5	56	2	15.4	0	0.0	80.1	91.4
14	500	Twin Creek	179.3	1995	39	51.8	58	10	25.6	0	0.0	80.1	93.2
14	200	Stillwater River	350.1	1999	37	50.2	60	13	35.1	5	13.5	79.9	95.9
10	200	Ohio Brush Creek	254.6	1987	13	49.7	58	1	7.7	0	0.0	79.7	89
11	001	Little Miami River	254.0	2011	34	50.5	58	6	17.7	0	0.0	79.5	90.5
14	001	Great Miami River	475.8	2008	21	49.9	58	7	33.3	0	0.0	79.5	93.1
02	200	Big Darby Creek	322.3	1979	11	49.1	56	2	18.2	0	0.0	78.1	97.1

Table 1. Key IBI and CIBI statistics for streams by year for the top 23 results in the Ohio fish database, ranked by highest mean CIBI. Scores highlighted in blue reflect the highest values for each statistic. Big Darby and Little Darby results are highlighted in green. Sample year is the year in which an intensive survey was conducted; streams limited to those with 100 sq mi drainage size at their mouth.¹²²

In Table 1, Big and Little Darby Creeks account for 8 of the top 23 scoring streams from this list of streams sampled by Ohio EPA. Table 1 emphasizes the consistent IBI scores in the mid- to high 50s. These scores are higher in the most recent survey (2014) than in early years of Ohio EPA sampling when the consideration of ONRW was made by Ohio EPA in “Appendix 1. Ohio Streams & Rivers: Antidegradation Tier Justification, SRW, SHQW.”¹²³ We note that almost all of the IBI scores of 60 in Table 1 were recorded in Big or Little Darby Creeks.

¹²² Midwest Biodiversity Institute. Fact Sheet - Evidence Towards an Outstanding National Resource Water Antidegradation Tier for Big and Little Darby Creeks in Ohio: Avoiding Ecological Mediocrity in Ohio’s Best Streams and Rivers. October 20, 2022. MBI, Hilliard, Ohio.

¹²³ Ohio EPA. 2002. Methods and Documentation Used to Propose State Resource Water (SRW) and Superior High Quality Water (SHQW) Classifications for Ohio’s Water Quality Standards, Appendix 1. Ohio Streams & Rivers: Antidegradation Tier Justification, SRW, SHQW. https://epa.ohio.gov/static/Portals/35/rules/antideg_justif_appendix1.pdf

Table 2 shows that Big and Little Darby Creeks comprise 8 of the top 24 scoring streams. This is based on key fish species statistics from the IBI or CIBI for streams by year for the top 24 results in the Ohio fish database sorted by CIBI intolerant species metric score.

Basin Code	Stream Code	River	Mean Drainage Area (sq mi)	Sample Year	No. Sites	Mean Native Species	Max. Native Species	Cumul. Native Species	Mean Intolerant Species	Max. Intolerant Species	Mean Continuous Intolerant Species Score	Max. Continuous Intolerant Species Score	Cumul. No. Intolerant Species
02	200	Big Darby Creek	321.5	2014	34	35.5	46	73	9.7	13	11.3	15.6	16
02	210	Little Darby Creek	125.6	2014	11	32	36	53	7.8	11	8.57	11.8	14
02	600	Salt Creek	236.1	2005	20	31.1	43	61	7.5	11	8.2	11.8	13
02	210	Little Darby Creek	125.1	2001	10	26.2	31	48	6	10	6.78	10.8	12
14	500	Twin Creek	167.2	2005	28	27.5	35	49	5.9	8	6.44	8.6	9
14	200	Stillwater River	334.4	2013	34	28.1	33	47	5.4	8	6.28	9.6	9
14	200	Stillwater River	629.1	2010	12	22.7	29	35	5.2	7	6.2	8.4	7
02	200	Big Darby Creek	334.3	1992	39	29	39	70	5.3	10	6.04	12.0	15
02	600	Salt Creek	243.7	1992	19	28.9	37	64	5.2	8	5.85	8.6	13
14	001	Great Miami River	1008.4	2009	35	27.4	35	52	4.8	7	5.75	8.4	10
02	200	Big Darby Creek	284.8	2001	44	26.6	36	77	5	12	5.6	12.9	14
10	200	Ohio Brush Creek	254.6	1987	13	29.5	37	56	4.8	7	5.42	7.5	7
14	500	Twin Creek	179.3	1995	39	25.5	32	49	4.8	7	5.35	7.5	9
02	001	Scioto River	2187.2	2010	11	31.7	38	57	4.3	7	5.13	8.4	13
02	200	Big Darby Creek	219.7	1993	24	26	32	67	4.2	11	4.81	13.2	12
10	200	Ohio Brush Creek	240.3	2007	23	28.5	36	57	4.2	7	4.71	7.5	9
02	210	Little Darby Creek	124.1	1992	16	23.1	35	51	4.6	9	4.69	9.7	12
02	001	Scioto River	2272.1	1999	11	30.5	44	66	3.7	8	4.47	9.6	14
11	001	Little Miami River	254.0	2011	34	22.8	33	61	3.8	8	4.47	9.6	10
14	200	Stillwater River	350.1	1999	37	25	30	52	3.5	7	4.09	8.4	8
14	001	Great Miami River	773.5	1994	52	26.3	36	64	3.2	6	3.86	7.2	9
02	200	Big Darby Creek	322.3	1979	11	20.5	37	51	3.2	9	3.72	9.7	12
14	001	Great Miami River	475.8	2008	21	24.4	32	51	3	6	3.59	7.2	7
14	400	Fourmile Creek	109.1	2005	13	26.2	31	40	3.4	6	3.41	6.5	7

Table 2. Key fish species statistics from the IBI or CIBI for streams by year for the top 24 results in the Ohio fish database sorted by CIBI intolerant species metric score. Cells highlighted in blue reflect the highest values for each statistic. Big Darby and Little Darby results are highlighted in green. Maximum species columns indicate the highest number collected at any station; cumulative species indicate the cumulative number of these species from all sites; sample year indicates the year (summer) of an intensive survey; streams limited to those with 100 sq mi drainage size at their mouth.¹²⁴

¹²⁴ Midwest Biodiversity Institute. Fact Sheet - Evidence Towards an Outstanding National Resource Water Anti-degradation Tier for Big and Little Darby Creeks in Ohio: Avoiding Ecological Mediocrity in Ohio's Best Streams and Rivers. October 20, 2022. MBI, Hilliard, Ohio.

Ohio EPA has recommended consideration of Big and Little Darby Creeks as ONRW in the past. On page 16 of Ohio EPA's 2002 document, "Appendix 1. Ohio Streams & Rivers: Antidegradation Tier Justification, SRW, SHQW," the Agency stated:

"BIG DARBY CREEK (DARBYVILLE TO SCIOTO RIVER)

Big Darby is one of the prototypical State Resource Water streams in Ohio. It has frequent IBI and ICI scores in the high 50s, large number of declining species, each with large populations (e.g., we have captured over 840 variegate darters in this reach alone) state endangered and threatened fish (e.g., spotted darter, northern madtom) and unionid species (e.g., washboard, rabbitsfoot), Federally endangered unionid species (northern riffleshell), and QHEI scores in the 80s and 90s. This lowest reach has the greatest accumulation of these attributes in the State as scored by our screening method. Other data collected by ODNR and Columbus Metroparks, but not in our electronic databases, support the SRW ranking. *This water is clearly a SRW at a minimum and should be considered for Outstanding National Resource Water.* Big Darby Creek is also a State Scenic River. Scenic Rivers are highly valued for their aesthetic and recreational enjoyment, as well as the many ecological attributes they possess. Additionally, Scenic Rivers receive heavy local investment for the purchase of easements, and have well developed local watershed stewardship programs that further justify a State Resource Water antidegradation tier." (emphasis added)

ONRW in adjacent states

Give this and other evidence provided in our January 31 comments, Big and Little Darby Creeks lead Ohio in stream quality and compare well to ONRW in other states. At the end of the attached "Evidence Towards an Outstanding National Resource Water Anti-degradation Tier for Big and Little Darby Creeks in Ohio" document is a list of ONRW in adjacent states. Kentucky lists eight ONRW waterbodies, for example.

CHERI A. BUDZYNSKI
419.321.1332
cbudzynski@shumaker.com

SENT VIA EMAIL

January 31, 2023

Rule Coordinator
Ohio EPA - Division of Surface Water
P.O. Box 1049
Columbus, Ohio 43216-1049
dsw_rulecomments@epa.ohio.gov

Re: Triennial Review of Water Quality Standards Rules – Ohio Adm.Code 3545-1
Our File No. 043595

To Whom It May Concern:

In December 2022, Ohio EPA issued a public notice with the purpose to solicit public input on an early stakeholder outreach rulemaking for the Water Quality Standards Triennial Review. The following comments regarding this action are submitted on behalf of the Ohio Utilities and Generation and its member companies (“OUG”),¹ which is an association of individual electric utilities in the State of Ohio. OUG members own and operate power plants and other facilities that generate, transmit, and distribute electricity for residential, commercial, industrial, and institutional customers. These power plants and other facilities are subject to the Clean Water Act and Ohio EPA’s water regulations. OUG’s purpose, in part, is to participate collectively on behalf of its members in administrative proceedings under various environmental laws and in litigation arising from those proceedings that affect OUG’s members.

Ohio EPA indicated in a webinar that Ohio EPA was not going to conduct the triennial review as a traditional rulemaking; therefore, Ohio EPA is only providing one comment period. During this one comment period, Ohio EPA has provided a link² to its website in which it asks interested stakeholders to prioritize Ohio EPA’s review of the chapters of the Water Quality Standards by ranking them from one to five.

This process is not helpful and makes it impossible to provide any meaningful comments without knowing what rules Ohio EPA intends to review and revise. Ohio EPA should provide interested stakeholders some information regarding Ohio EPA’s intentions to revise the rules in the next three years. In the past, Ohio EPA has provided three comment periods during its triennial

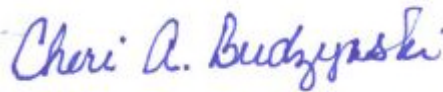
¹ The member companies include: AEP Generation Resources Inc., Buckeye Power, Inc., Duke Energy Ohio, Energy Harbor, FirstEnergy Solutions, Ohio Valley Electric Corporation, and Vistra Energy/Dynegy Commercial Asset Management, LLC.

² <https://epa.ohio.gov/help-center/contact-us/forms/triennial-review-feedback>

review. First, Ohio EPA compiled “a list of priority topics for rule drafting using ESO input, Agency knowledge of issues and most recent science”. Then Ohio EPA held two additional comment periods prior to filing its triennial review with U.S. EPA.³ While OUG understands that Ohio EPA “decoupled”⁴ the triennial review so that it no longer resembles the traditional rulemaking process, Ohio EPA has not conducted any significant rulemakings on the Water Quality Standards in some time. OUG recommends that Ohio EPA compile information in the Early Stakeholder Outreach, provide a summary to interested parties, and allow a second comment period where interested parties can provide meaningful comments.

OUG and its members thank Ohio EPA for the opportunity to comment on the draft general permit. Please do not hesitate to contact me at (419) 321-1332 or cbudzynski@shumaker.com should you have any questions.

Very truly yours,



Cheri A. Budzynski

CAB\ar

³ <https://epa.ohio.gov/static/Portals/35/rules/WQSTriennialReview.pdf> (last visited Jan. 25, 2023).

⁴ [2021 Triennial Review Fact Sheet](#) (last visited Jan. 25, 2023).



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:
WW-16J

Rules Coordinator
Ohio Environmental Protection Agency
Division of Surface Water
P.O. Box 1049
Columbus, Ohio 43216-1049

Dear Rules Coordinator:

On December 1, 2022, the Ohio Environmental Protection Agency (Ohio EPA) published a notice announcing the start of Ohio's triennial review and requesting comment on either revising existing water quality standards or setting new water quality standards in Ohio Administrative Code chapter 3745-1.

The United States Environmental Protection Agency reviewed the State's public notice and supporting materials and EPA's comments are enclosed. EPA's comments are limited to recommendations for Ohio EPA to consider as it prioritizes its work on water quality standards over the next three years. These comments do not constitute an Administrator's determination pursuant to Section 303(c)(4)(B) of the Clean Water Act.

If you have any questions regarding the enclosed comments, please contact me or have your staff contact Aaron Johnson of my staff at (312) 886-6845 or johnson.aaronk@epa.gov.

Sincerely,

David Pfeifer, Manager
Watersheds and Wetlands Branch

Enclosure

cc via email w/enclosure:

Melinda Harris, Ohio EPA
Mariah Hood, Ohio EPA

Enclosure – EPA Region 5 Recommendations for Ohio’s 2023 Triennial Standards Review

Comment 1. Water quality criteria to protect against nutrient impacts to aquatic life and recreation. As emphasized in the April 5, 2022 memorandum from EPA Assistant Administrator Radhika Fox, nutrient pollution remains a primary contributor to aquatic life and recreation impairment across the Nation and the Midwest, including Ohio. In Ohio, nutrients are commonly listed among the top five causes of impairment for all categories for aquatic life. EPA notes that, despite a long history of monitoring and research related to nutrient enrichment, Ohio has not yet adopted numeric nutrient criteria. Although Ohio uses its monitoring data and research to establish and implement assessment procedures for determining nutrient impairments to aquatic life uses in streams, protection of other waterbodies and other designated uses is less well-developed. EPA supports Ohio’s planned efforts to examine zooplankton as an indicator of nutrient impacts to aquatic life use in lakes and follows with interest the development of nutrient targets for large rivers. EPA recommends that Ohio proceed with adoption of numeric nutrient criteria or establish standardized methods for deriving numeric expressions of Ohio’s existing narrative criteria based on these and other efforts as a top priority for Ohio’s triennial review.

Comment 2. Updated water quality standards variance rules to reflect updated Clean Water Act regulations. In 2015, EPA revised the federal water quality standards regulations at 40 CFR Part 131 implementing Section 303(c) of the CWA. Among the changes was the addition of a new section at 40 CFR § 131.14 establishing requirements for water quality standards variances. Ohio’s water quality standards variance regulations contained in OAC 3745-1-38 were first adopted in 1997 and have not been significantly updated since then. EPA strongly recommends that Ohio review the variance requirements at 40 CFR § 131.14 and make any changes to the State’s rules and regulations regarding variances at OAC 3745-1-38 to ensure that variances granted by Ohio are consistent with the federal requirements.

Comment 3. Multiple discharger variance for mercury. 40 CFR § 131.14(b)(1)(iv) requires that all water quality standards variances include the term of the variance, “expressed as an interval of time from the date of EPA approval or a specific date.” Ohio’s variance rules at OAC 3745-1-38(J) contain a multiple discharger variance for mercury, but the rules do not specify the term of the variance. Additionally, this variance has not been reevaluated since it was first adopted in 1997 to ensure that it is consistent with the federal regulations and continuing to ensure that facilities make reasonable progress toward attaining the mercury criteria, consistent with 40 CFR Part 132, Appendix F, Procedure 2(F)(2). EPA recommends Ohio reevaluate its multiple discharger variance for mercury to ensure that the variance is consistent with the federal variance rules at 40 CFR § 131.14.

Comment 4. Consideration of EPA national recommended criteria. As part of EPA’s 2015 revisions of the federal WQS regulations, EPA revised the federal requirements pertaining to triennial reviews at 40 CFR § 131.20(a) to require that if states and authorized tribes choose not to adopt new or revised criteria for parameters for which EPA has published new or revised 304(a) criteria recommendations, they must explain their decision when reporting the results of their triennial review to EPA. As stated in the preamble to the 2015 revisions, EPA expects that as a result of this requirement:

[f]ollowing this rulemaking, when states and authorized tribes conduct their next triennial review they must provide an explanation for why they did not adopt new or revised criteria for parameters for which EPA has published new or updated CWA section 304(a) criteria recommendations since May 30, 2000. During the triennial reviews that follow, states and authorized tribes must do the same for criteria related to parameters for which EPA has published CWA section 304(a) criteria recommendations since the states' or authorized tribes' most recent triennial review. (80 Fed. Reg. 51028)

A list of all new or updated 304(a) criteria recommendations since May 30, 2000 can be found at: <https://nepis.epa.gov/Exe/ZyPDF.cgi/P100MYS8.PDF?Dockkey=P100MYS8.PDF>. Since that list was prepared in July 2015, EPA has published new or updated 304(a) aquatic life criteria for aluminum, cadmium and selenium and is in the process of publishing updated 304(a) aquatic life criteria for perflurooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA). Additionally, EPA has published new or updated 304(a) human health recreational criteria for cylindrospermopsin and microcystins. Ohio EPA's public notice requests comment on whether Ohio should prioritize the adoption of any EPA recommended criteria finalized since the last rulemaking. To be consistent with the revised 40 CFR § 131.20, for all parameters for which EPA has published new or updated 304(a) criteria recommendations since May 30, 2000, Ohio EPA's triennial review submission to EPA should include a discussion of whether the State has adopted the 304(a) criteria recommendations and an explanation for those parameters where the State has not adopted the 304(a) criteria recommendation. Additionally, as described in the preamble to EPA's 2015 WQS regulatory revisions at 80 Fed. Reg. 51029, EPA strongly encourages that Ohio EPA makes these explanations publicly available as part of the materials available for public review and comment.

Comments from individuals

From: [Alexander Murphy](#)
To: [EPA dsw_rulecomments](#)
Subject: Comment RE: Triennial Review Darby ONRW
Date: Friday, January 13, 2023 10:48:02 AM

To whom it may concern,

I respectfully request that the Ohio EPA formally categorize Big and Little Darby Creeks as Outstanding National Resource Waters (ONRW) under OAC 3745-1-05(A)(10)(d).

Big and Little Darby Creeks should receive the strongest designation available under the Clean Water Act: Outstanding National Resource Water. An Outstanding National Resource Water is a water body with national ecological significance, national recreational significance, or a unique combination of biological characteristics. The Big and Little Darby Creeks satisfy all three of these criteria.

National Ecological Significance: Big and Little Darby Creeks provide critical habitat to multiple federally endangered and threatened species, including at least four endangered mussels (northern riffleshell, clubshell, snuffbox, and rayed bean), two federally-listed mammals that rely on its riparian corridors for reproductive colonies (Indiana bat, endangered; Northern long-eared bat, threatened), and one threatened mussel (rabbitsfoot). Unfortunately, some of the federally listed species, including the mussels, have declined in recent decades within the Big Darby Creek Watershed. Current protections, including designation as an Outstanding State Resource Water, have not proven to be sufficient to meet the state's obligation to prevent water quality and use degradation.

Unique Combination of Biological Characteristics: The Big Darby Creek Watershed is one of the most biologically diverse and significant streams in Ohio and the entire Midwest. It features thirty-eight species protected in Ohio, fifteen of which are Ohio Species of Concern. Four of these species of concern are fish and eleven are mussels. Native freshwater mussels provide important biological services by filtering algae, sediment, nutrients, harmful bacteria, and metals from freshwater ecosystems. In addition, the Big Darby Watershed consistently has the highest biological scores in the state. The Watershed provides unique habitat to its flora and fauna, an ecological safe haven that must be afforded Outstanding National Resource Water protection.

National Recreational Significance: Big Darby and Little Darby Creeks are already classified as National Scenic Rivers. The watershed's scenic and recreational significance is national in scale.

Conclusion: Classify the Big and Little Darby Creeks as Outstanding National Resource Waters.

For far too long, the Big Darby Creek Watershed has received insufficient protections for its nationally significant attributes. I respectfully request that the Ohio EPA categorize the entire mainstems of Big and Little Darby Creeks as Outstanding National Resource Waters pursuant to the Clean Water Act, Ohio's water pollution control laws, and paragraph (E)(2) of Ohio's Antidegradation Rule, OAC 3745-1-5.

Sincerely,

Alexander Murphy

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Letters identical, or very similar to, Alexander Murphy's were submitted by the following individuals:

Alaina McCleery	Gail Schoenbeck	Mary Krupa
Anna Aydynyan	James Lucot	Matt Dye
Ann Marie Teder	Janet Saylor	Matt Kerr
Audrey Cowen	Jared Goodykoontz	Michael Rigsby
Beth Sullebarger	Jean Phillips	Michelle Phillips
Betty Merriman	Jenna Roller-Knapp	Mike Rotz
Beverly Jones	Jim Wentz	Monica Snow
Brian Kuru	Joe Gulan	Nancy MadDermott
Brian Lammers	Joe Kalt	Patricia Heithaus
Carol Neuman de Vegvar	John Koval	Paula Robbins
Catherine Murray	John Reiger	Paul Vincent
Catherine Stuer	Judith Vazquez	Peter Junker
Charles Dyas	Karen Dahn	Robert Maher
Christopher Gecik	Karen Hanley	Rochelle Willis
Daniel Hinze	Karen Soubeyrand	Roger Smith
David Bolman	Kathleen Cowen	Sally Lund
David Dukart	Kim Kengor	Samantha Miller
David Gurarie	Kirk Denton	Sandra Cobb
Debbie McFadden	Kris Jacob	Sean Logan
Deb Oexmann	Kyle Forrester	Sharon Rastatter
Deborah Fleming	Linda Sigismondi	Shaune Skinner
Deb Staudt	Lois Shadix	Steven Vogel
Donald Story	Luke Howard	Steve Simmons
Elida Schiavone	Marie Kadel	Theresa Pretlow
Elizabeth B. Shelly	Mark Delabar	Tim Hendricks
Emily Law	Mary Ann Viveros	Toby Ann Reese

From: [James Nowak](#)
To: [EPA dsw_rulecomments](#)
Subject: Comment RE: Triennial Review Darby ONRW
Date: Tuesday, January 31, 2023 10:14:33 AM

To whom it may concern,

The drought conditions in the western United States clearly demonstrate the environmental effects of an over-stressed watershed. Our long-term meddling with a delicate ecosystem has compromised the reliable flow of fresh water. What's most disturbing is our human bias that fresh water is just there for the taking and will always be available in unlimited quantities. As we are seeing not only out west but globally, that this is simply not true.

Simple, near-term solutions, such as capturing and immediately reissuing rain water is sheer folly. The full cycle of rain falling on the ground, percolating through the soil and trickling to waterways such as Big and Little Darby Creeks is complex, elegant yet effective water purification and distribution system and must be protected and maintained. Our society seems enamored of technology and too often assume some yet-to-be-developed gadget or app will quickly solve our water problems. However, the effective mechanisms already exists in nature and we must protect and maintain these inter-related processes. That simply means being patient and allowing the wetlands, aquifers and waterways to do their jobs. It also means that innumerable species also benefit.

Ohio's northern border is the coast of Lake Erie which is one of the Great Lake depositories of 20% of the world's fresh water. We are therefore stewards of a truly life-giving resource and must protect that vital asset for the near-term as well as for many generations to come, wherever it exists in our State.

Therefore, I respectfully request that the Ohio EPA formally categorize Big and Little Darby Creeks as Outstanding National Resource Waters (ONRW) under OAC 3745-1-05(A)(10)(d) and categorize the entire mainstems of Big and Little Darby Creeks as Outstanding National Resource Waters pursuant to the Clean Water Act, Ohio's water pollution control laws, and paragraph (E)(2) of Ohio's Antidegradation Rule, OAC 3745-1-5.

Sincerely,
James Nowak

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From: [Kathleen Sandman](#)
To: [EPA dsw_rulecomments](#)
Subject: Triennial Review Committee -- to designate Big and Little Darby Creeks as Outstanding National Resource Waters
Date: Tuesday, January 24, 2023 5:54:16 PM

I urge the Ohio Environmental Protection Agency to designate the Big and Little Darby Creeks as Outstanding National Resource Waters.

I ask from several perspectives:

As a PhD biologist, I can attest to the value of these streams and the importance of preserving the biodiversity that they host. Encroaching development puts these waterways and multiple endangered species at risk. We are so fortunate that Ohio has abundant fresh water and it is essential that we do all in our power to protect this water source from degradation.

As a former Girl Scout leader, I have mentored dozens of girls in activities at one of our camps (Ken-Jockety) along the Big Darby Creek. I have encouraged my daughters and their friends to explore the world around them, and we value the proximity of such exceptional landscapes in central Ohio.

As an Ohio taxpayer, I expect that my state government and its agencies are looking out for the interests of all Ohioans to preserve our natural resources from overuse and misuse. The National Park Service and the state of Ohio has designed Big Darby Creek as a National and State Scenic River. But it's not just scenic – it's a critical part of our regional environment, and therefore warrants protection.

Keep the wild in Ohio, and preserve the Big and Little Darby Creeks. These are, without a doubt, Outstanding National Resource Waters.

Kathleen Sandman, PhD
kathleenmsandman@gmail.com
614-657-3259

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From: [Shoobs, Nate](#)
To: [EPA dsw_rulecomments](#)
Subject: RE ONRW Triennial Review
Date: Tuesday, January 31, 2023 5:01:03 PM
Attachments: [image001.png](#)

I am writing to express my support for, and agreement with, the scientific content contained in the petition to recognize Big and Little Darby Creeks as Outstanding National Resource Waters under OAC § 3475-1-05(E)(2), submitted by The Ohio Environmental Council et al. earlier this afternoon.

In my role at The Ohio State University Museum of Biological Diversity (OSUM), I curate the world's largest collection of freshwater bivalve mollusks. We have extensive holdings of voucher specimens from surveys across Ohio conducted over the last two centuries. These specimen records demonstrate the tremendous diversity and uniqueness of the Big Darby Creek system, which is the most diverse body of water for its area in the United States where freshwater bivalves are concerned.

Unfortunately, our holdings at the museum also demonstrate the decline of this fauna, both in diversity and abundance, over the course of the last half century. The full extent and cause of this decline, as in other enigmatic mollusk declines across the globe, are still poorly scientifically understood. What is clear is that even with the extensive State and federal legal protections already afforded to the Big Darby Creek system, its mollusk fauna is still imperiled.

As the stewards of a nationally, and indeed globally unique resource, I recommend that the state and its federal partners consider the use of every tool at their disposal to enhance and ensure the protection of this aquatic ecosystem.

Sincerely,
Nathaniel F. Shoobs

--



Nathaniel F. Shoobs

Curator of Mollusks

College of Arts & Sciences Dept. of Evolution, Ecology, and Organismal Biology

Museum of Biological Diversity, 1315 Kinnear Rd, Columbus, OH 43212

614-688-1342 (Office)

mbd.osu.edu

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From: [Maria Meister](#)
To: [EPA dsw_rulecomments](#)
Subject: Re: Comment RE: Triennial Review Darby ONRW
Date: Tuesday, January 17, 2023 4:40:12 PM

Thank you for the response. I think it is important to point out that Big Darby runs through 2 metro parks. Prairie Oaks Metro and Battelle Darby Creek Metro

Respectfully
M Meister

From: dsw_rulecomments@epa.ohio.gov <dsw_rulecomments@epa.ohio.gov>
Sent: Tuesday, January 17, 2023 3:29 PM
To: Maria Meister <Maria@masilabs.com>
Subject: RE: Comment RE: Triennial Review Darby ONRW

Thank you for your comment on our Triennial Review. Your comment has been received successfully by the Agency.

From: Maria Meister <Maria@masilabs.com>
Sent: Saturday, January 14, 2023 4:47 PM
To: EPA dsw_rulecomments <dsw_rulecomments@epa.ohio.gov>
Subject: Comment RE: Triennial Review Darby ONRW

To whom it may concern,

I respectfully request that the Ohio EPA formally categorize Big and Little Darby Creeks as Outstanding National Resource Waters (ONRW) under OAC 3745-1-05(A)(10)(d).

Big and Little Darby Creeks should receive the strongest designation available under the Clean Water Act: Outstanding National Resource Water. An Outstanding National Resource Water is a water body with national ecological significance, national recreational significance, or a unique combination of biological characteristics. The Big and Little Darby Creeks satisfy all three of these criteria.

National Ecological Significance: Big and Little Darby Creeks provide critical habitat to multiple federally endangered and threatened species, including at least four endangered mussels (northern riffleshell, clubshell, snuffbox, and rayed bean), two federally-listed mammals that rely on its riparian corridors for reproductive colonies (Indiana bat, endangered; Northern long-eared bat, threatened), and one threatened mussel (rabbitsfoot). Unfortunately, some of the federally listed species, including the mussels, have declined in recent decades within the Big Darby Creek Watershed. Current protections, including designation as an Outstanding State Resource Water, have not proven to be sufficient to meet the state's obligation to prevent water quality and use degradation.

Unique Combination of Biological Characteristics: The Big Darby Creek Watershed is one of the most biologically diverse and significant streams in Ohio and the entire Midwest. It features thirty-eight species protected in Ohio, fifteen of which are Ohio Species of Concern. Four of these species of concern are fish and eleven are mussels. Native freshwater mussels provide important biological services by filtering algae, sediment, nutrients, harmful bacteria, and metals from freshwater ecosystems. In addition, the Big Darby Watershed consistently has the highest biological scores in the state. The Watershed provides unique habitat to its flora and fauna, an ecological safe haven that must be afforded Outstanding National Resource Water protection.

National Recreational Significance: Big Darby and Little Darby Creeks are already classified as National Scenic Rivers. The watershed's scenic and recreational significance is national in scale.

Conclusion: Classify the Big and Little Darby Creeks as Outstanding National Resource Waters.

For far too long, the Big Darby Creek Watershed has received insufficient protections for its nationally significant attributes. I respectfully request that the Ohio EPA categorize the entire mainstems of Big and Little Darby Creeks as Outstanding National Resource Waters pursuant to the Clean Water Act, Ohio's water pollution control laws, and paragraph (E)(2) of Ohio's Antidegradation Rule, OAC 3745-1-5.

Sincerely,
Maria Meister

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