

D

Framework for Reporting and Evaluation

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D1. Framework for Reporting and Evaluation

This section describes the framework and basic elements for evaluating and reporting the water quality information in this report.

The 2020 Integrated Report (IR) continues Ohio's evolution to a fully formed watershed basis for reporting on water quality conditions. Since 1988, Ohio has maintained strong linkages between Clean Water Act (CWA) Section 305(b) reporting and Section 303(d) listing. Under the title Water Resource Inventories, Ohio prepares CWA Section 305(b) reports every two years using a biologically based assessment methodology¹. Subsequently, CWA Section 303(d) lists were compiled using the output of CWA Section 305(b) reporting in 1992, 1994, 1996 and 1998. In 2002, the first IR was produced, addressing the needs of both reporting requirements.

Reporting on Ohio's water resources continues to develop, including more data types and more refined methodologies. The basic framework for this report is built on four beneficial uses:

- **Aquatic Life** — Analysis of the condition of aquatic life was the long-standing focus of reporting on water quality in Ohio and continues to provide a strong foundation. The 2020 methodology is unchanged from what was used in the 2018 IR. Additionally, as in the 2012, 2014, 2016 and 2018 IRs, a methodology for assessing the aquatic life condition of inland lakes is previewed.
- **Recreation** — A methodology for using bacteria data to assess recreation suitability was developed for the 2002 report and was refined several times in subsequent reports. The 2020 methodology is unchanged from what was used in the 2018 IR. In addition, the 2020 methodology is also unchanged from what was used in the 2018 IR for recreation use based on algae blooms for the western basin of Lake Erie. New methodologies are included for recreation use based on algae blooms for the Sandusky and central basin units.
- **Human Health** — A methodology for comparing fish tissue contaminant data to human health criteria via fish consumption advisories was included in the 2004 report. That methodology has been refined in each subsequent report to align more directly with the human health water quality criteria. The methodology was changed in the 2010 report to be consistent with the methodology described in U.S. EPA's 2009 guidance for implementing the methylmercury water quality criterion. The methodology has not changed for the 2020 report.
- **Public Drinking Water** — The assessment methodology for the public drinking water supply (PDWS) beneficial use was first presented in the 2006 report. Updates to the methodology have been presented in subsequent reports. For the 2014 report, it was revised to include a new core indicator based on algae and associated cyanotoxins, and assessment units listed as impaired for algae. The methodology has been aligned with adult drinking water threshold values for cyanotoxin indicators for the 2020 report.

The methodology for assessing support of each beneficial use is described in more detail in Sections E through H.

¹ In 1990, the linkage of fish and macroinvertebrate community index scores and attainment of aquatic life use designations was established in Ohio's Water Quality Standards (OAC 3745-1).

D2. Assessment Units

The 2020 IR continues the watershed orientation outlined in previous reports; the assessment units have not changed significantly from the 2010 report. Throughout this report, references are made to large rivers and watersheds as assessment units defined for 303(d) listing purposes. Data from individual sampling locations in an assessment unit are accumulated and analyzed; summary information and statewide statistics are provided in this report. The three types of assessment units (AUs) are:

- **Watershed Assessment Units (WAUs)** — 1,538 watersheds that align with the 12-digit hydrologic unit code (HUC) system. Ohio HUC numbers are lowest in the northwest corner of the state, proceeding approximately clockwise around the state. The first two digits of Ohio numbers are either 04 (draining to Lake Erie) or 05 (draining to the Ohio River).
- **Large River Assessment Units (LRAUs)** — 38 segments in the 23 rivers that drain more than 500 square miles; the length of each river included is from the mouth of each river upstream to the point where the drainage area reaches approximately 500 square miles.
- **Lake Erie Assessment Units (LEAUs)** — Seven segments for the entire Ohio portion of Lake Erie. Each of three basins (western, Sandusky, central) are divided into two units (shoreline and open water). The shoreline area is defined as the portion that extends along each basin out to and including a depth of three meters from the shore; the open water is the area in Ohio beyond three meters. The islands shoreline is its own unit and includes the shoreline of each island up to and including a depth of three meters.

Each basin's extent is described as follows:

- western basin shoreline and open water (OH-MI state line to Marblehead);
- Lake Erie islands shoreline (including South Bass Island, Middle Bass Island, North Bass Island, Kelleys Island, West Sister Island and other small islands);
- Sandusky basin shoreline and open water (Marblehead to Lorain Ridge); and
- central basin shoreline and open water (Black River/Lorain Ridge to OH-PA state line).

Ohio River assessment units have been defined by the Ohio River Valley Water Sanitation Commission (ORSANCO). See Section D3 for additional discussion of ORSANCO's work.

It is important to remember that the information presented here is a summary. All the underlying data observations are available and can be used for more detailed analysis of water resource conditions on a more localized, in-depth scale. Much of the information is available in watershed reports available at epa.ohio.gov/dsw/document_index/psdindx.aspx.

Total Maximum Daily Load (TMDL) reports, available at epa.ohio.gov/dsw/tmdl/index.aspx, are another source of more in-depth analyses.

Ohio's large rivers, defined for this report as draining greater than 500 square miles, are illustrated in Figure D-1. Ohio's watershed units are shown in Figure D-2. Lake Erie assessment units are shown in Figure D-3.

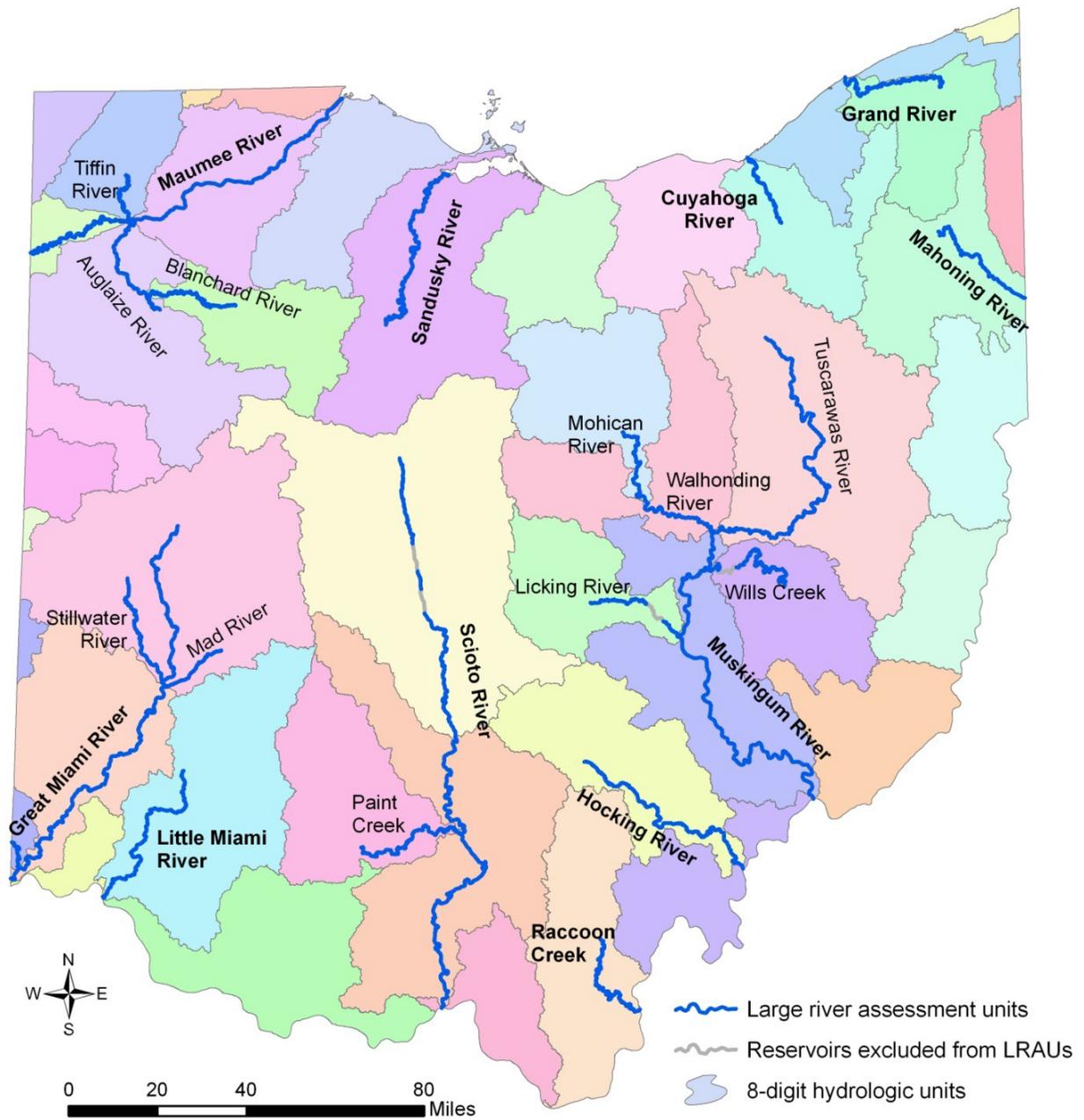
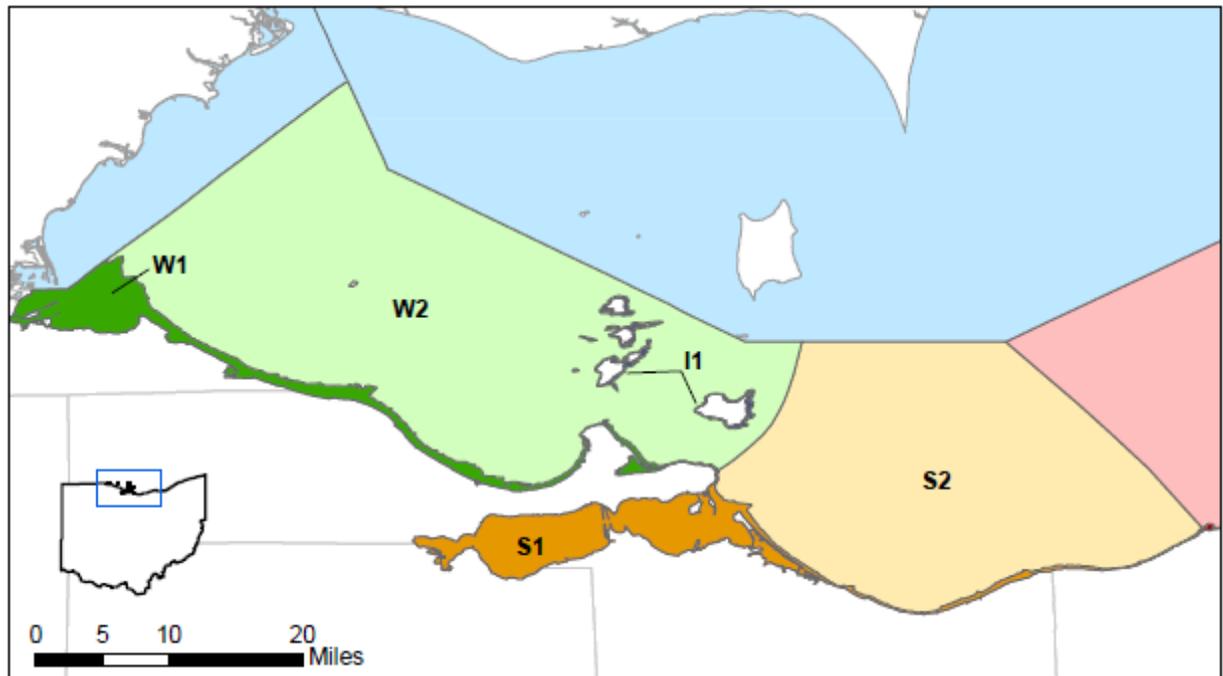


Figure D-1 — Ohio's large rivers (rivers with drainages greater than 500 mi²) and their watersheds.



Figure D-2 — Ohio's 12-digit WAUs (gray lines) and 8-digit hydrologic units (heavy black lines).



Lake Erie Assessment Units

-  W1 - Western Basin Shoreline (<=3m)
-  W2 - Western Basin Open Water (>3m)
-  I1 - Islands Shoreline (<=3m)

-  S1 - Sandusky Basin Shoreline (<=3m)
-  S2 - Sandusky Basin Open Water (>3m)
-  C1 - Central Basin Shoreline (<=3m)
-  C2 - Central Basin Open Water (>3m)

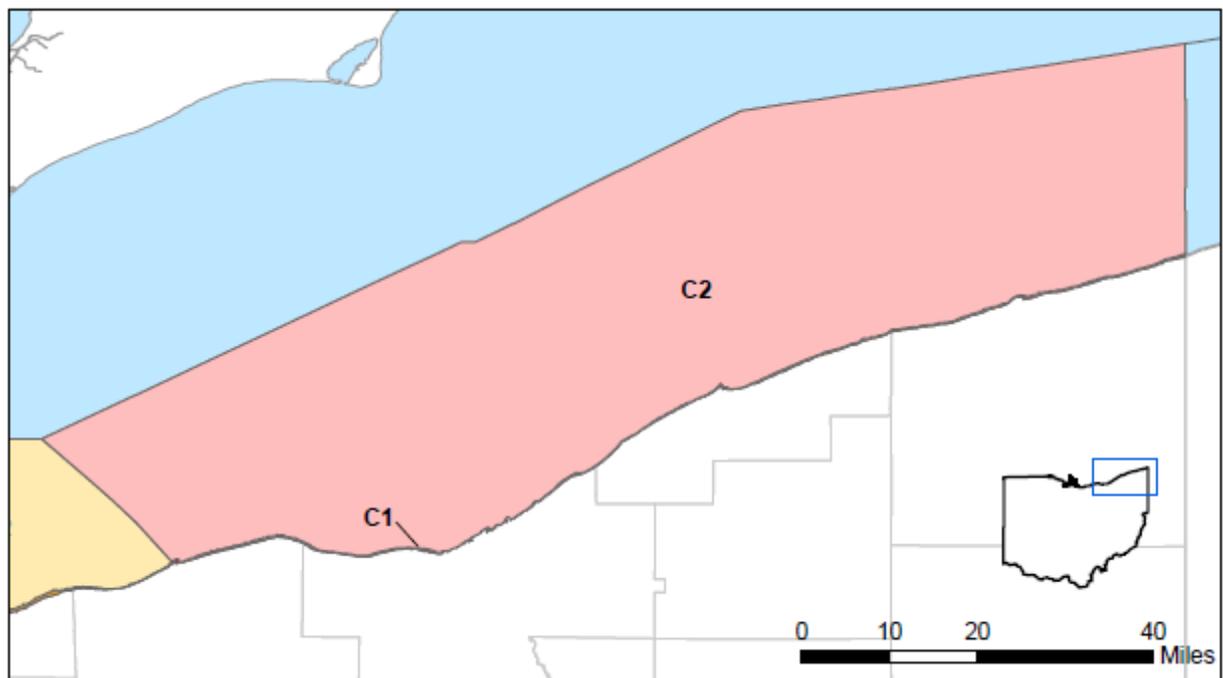


Figure D-3 — Ohio’s Lake Erie assessment units – western basin, islands, Sandusky basin and central basin shorelines and open water areas.

D3. Evaluation of the Ohio River

For evaluation of the Ohio River, Ohio EPA defers to the Ohio River Valley Water Sanitation Commission (ORSANCO). ORSANCO is an interstate commission, established on June 30, 1948, to control and abate pollution in the Ohio River Basin. It represents eight states and the federal government. Member states include Illinois, Indiana, Kentucky, New York, Ohio, Pennsylvania, Virginia and West Virginia. ORSANCO operates programs to improve water quality in the Ohio River and its tributaries including: setting wastewater discharge standards; performing biological assessments; monitoring for the chemical and physical properties of the waterways; and conducting special surveys and studies. ORSANCO also coordinates emergency response activities for spills or accidental discharges to the river and promotes public participation in the programs such as the Ohio River Sweep, River Watchers Volunteer Monitoring Program and Friends of the Ohio.

Since 1948, ORSANCO and its member states have cooperated to improve water quality in the Ohio River Basin so that the river and its tributaries can be used for drinking water, industrial supplies and recreational purposes; and can support healthy and diverse aquatic communities. ORSANCO operates monitoring programs to check for pollutants and toxins that may interfere with specific uses of the river and conducts special studies to address emerging water quality issues.

As a member of the Commission, the State of Ohio supports ORSANCO activities, including monitoring of the Ohio River mainstem, by providing funding based on state population and miles of Ohio River shoreline. As such, monitoring activities on the Ohio River are coordinated and conducted by ORSANCO staff or its contractors. More information about ORSANCO and the Ohio River monitoring activities conducted through that organization can be found online at orsanco.org.

Ohio EPA participates in an ORSANCO workgroup to promote consistency in 305(b) reporting and 303(d) listing. The workgroup discussed and agreed upon methods to evaluate attainment/non-attainment of aquatic life, recreation and public water supply uses, as well as impairments based on sport fish consumption advisories. ORSANCO prepares the Section 305(b) report for the Ohio River and has indicated the impaired beneficial uses and segments of the Ohio River. Ohio EPA defers to the ORSANCO analysis and the list of impaired Ohio River segments found in 2018 Biennial Assessment of Ohio River Water Quality Conditions (ORSANCO 2018). ORSANCO plans to complete a biennial assessment in 2020 that will be available at: orsanco.org/programs/water-quality-assessment/.

D4. Evaluation of Lake Erie

Lake Erie is bordered by four states and one Canadian province. As such, it has federal oversight by two sovereign nations. Unlike most other waters in Ohio, Lake Erie has a more complicated governance structure with a binational agreement (GLWQA) between the U.S. and Canada providing a framework to identify binational priorities and implement actions that improve water quality. For comparison, assessment and reporting on one of Ohio's other multi-state waters, the Ohio River, is conducted by ORSANCO, which, as stated above, is an interstate commission representing eight states and the federal government.

Ohio's assessment and impairment designation for Lake Erie has been the focus of considerable discussion between Ohio EPA, U.S. EPA and local stakeholders. In 2018 Ohio, with the considerable aid of several universities and NOAA, developed a method for assessing the western basin open waters in Ohio for algae blooms. This methodology was used in the 2018 report and continues to be employed in this cycle. It is presented in Section F4 and utilizes the assessment units defined above in Section D2. In addition, Section F4 contains new methodologies for the Sandusky and central basin units.

As in the past two reports, the shoreline units have been assessed for all four beneficial uses using the already established methods. All but the central basin shoreline is listed as impaired for all four uses (the central basin shoreline is not impaired for public water supply since the intakes are located in the open water assessment unit). See Sections E through H for more information on each use assessment.

D5. Ohio's Water Quality Standards 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 numerous sub-categories of aquatic life use. Table D-1 lists all of Ohio's water quality standards (WQS) designated uses and outlines how the use was evaluated for the Ohio 2020 IR. Additional information is included in Section F4 about the WQS and uses evaluated for Lake Erie related to algae.

Table D-1 — Ohio water quality standards in the 2020 IR.

Beneficial Use Category	Key Attributes ²	Evaluation status in the 2020 IR
Categories for the protection of aquatic life		
Coldwater habitat (CWH)	native cold water or cool water species; put-and-take trout stocking	Assessed on case by case basis
Seasonal salmonid habitat (SSH)	supports lake run steelhead trout fisheries	No direct assessment, streams assessed as EWH or WWH
Exceptional warmwater habitat (EWH)	unique and diverse assemblage of fish and invertebrates	65.5 percent of the WAUs and 99.7 percent of the LRAUs fully assessed using direct comparisons of fish and macroinvertebrate community index scores to the biocriteria in Ohio's WQS; sources and causes of impairment were assessed using biological indicators and water chemistry data.
Warmwater habitat (WWH)	typical assemblages of fish and invertebrates	
Modified warmwater habitat	tolerant assemblages of fish and macroinvertebrates; irretrievable condition precludes WWH	
Limited resource water	fish and macroinvertebrates severely limited by physical habitat or other irretrievable condition	Assessed on case by case basis
Categories for the protection of human health		
Human health [fish consumption]	all waters outside mixing zones	43 percent of the WAUs, 100 percent of the LRAUs assessed and all seven LEAUs assessed using applicable water quality criteria
Categories for the protection of recreational activities		
Bathing Waters	Lake Erie (entire lake); for inland waters, bathing beach with lifeguard or bathhouse facility	All four Lake Erie shoreline AUs fully assessed based on analysis of data collected from 65 public beaches
Primary Contact Recreation (PCR)	waters suitable for one or more full-body contact recreation activity such as wading and swimming; three classes are recognized, distinguished by relative potential frequency of use	11 percent of the WAUs and 26 percent of the LRAUs assessed using applicable PCR geometric mean <i>E. coli</i> criteria
Secondary Contact Recreation (SCR)	waters rarely used for recreation because of limited access; typically located in remote areas and of very shallow depth	Assessed as part of the WAU using applicable SCR geometric mean <i>E. coli</i> criteria
Categories for the protection of water supplies		
Public Water Supply	waters within 500 yards of all public water supply surface water intakes, publicly-owned lakes, waters used as emergency supplies	Sufficient data were available to assess 50 percent of the 118 AUs with PDWS use; assessed using chemical water quality data; only waters with active intakes were assessed
Agricultural Water Supply	water used, or potentially used, for livestock watering and/or irrigation	Not assessed
Industrial Water Supply	water used for industrial purposes	Not assessed

² Reasons for which a water body would be designated in the category.

D6. Sources of Existing and Readily Available Data

For two decades Ohio EPA has placed a high priority on collecting data to accurately measure the quality of Ohio's rivers and streams. Therefore, the Agency has a great deal of information and data to draw upon for the IR. The available data sets from Ohio EPA and external sources, including efforts used to obtain additional data, are also discussed below. The 2008 IR marked the first time that Ohio's credible data law was fully implemented in generating external data for consideration.

The credible data law, enacted in 2003 (ORC 6111.50 to 6111.56), requires that the director of Ohio EPA adopt rules which would, among other things, do the following:

- establish a water quality monitoring program for the purpose of collecting credible data under the act; require qualified data collectors to follow plans pertaining to data collection; and require the submission of a certification that the data were collected in accordance with such a plan; and
- establish and maintain a computerized database or databases of all credible data in the director's possession and require each state agency in possession of surface water quality data to submit that data to the director.

Ohio EPA adopted rules in 2006, which were revised in 2011 and 2018, to establish criteria for three levels of credible data for surface water quality monitoring and assessment and to establish the necessary training and experience for persons to submit credible data. Apart from a few exceptions, people collecting data and submitting it to Ohio EPA for consideration as credible data must have status as a qualified data collector (QDC). Only Level 3 data can be used for decisions about beneficial use assignment and attainment; water quality standards; listing and delisting (303(d) list); and TMDL calculations.

Ohio EPA solicited data from all Level 3 QDCs for the 2020 IR. The letter requesting data and the website containing information about how to submit data are included in Section D7. Table D-2 summarizes the WQS uses evaluated in the 2020 IR, the basic types of data used, the period of record considered, the sources of data and the minimum amount of data needed to evaluate a water body. Specific methodologies used to assess attainment of the standards are described in more detail in Sections E through H.

Table D-3 summarizes the data Ohio EPA used in the 2020 IR. Ohio EPA's 2020 IR uses fish contaminant data to determine impairment using the human health-based water quality criteria. Fish consumption advisories (FCAs) were not used in determining impairment status. However, the public should use the FCAs in determining the safety of consuming Ohio's sport fish.

The evaluation of bacteria, biological and water quality survey data was not changed from the approach used in the 2010 IR. Data collected by Ohio EPA and Level 3 QDCs were evaluated. The following QDCs and state and federal environmental agencies that are excepted from the QDC requirement submitted data or the data were available from readily obtained reports:

- Ohio Department of Natural Resources
- U.S. Geological Survey
- Northeast Ohio Regional Sewer District
- Midwest Biodiversity Institute/Center for Applied Bioassessment and Biocriteria
- Heidelberg College
- The Ohio State University
- Ohio Department of Health
- Cuyahoga County Board of Health
- EnviroScience, Inc.
- EA Science and Technology, Inc.
- Cleveland Metroparks
- Clermont County Office of Environmental Quality
- Ohio University Voinovich School
- MAD Scientist
- National Oceanic and Atmospheric Administration
- Bowling Green State University
- University of Toledo

Table D-2 — Data types used in the 2020 IR.

WQS Uses and Criteria Evaluated (basic rationale ³)	Type of Data Time Period	Source(s) of Data	Minimum Data Requirement
Human health, single route exposure via food chain accumulation and eating sport fish (criteria apply to all waters of the State)	Fish Tissue Contaminant Data 2009 to 2018	Fish Tissue Contaminant Database	Data collected within past 10 years ⁴ . Two samples, each from trophic levels 3 and 4 in each WAU or inland lake.
Recreation uses - evaluation based on a comparison of E. coli levels to applicable geometric mean and STV E. coli criteria in the WQS.	E. coli counts 2015 to 2019 (May through October only)	Ohio Dept of Health Cuyahoga County Health Department Northeast Ohio Regional Sewer District (NEORS)	Five or more E. coli samples collected within a 90-day period; at least one site per AU; data period 2015-2019
Aquatic life (specific sub-categories), fish and macroinvertebrate community index scores compared to biocriteria in WQS [OAC 3745-1-07(C) and Table 7-1]	Watershed scale biological and water quality surveys and other more targeted monitoring 2005 to 2018	ODNR U.S. Geological Survey NEORS Midwest Biodiversity Institute Heidelberg College Ohio State University EnviroScience, Inc.	Fish and/or macroinvertebrate samples collected using methods cited in WQS [OAC 3745-1-03(A)(5)]. Generally, two to three locations sampled per WAU (12-digit HUC).
Public drinking water supply (criteria apply within 500 yards of active drinking water intakes, all publicly owned lakes, and all emergency water supplies)	Chemical water quality data 2010 to 2019	SDWIS (PWS compliance database) Syngenta Crop Protection, Inc. (Atrazine Monitoring Program) ⁵	Data collected within past five years. Minimum of 10 samples with a few exceptions (noted in Section H).

³ Additional explanation is provided in the text of Section D5.

⁴ Data more than 5 years old are historical data. The rules provide that “Credible data may include historical data if the director identifies compelling reasons as to why the data are credible.” ORC 6111.51(D) also says: “If the director has obtained credible data for a surface water, the director also may use historical data for the purpose of determining whether any water quality trends exist for that surface water.”

⁵ These data were collected as part of an intensive monitoring program at community water systems required by the January 2003 Atrazine Interim Reregistration Eligibility Decision and subsequent Memorandum of Agreement between U.S. EPA and the atrazine registrants (including Syngenta Crop Protection, Inc.).

Table D-3 — Description of data used in the 2020 IR from sources other than Ohio EPA.

Entity	Dates data were collected	Data description	Basis of qualification ⁶
NPDES permittees	2013 – 2017 (May – Oct only)	Bacteria	Data credible – submittal pursuant to permit
Ohio Department of Health (ODH)	2015 – 2019 (May – Oct only)	Bacteria	State environmental agency
Cuyahoga County Health Department	2015 – 2019 (May – Oct only)	Bacteria	Level 3 qualified data collector (under ODH’s study plan)
Northeast Ohio Regional Sewer District	2015 – 2019 (May – Oct only)	Bacteria	Level 3 qualified data collector
	Jul 2006 – Oct 2016	Physical habitat	
	Jun 2006 – Oct 2016	Biology	
	Apr 2006 – Oct 2016 2008	Chemistry Fish tissue	
Ohio Department of Natural Resources	Apr 2009 – Nov 2018	Fish tissue	State environmental agency/Level 3 qualified data collector
	Sep 2006 – Oct 2016	Biology (fish only)	
	Jun – Oct 2016	Physical habitat	
PWS compliance database (permittees)	Jan 2013 – Oct 2019	Chemistry	Data credible – submittal pursuant to permit
Syngenta Corp Protection, Inc.	Jan 2012 – Dec 2018	Chemistry	See footnote ⁷
The Ohio State University	May – Oct 2006	Biology (macroinvertebrates only)	Level 3 qualified data collector
Midwest Biodiversity Institute	Jul 2010 – Oct 2016	Biology	Level 3 qualified data collector
		Physical habitat	
		Chemistry	
Enviroscience, Inc.	Sep – Nov 2011	Biology	Level 3 qualified data collector
		Physical habitat	
Ohio Department of Transportation	Jun 2007 – Oct 2010	Biology (fish only)	State environmental agency/Level 3 qualified data collector
		Physical habitat	
Heidelberg College	Jun 2012 – Oct 2012	Biology (macroinvertebrates only)	Level 3 qualified data collector
EA Science and Technology, Inc.	Jul 2014 – Oct 2014	Biology	Level 3 qualified data collector
Cleveland Metroparks	Jun 2012 – Sep 2014	Biology (fish only)	Level 3 qualified data collector
Clermont County Office of Environmental Quality	May 2009 – Sep 2016	Chemistry	Level 3 qualified data collector
Ohio University – Voinovich School	Jun 2016 – Sep 2017	Biology (fish only)	Level 3 qualified data collector
		Physical Habitat	
		Chemistry	
MAD Scientist, Inc	Jun 2016 – Sep 2016	Biology (fish only)	Level 3 qualified data collector
NOAA	2002 – present	Algal (cyanobacteria equivalent) density interpolated by satellite data	Federal environmental agency
Bowling Green State University	Jun 2018 – Sep 2019	Microcystin (cyanotoxin)	Level 3 qualified data collector; samples analyzed by Ohio EPA’s Division of Environmental Services

⁶ Level 3 Qualified Data Collector requirements are described in OAC Rule 3745-4-03(A)(4). Included above are Qualified Data Collectors Ohio EPA has approved for stream habitat assessment, fish community biology, benthic macroinvertebrate biology and/or chemical water quality assessment. Data submitted by state and federal environmental agencies used in this IR have been determined to be Level 3 Credible Data in accordance with OAC Rule 3745-4-06(B)(6).

⁷ These data were collected as part of an intensive monitoring program at community water systems required by the Jan 2003 Atrazine Interim Reregistration Eligibility Decision and subsequent Memorandum of Agreement between U.S. EPA and the atrazine registrants (including Syngenta Crop Production, Inc.).

D7. Public Involvement in Compiling Ohio's Section 303(d) List of Impaired Waters

The public was involved in various ways in the development of the 2020 IR. Several means of public communication are discussed below.

Much of the data used in this report have been presented to the public in meetings and publications concerning individual watersheds. Data and assessments have also been available in previous 305(b), 303(d) and IRs. All this information can be accessed from the following websites:

epa.ohio.gov/dsw/tmdl/index and epa.ohio.gov/dsw/tmdl/OhioIntegratedReport .

The draft 2020 303(d) list will be also available for public review and comment prior to submitting the final list and report to U.S. EPA.

Solicitation for External Water Quality Data, 2020 IR Project (Feb. 26, 2019)

The following memorandum soliciting level 3 qualified data was emailed to all Level 3 qualified data collectors on Feb. 26, 2019.



Mike DeWine, Governor
Jon Husted, Lt. Governor
Laurie A. Stevenson, Director

Date February 26, 2019

Re Solicitation of Water Quality Data, 2020 Integrated Report
(No action is required on your part - submission of data is voluntary)

To Interested Parties: Stream Monitoring Personnel

From Tiffani Kavalec, Chief
Division of Surface Water

The Ohio Environmental Protection Agency (Ohio EPA) is asking for chemical, biological and/or physical habitat data you may wish to submit for consideration as the Agency prepares its 2020 Integrated Water Quality Monitoring and Assessment Report, commonly referred to as the Integrated Report. Both state and federal governments have an interest in utilizing all available data to make informed decisions about managing Ohio's aquatic resources; however, Ohio EPA is only able to use data from a limited number of external sources, including Level 3 certified data collectors and National Pollutant Discharge Elimination Systems (NPDES) discharge permit holders¹.

Ohio EPA's Division of Surface Water (DSW) is soliciting readily available data for use in the 2020 Integrated Report. This document fulfills the State's reporting obligations under Sections 305(b) and 303(d) of the Clean Water Act. Information is available at <http://www.epa.ohio.gov/dsw/tmdl/OhioIntegratedReport.aspx>.

Credible Data Law

Credible Data rules ([OAC 3745-4-01 to 06](#)), developed in accordance with the 2003 credible data law ([ORC 6111.50 to 6111.56](#)), established a citizen water quality monitoring program for the purpose of collecting credible data under the act and required qualified data collectors to follow plans pertaining to data collection. The law further required that collectors submit a certification that the data were collected in accordance with such a plan. Furthermore, as required by the law, a computerized database was developed to track and maintain all credible data in the director's possession.

Additionally, the law established that external data found to be compliant with the specifications for "level 3 credible data," which generally means data from a level 3 qualified

¹ It is unnecessary to resubmit data that have already been submitted to the Division of Surface Water.

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epa.ohio.gov • (614) 644-3020 • (614) 644-3184 (fax)

data collector, can be used for certain regulatory and reporting purposes, such as the Section 303(d) list of Ohio's impaired waters.

According to Ohio EPA's administrative rules, you may meet the qualifications of a level 3 qualified data collector in one or more areas of water quality data. Therefore, in pursuit of all readily available data for use in the state's reporting documents, the Agency is requesting your voluntary participation by submitting any recent water quality data that you have on Ohio's waters (e.g., lakes, rivers and streams) that you are qualified and authorized to collect.

Data submission deadlines are dependent on the type of data and are as follows:

- **Biological, physical habitat, chemical and fish tissue = April 30, 2019**
- **Bacteria = September 15, 2019**

More information about the specific types of data being requested by Ohio EPA, and **how** to submit such data, may be found at:

<https://epa.ohio.gov/dsw/tmdl/2020IntReport/2020CallForData>

[Web Page with Instructions for Submitting Level 3 Credible Data](#)

For organizations interested in submitting data to Ohio EPA, a web page was established with instructions on what qualified data to be submitted and how to do so. The website content is displayed below.

2020 Integrated Water Quality Monitoring and Assessment Report - Call for Level 3 Credible Data

Information about submitting Level 3 credible data to Ohio EPA is organized as outlined below. More information about the Integrated Report is on the [Ohio Integrated Water Quality Monitoring and Assessment Report](#) page.

- What kind of data does Ohio EPA want?
 - Microbiological data
 - Biological and physical habitat data
 - Chemical water quality data
 - Fish tissue data
- Do I have level 3 data?
- Have I already given Ohio EPA my data?
- What will be needed in addition to data?
 - Microbiological data requirements
 - Biological, chemical, fish tissue and physical data requirements
- How do I send the data?
- To whom do I send the data?

To access the information, click on the relevant link below.

What kind of data does Ohio EPA want?

Ohio EPA is asking for biological, physical habitat and/or chemical data you may wish to submit for consideration as the Agency prepares its 2020 Integrated Report. Both the state and federal governments have an interest in utilizing all available data to make informed decisions about managing Ohio's aquatic resources. Ohio EPA is soliciting data primarily from NPDES major permit holders, level 3 qualified data collectors and others that may be in possession of level 3 credible data. The data can be of various types (bacteria, biological, physical and chemical water quality data) and must have been collected during the following time frames:

- Bacteria = 2018 – 2019 (recreation season)
- Biological, physical habitat, chemical and fish tissue = 2017 – 2018

Microbiological Data

Ohio EPA measures recreation use attainment by comparing the level of indicator bacteria present in ambient water samples against the bacteria criteria contained in [rule 3745-1-37 of Ohio's water quality standards](#). These indicator bacteria serve as predictors for the possible presence of enteric pathogens in the water that can cause a variety of illnesses. The type of indicator bacteria that Ohio EPA is utilizing in the 2020 Integrated Report is *E. coli*.

Data collected by NPDES discharge permit holders at ambient stream sites upstream and downstream of discharge locations and reported in discharge monitoring reports will be extracted from the SWIMS database. **It is unnecessary to resubmit data already submitted into SWIMS.** However, if bacteria data were collected at additional ambient stations and not reported through SWIMS, permit holders may voluntarily submit this data to the Agency. Data must have been collected between May 1, 2018, and September 15, 2019, and must meet the basic terms of acceptability found in the requirements listed below.

Biological and Physical Habitat Data

Ohio EPA measures aquatic life use attainment in Ohio streams and rivers by comparing indices generated from fish and aquatic macroinvertebrate data against the biological criteria contained in Ohio’s water quality standards, *OAC 3745-1-07, Table 7-1*. Field collection and data analysis methodologies for fish and macroinvertebrate community assessments are strictly adhered to and must follow procedures as outlined in documents available from Ohio EPA’s biological criteria website:

<http://www.epa.ohio.gov/dsw/bioassess/BioCriteriaProtAqLife.aspx>.

Physical habitat data should be in the form of the Qualitative Habitat Evaluation Index (QHEI) and must be included if fish community data are being submitted. QHEI procedure manuals and forms can also be found at the above website location.

Chemical water quality data collected in conjunction with biological data is of interest to Ohio EPA. Data should follow the parameters discussed below.

Chemical Water Quality Data

Ohio EPA primarily uses sampling methods described in the “*Surface Water Field Sampling Manual*.” Sample collection and analysis method references are listed in *paragraph (C) of OAC 3745-4-06*. Ohio EPA is interested in other chemical water quality data collected and analyzed by these methods or others of similar quality control/quality assurance rigor.

Fish Tissue Data

Ohio EPA primarily uses sampling methods described in the “*State of Ohio Cooperative Fish Tissue Monitoring Program Fish Collection Guidance Manual*” and analysis methods from “*Guidance for Assessing Chemical Contaminant Data for Use in Fish Advisories. Volume 1, Fish Sampling and Analysis. Third edition*.” Sample collection and analysis method references are listed in *paragraph (C) of OAC 3745-4-06*. Ohio EPA is interested in other fish tissue data collected and analyzed by these methods or others of similar quality control/quality assurance rigor.

Do I have Level 3 data?

Credible Data rules (*OAC 3745-4-01 to 06*), developed in accordance with the 2003 credible data law (*ORC 6111.50 to 6111.56*), established a water quality monitoring program for the purpose of collecting credible data under the act and required qualified data collectors to follow plans pertaining to data collection. The law further required that collectors submit a certification that the data were collected in accordance with such a plan. Furthermore, as required by the law, a computerized database was developed to track and maintain all credible data in the director’s possession.

Additionally, the law established that external data found to be compliant with the specifications for “level 3 credible data,” which generally means data from a level 3 qualified data collector, can be used for certain regulatory and reporting purposes, such as the Section 303(d) list of Ohio’s impaired waters.

If you have collected data following these procedures, then you may have level 3 credible data eligible for inclusion in the Integrated Report.

Have I already given Ohio EPA my data?

External data Ohio EPA has received and may use for 305(b)/303(d) reporting:

Entity	Dates data were collected	Data description	Basis of qualification ¹
NPDES permittees	2013 – 2017 (May – Oct only)	Bacteria	Data credible – submittal pursuant to permit

Ohio Department of Health (ODH)	2013 – 2017 (May – Oct only)	Bacteria	State agency
Cuyahoga County Health Department	2013 – 2017 (May – Oct only)	Bacteria	Level 3 qualified data collector (under ODH's study plan)
Northeast Ohio Regional Sewer District	2013 – 2017 (May – Oct only)	Bacteria	Level 3 qualified data collector
	Jul 2006 – Oct 2016	Physical habitat	
	Jun 2006 – Oct 2016	Biology	
	Apr 2006 – Oct 2016	Chemistry	
	2008	Fish tissue	
Ohio Department of Natural Resources	Apr 2006 – Nov 2016	Fish tissue	State agency/Level 3 qualified data collector
	Sep 2006 – Oct 2016 Jun – Oct 2016	Biology (fish only)	
		Physical habitat	
PWS compliance database (permittees)	Jan 2012 – Oct 2017	Chemistry	Data credible – submittal pursuant to permit
Syngenta Corp Protection, Inc.	Jan 2012 – Oct 2017	Chemistry	See footnote ²
The Ohio State University	May – Oct 2006	Biology (macroinvertebrates only)	Level 3 qualified data collector
Midwest Biodiversity Institute	Jul 2010 – Oct 2016	Biology	Level 3 qualified data collector
		Physical habitat	
		Chemistry	
Enviroscience, Inc.	Sep – Nov 2011	Biology	Level 3 qualified data collector
		Physical habitat	
Ohio Department of Transportation	Jun 2007 – Oct 2010	Biology (fish only)	State agency/Level 3 qualified data collector
		Physical habitat	
Heidelberg College	Jun 2012 – Oct 2012	Biology (macroinvertebrates only)	Level 3 qualified data collector
EA Science and Technology, Inc.	Jul 2014 – Oct 2014	Biology	Level 3 qualified data collector
Cleveland Metroparks	Jun 2012 – Sep 2014	Biology (fish only)	Level 3 qualified data collector
Clermont County Office of Environmental Quality	May 2009 – Sep 2016	Chemistry (drinking water)	Level 3 qualified data collector
MAD Scientist, Inc.	Jun 2016 – Sep 2016	Biology (fish only)	Level 3 qualified data collector
Ohio University – Voinovich School	Jun 2016 – Sep 2017	Biology (fish only)	Level 3 qualified data collector
		Physical habitat	

		Chemistry	
<p>1 Level 3 qualified data collector requirements are described in OAC Rule 3745-4-03(A)(4). Included above are qualified data collectors Ohio EPA has approved for stream habitat assessment, fish community biology, benthic macroinvertebrate biology and/or chemical water quality assessment.</p> <p>2 These data were collected as part of an intensive monitoring program at community water systems required by the Jan 2003 Atrazine Interim Reregistration Eligibility Decision and subsequent Memorandum of Agreement between U.S. EPA and the atrazine registrants (including Syngenta Crop Protection, Inc.).</p>			
<hr/>			
<p>What will be needed in addition to data?</p>			
<p>Specific guidelines for submission of data are listed below. While these guidelines correspond to the regulations regarding credible data, they are not verbatim. To see the regulations, please go to OAC 3745-4-06.</p>			
<p>Microbiological Data Requirements</p>			
<p>An individual or organization that submits bacteria data to Ohio EPA for consideration in the 2020 Integrated Report shall attest to the validity of the data and adhere to the data quality specification listed here. The submission of data must cover the following:</p>			
<ul style="list-style-type: none"> ▪ Sampling and test methods, QA/QC specifications: Sampling must be conducted in a manner consistent with procedures contained in <i>Standard Methods for the Examination of Water and Wastewater</i> or the most relevant version of the "Surface Water Field Sampling Manual." 			
<p>Analytical testing must be conducted in accordance with U.S. EPA approved methods under 40 CFR 136.3. Acceptable references for methods for qualified data collectors are given in paragraph (C) of OAC 3745-4-06 and include Ohio EPA references, U.S. EPA references and Standard Methods. Data submissions must include a description of the Quality Assurance/Quality Control (QA/QC) plans under which the bacteria sample analysis occurred. This should address topics such as sample handling and preservation, sample holding time, chain of custody, precision, accuracy, etc.</p>			
<ul style="list-style-type: none"> ▪ Description of Sampling Program: A brief description of the purpose of data collection and the sampling design considerations should be provided. Were specific sources of potential contamination under investigation? Were samples collected at fixed station locations? How often and under what kinds of environmental conditions were samples collected? Have the results been published in a report or the scientific literature? 			
<ul style="list-style-type: none"> ▪ Minimum Data Submission: Ohio EPA is requesting only bacteria data (<i>E. coli</i>) collected during the recreation season (May 1st to October 31st) for 2018 and (May 1st to September 15th) for 2019. The following information must be included in the data submission in an electronic spreadsheet or database format: 			
<ul style="list-style-type: none"> ▪ Sample collection date ▪ Sample collection method (with reference) ▪ Sample site location including waterbody name, county, river mile (if known), latitude/longitude (decimal degrees or degrees, minutes, and seconds) ▪ <i>E. coli</i> count ▪ Identification of units associated with bacteria counts ▪ Any applicable data qualifiers (as received from the lab, if applicable) ▪ Contact name, address, telephone number and e-mail address of the person submitting the data set ▪ Identification of the laboratory performing the sample analysis 			

Bacteria data must have been collected on or after May 1, 2018, and must meet the basic acceptability specifications listed above. Data must be provided in an electronic format such as Excel or Access.

Biological, Chemical, Physical Habitat and Fish Tissue Data Requirements

An individual or organization that submits biological, chemical, physical habitat and/or fish tissue data to Ohio EPA for consideration in the 2020 Integrated Report shall attest to the validity of the data and adhere to the data quality specifications listed here. The submission of data must cover the following:

- Analytical and sampling procedures (examples):
 - [Surface Water Field Sampling Manual](#)
 - [Habitat and biology sampling manuals](#)
 - Only data that are consistent with these guidelines can be considered Level 3 data.
- Description of Sampling Program: A brief description of the purpose of data collection and the sampling design considerations should be provided. Were specific sources of potential contamination under investigation? Were samples collected at fixed station locations? How often and under what kinds of environmental conditions were samples collected? Have the results been published in a report or the scientific literature?

If the data have been or will be submitted as part of the Credible Data Program and there is an approved project study plan, this requirement is potentially waived, pending a successful data review that confirms study plan was adhered to as written.

- Minimum Data Submission: Ohio EPA is requesting biological, chemical, physical habitat and fish tissue data collected from 2017 – 2018. The following information must be included in the data submission in an electronic spreadsheet or database format:
 - Sample collection date
 - Sample collection method (with reference)
 - Sample site location including waterbody name, county, river mile (if known), latitude/longitude (decimal degrees or degrees, minutes and seconds)
 - Type of data collected (fish, macroinvertebrate, chemical and physical parameters)
 - Analytical and collection methodologies used (include references)
 - Any applicable data qualifiers (as received from the lab, if applicable)
 - Contact name, address, telephone number and e-mail address of the person submitting the data set
 - Identification of the laboratory performing the sample analysis (if applicable)
 - Weather conditions, flow and precipitation (all optional)

Biological, chemical, physical habitat or fish tissue data must have been collected on or after January 1, 2017, and must meet the basic acceptability specifications listed above. Data must be provided in an electronic format such as Excel or Access.

How do I send the data?

Ohio EPA already has data from some credible data collectors, as listed in the table above. Additional data may be available and Ohio EPA is soliciting these data.

The Agency's capacity to accept and utilize the data in preparation of the Integrated Report is dependent upon a variety of factors and the use of all data brought to our attention may not be possible. Data must be provided in electronic format such as Excel or Access.

If you would like to discuss the possible use of data in the 2020 Integrate Report, please contact Jared Burson at (614) 721-8697 or jared.burson@epa.ohio.gov before preparing and submitting any information.

To whom do I send the data?

Submit all data and supporting information listed above to Jared Burson, jared.burson@epa.ohio.gov, Ohio EPA/DSW, P.O. Box 1049, Columbus, Ohio 43216-1049.

Bacteria data must be received by September 15, 2019, all other data must be received by April 30, 2019.

Web Page Announcing 2020 Integrated Report Preparation

As shown below, Ohio EPA announced the preparation and anticipated schedule of the 2020 Integrated Report on its website (epa.ohio.gov/dsw/tmdl/OhioIntegratedReport.aspx).

Preparation of 2020 Integrated Report is Underway

Ohio EPA is preparing the 2020 Integrated Report, which fulfills the State's reporting obligations under [Section 305\(b\) \(33 U.S.C. 1315\)](#) and [Section 303\(d\) \(33 U.S.C. 1313\)](#) of the Federal Clean Water Act. The report will indicate the general condition of Ohio's waters and list those waters that are currently impaired and may require **Total Maximum Daily Load (TMDL)** development in order to meet water quality standards. The most recent Ohio Integrated Report was approved by U.S. EPA on July 9, 2018 (see 2018 tab on this website).

When will the report be completed?

Major project milestones and expected dates for completion are shown below. Please continue to check this website for updates.

Refine methodologies/compile data	June - October 2019
External level 3 credible data are due to Ohio EPA	April 30, 2019 (bio/physical/chem/fish tissue); Sept. 15, 2019 (bacteria)
Prepare list/internal review	October - December 2019
Public notice draft 303(d) list	December 2019 – January 2020
Respond to comments/prepare final list	February - March 2020
Submit to U.S. EPA Region V for approval	April 1, 2020

Call for Level 3 Credible Data

Information regarding level 3 credible data submission can be found at the following webpage: <https://epa.ohio.gov/dsw/tmdl/2020IntReport/2020CallForData>.

Notice of Availability and Request for Comments CWA Section 303(d) TMDL Priority List for 2020

OHIO ENVIRONMENTAL PROTECTION AGENCY PUBLIC NOTICE

NOTICE OF AVAILABILITY and REQUEST FOR COMMENTS Federal Water Pollution Control Act Section 303(d) TMDL PRIORITY LIST FOR 2020

Public notice is hereby given that the Ohio Environmental Protection Agency (Ohio EPA) Division of Surface Water (DSW) is providing for public review and comment the *2020 Integrated Water Quality Monitoring and Assessment Report*. This report includes the Total Maximum Daily Load (TMDL) priority list for 2020 as required by Section 303(d) of the Federal Water Pollution Control Act (a.k.a., Clean Water Act), 33 U.S.C. Section 1313(d). The list indicates the waters of Ohio that are currently impaired and may require TMDL development in order to meet water quality standards. The priority list is contained within Section J and a list of all categories of waters is available on Ohio EPA's website at the address below. The report describes the procedures that Ohio EPA used to develop the list and indicates which areas have been assigned high priority for TMDL development during the next two years.

Ohio EPA will present information about the list through a webinar on March 2, at 2:00 p.m. The webinar may be viewed at Ohio EPA's Central Office, 50 West Town Street, Suite 700, Columbus, Ohio 43215 or by registering and joining online at:

https://ohioepa.webex.com/mw3300/mywebex/default.do?siteurl=ohioepa&service=6&main_url=%2Fec3300%2Feventcenter%2Fmainframe.do%3Fsiteurl%3Dohioepa%26main_url%3D%252Fec3300%252Feventcenter%252Fevent%252FeventAction.do%253Fsiteurl%253Dohioepa%2526theAction%253Dinfo_start%2526path%253Dinfo%2526confViewID%253D152891092052784280. All visitors to Ohio EPA must register at the Security desk in the lobby upon arrival. Please bring photo identification (such as a valid driver's license). For security reasons, visitors are required to wear their badge at all times while in the building. Please arrive early to complete these procedures.

All interested persons wishing to submit comments on the list for Ohio EPA's consideration may do so by email to EPATMDL@epa.ohio.gov or in writing to Ohio EPA, Division of Surface Water, P.O. Box 1049, Columbus, Ohio 43216-1049 Attn: 303(d) Comments, by the close of business, March 13, 2020. Comments received after this date may be considered as time and circumstances allow.

After reviewing the comments, Ohio EPA will submit a final document to the United States Environmental Protection Agency (U.S. EPA) for approval.

The report is available for review on Ohio EPA's Division of Surface Water website at <http://epa.ohio.gov/dsw/tmdl/OhioIntegratedReport.aspx>. To arrange to inspect Agency files or records pertaining to the document, please contact Richard Boudier at (614) 644-3037. To request notice of when Ohio EPA submits the document to U.S. EPA, please contact the e-mail address above or call Melinda Harris at (614) 728-1357.

Response to Comments Received regarding the Request for Comments CWA Section 303(d) TMDL Priority List for 2020

The draft Ohio 2020 Integrated Water Quality Monitoring and Assessment Report (a.k.a., Integrated Report or IR) was available for public review from February 13, 2020, through March 13, 2020.

During that time frame, 12 sets of public comments were received on the draft report, as follows:

- Association of Ohio Metropolitan Wastewater Agencies
- Environmental Law & Policy Center of the Midwest
- Lake Erie Waterkeeper
- Midwest Biodiversity Institute
- Northeast Ohio Regional Sewer District
- Ohio Coal Association
- Ohio Corn and Wheat Growers Association (OCW) and the Ohio Soybean Association (OSA)
- Ohio Environmental Council (“OEC”), Freshwater Future, and the Alliance for the Great Lakes
- Ohio Farm Bureau Federation
- Ohio Manufacturers’ Association
- Ohio Scenic River Association (OSRA)
- Quasar Energy Group

Most of the comments are expressed verbatim as they were received; however, grammatical errors and typos may have been corrected and some comments were reduced to just the main points or requests. Please note that page number references to the draft report may not correspond to the same page numbers in the final report. Complete copies of the comments are included at the end of this section.

General Comments

Comment 1: It is unclear in the report on the TMDL assessment process regarding high flow and low flow nutrient runoff within the assessment unit and upstream and downstream of the assessment unit, please explain. (Lake Erie Waterkeeper)

Response 1: In any given TMDL project, a linkage of the impaired assessment unit and pollutant(s) causing the impairment is presented. The linkage analysis identifies, among other things, what flow conditions are applicable to the required TMDL. Therefore, some TMDLs may consider more narrow flow conditions than others. An example of a narrow focus TMDL would be if an impairment were determined to only occur during low flow conditions and due to pollutants delivered by municipal point sources. In this example, the TMDL would focus on just the sources during the low flow periods. Alternatively, if pollutants causing impairments are delivered during high flow conditions then all sources, from both high and low streamflows, will be included in the TMDL. Sources from high flow conditions (such as nonpoint source runoff) would most likely require the greatest load reduction however because the higher flows greatly increase their relative loading.

Comment 2: For all TMDLs and monitoring, there should be a numerical total phosphorous standard and a standard for dissolved/soluble phosphorous – the Great Lakes Water Quality Agreement provides some guidance. If only total phosphorous is assessed, then much of the phosphorous/nutrient runoff, which is critical to reduce algae is missing and this is

unacceptable. (Lake Erie Waterkeeper)

Response 2: U.S. EPA TMDL development guidance (nepis.epa.gov/Exe/ZyPDF.cgi/20004PB2.PDF?Dockey=20004PB2.PDF) requires that target pollutant values be determined for TMDL projects. A TMDL target can be set to a numeric water quality standard if there is one applicable, however targets can be determined when water quality standards do not exist or if a more appropriate site/project specific target can be identified. Ohio will take into consideration and respond to comments on targets used for specific TMDL projects during the development of those projects.

Comment 3: There needs to be consistency in what is monitored for, how it is reported and QAQC. (Lake Erie Waterkeeper)

Response 3: The various assessment methods for the different beneficial uses in the Integrated Report explain the monitoring, reporting and quality assurance/quality control (QAQC) protocols. Please see Section E for Human Health Use, Section F for Recreation Use, Section G for Aquatic Life Use and Section H for Public Drinking Water Supply Use. Further details can also be found in Ohio EPA's water quality monitoring Quality Assurance Project Plans (QAPPs) available at: epa.ohio.gov/dsw/bioassess/ohstrat#124973700-study-plans.

Comment 4: Mussels – OSRA continues to encourage Ohio EPA to include mussels in assessments of Ohio's rivers and streams and in the Integrated Report. We continue to encourage that, and if not addressed in this Integrated Report, then we would like to see the issue covered in the next and in other publications such as TMDL reports. We ask that mussels be addressed because of their continuing problems with the survival of some species, and in some cases serious declines in species richness and diversity, such as Dr. Michael Hoggarth of Otterbein University has documented recently in the Little Miami River. Big Darby Creek, another state and national Scenic River, has seen multiple species decline to the point where they might no longer be present, or at least viable, in that watershed.

At the March 5 meeting at ODNR on the draft Integrated Report, Ohio EPA seemed to express that protection of mussels was not the Agency's responsibility, deferring to ODNR and the U.S. Fish & Wildlife Service. We recognize these agencies have responsibilities to protect mussel species, such as the U.S. Fish and Wildlife Service species recovery plans, in cooperation with the Ohio Department of Natural Resources. These plans have been in place for many years and have not been adequate to address declines. And while the federal Endangered Species Act is in place, we believe it also has not been enough to significantly help prevent declines. We note that the 1994 recovery plan for the northern riffleshell mussel includes a call to "identify and participate in ongoing environmental planning and regulatory compliance processes within each ecosystem" and "develop and implement comprehensive watershed plans."

Related to Ohio EPA responsibilities, like the fish community, the Clean Water Act also includes protection of mussels, such as addressed in "Technical Support Document for Conducting and Reviewing Freshwater Mussel Occurrence Surveys for the Development of Site-specific Water Quality Criteria for Ammonia" (U.S. EPA 2013). Ohio EPA has responsibility under Ohio Revised Code 6111.12 Antidegradation policy and included mussels in the 2002 listings of Antidegradation Tier Justifications for State Resource Waters

and Superior High Quality Waters. Mussels are part of the base for defining “exceptional recreational or ecological value” for many Ohio streams. We appreciate that Ohio EPA has included mussels in macroinvertebrate collections since the 1990s, as mussels are a significant component of Ohio streams and their benthic fauna.

We strongly encourage Ohio EPA to be proactive and participate in a cooperative effort with these and other agencies, academia, non-profits and others. The assessment and strategies will need to go beyond conventional approaches such as 401 certifications or NPDES permits. Ohio and Ohio EPA, with their strong database on water quality in streams, are in a good position to address this issue and contribute to scientifically-based analysis and potential solutions. No other institution can match Ohio EPA’s capabilities for water quality analysis, and we believe this is one of the contributions that could help make a cooperative effort work and address mussel problems and protection. (Ohio Scenic Rivers Association)

Response 4: Ohio EPA is also concerned about the mussel species decline observed in certain watersheds in Ohio and will continue to document information regarding mussels in our routine watershed surveys along with collecting water quality data. Ohio EPA is a willing partner and contributor to any workgroup that is established to investigate mussel decline. In 2018, the Agency agreed to help support, but not lead, an interdisciplinary workgroup to help inform and guide future mussel monitoring and conservation efforts in the Big Darby Creek watershed. The Agency will check the status of this group and determine if this group could be expanded to include additional watersheds like the Little Miami River watershed.

Comment 5: Economic Value of Ohio Rivers – In 2019, economists at The Ohio State University estimated that there are 171 million outdoor recreational trips in Ohio each year, and that these trips are worth \$3.6 billion per year. “The contribution of this expenditure to Ohio’s overall economic activity is estimated to be \$8.1 billion per year, which amounts to 1.3% of Ohio’s economy” (Gioglio et al, 2019 “Economic Valuation of Natural Areas in Ohio”). Stream-based activities like fishing and kayaking are among the leading uses. Our water-based recreation activities make the protection of Scenic Rivers critical. OSRA emphasizes this aspect of our Scenic Rivers and we encourage that the Integrated Report include mention of this important factor supporting protection of Ohio’s Scenic Rivers and other streams. (Ohio Scenic Rivers Association)

Response 5: Additional language has been added to the Scenic Rivers discussion in Section B of the report.

Interactive Map

Comment 6: Although the District is listed as a source of biological data in Table D-2, it appears that this information was inadvertently omitted from the interactive map for individual watershed assessment units. (Northeast Ohio Regional Sewer District)

Response 6: Ohio EPA did a complete replace of the water quality data behind the 2020 Integrated Report interactive map from our assessment database. The most recent assessment data for a site was included. Data on a particular site would only be included if all necessary data was available to perform an assessment (typically both fish and macroinvertebrate data). It is possible that Ohio EPA’s 2015 Lake Erie tributaries and 2017-2018 Cuyahoga River watershed surveys may have replaced NEORSR data. Ohio EPA has received NEORSR’s spreadsheet of data collection and will use this information to compare against our

assessment database and update our Interactive Map with approved, non-duplicative data accordingly.

Specific Comments

Section A

Comment 7: Section A, pages A-10 through A-15:

In reviewing the most common causes of aquatic life impairment in the DRAFT 2020 Integrated Report Water Quality Monitoring and Assessment Report (DRAFT 2020 Integrated Report) in Section A (pp. A-10 to A-15) three (3) of the five (5) most common causes of aquatic life impairment- Nutrient Enrichment, Habitat Modification and Siltation/Sedimentation - are each strongly influenced by stream morphology or the geomorphic condition of the stream (i.e., is the stream geomorphically stable, unstable or have some degree of instability). In other words, stream morphology or geomorphic condition is a primary factor, if not the dominant factor, in determining the functioning (i.e., health) of our streams now that point source discharges have been effectively controlled.

An example of how not understanding the geomorphic condition of streams leads to incorrect priorities to solve pollution problems is provided in this DRAFT 2020 Integrated Report. In the case of Siltation/Sedimentation common cause, the discussion next to the stream photograph states (p. A-11) the following:

“Siltation/sedimentation describes the deposition of fine soil particles on the bottom of stream and river channels. Deposition typically follows high-flow events that erode and pick up soil particles from the land.”

To be clear, most of the sediment in our streams comes from the streambanks of geomorphically unstable streams (e.g., upwards of 80%) and not from the land as discussed in the report. If you are going to solve problems, you have to correctly define the problem. This report does not sufficiently define the source of the problem when it comes to siltation/sedimentation.

Additionally, geomorphically unstable streams directly lead to degradation (modification) of habitat and stream processes that assimilate pollutant loads, such as nutrient enrichment. For example, as streams become geomorphically unstable, riffles are eroded and pools are filled, channels incise and stream bank heights increase leading to bank failure and silt/sediment entering the stream. Stable geomorphic conditions will process silt/sediment from stream channels onto floodplains during out-of-bank flows that will occur annually or more often along geomorphically stable streams. Nutrients, such as, nitrogen and phosphorus are typically attached to silts and clays. If silts and clays are deposited on floodplains, then enormous amounts of nutrients are removed from the stream (i.e., significant water quality improvements). Additionally, with silts and clays removed from streams, the water becomes clearer and sunlight (UV) can kill more pathogens within the water.

Therefore, a primary tactic in the overall strategy to reduce silt/sediment in streams is to understand the geomorphic condition of the stream channels. If they are in an unstable condition, then stream restoration would be the top priority to reduce silt and sediment in

our streams. However, the DRAFT 2020 Integrated Report does not even identify stream instability as an example silt/sediment source.

This major error is most likely the result of the OEPA not properly assessing and evaluating the geomorphic conditions of streams during stream assessments, which is fundamental to understanding how streams are functioning. The Clean Water Act's objective is to maintain and restore the chemical, physical and biological integrity of the Nation's waters. A geomorphic condition assessment is required to evaluate the physical integrity of streams.

Further, this lack of assessing and understanding the geomorphic condition of streams leads to incorrect priorities that cause confusion, misunderstanding and wasteful spending of public and business resources in Ohio. Additionally, restored and existing geomorphically stable streams are effectively self-maintaining and will provide water quality improvement services at no additional cost to the public perpetually. These natural functions (processes) will, overtime, remove most or all of the inputs of silt and sediment from construction sites and overland erosion given that these inputs are not excessive (i.e., a 'free' secondary cleaning service). (Ohio Coal Association)

Response 7: While the Integrated Report covers water quality issues in broad strokes, Ohio EPA considers the details of every source of impairment during our comprehensive biological surveys. These sources of impairment are very specific to each watershed that is assessed. Those details would be laid out in the Biological and Water Quality Reports (BWQR) that Ohio EPA publishes for public comment. The BWQRs are also where Ohio EPA provides recommendations for restoration strategies.

When determining the sources of near-field nutrient enrichment, habitat modification, or sedimentation/siltation, the BWQR would attempt to identify the root of the problem. For example, if sedimentation/siltation is listed as a cause of impairment and in-stream erosion and incision are likely culprits, Ohio EPA would try to find the reason for the erosion. If it is due to flashiness from impervious surfaces upstream, then the impervious surfaces would be identified as the primary source. So, specific habitat evaluations are conducted at the project/site level and identified in the individual BWQRs.

Ohio EPA has edited the text on page A-11 to include that sediment can come from the land or within the stream channel.

Section C

Comment 8: Section C1, page C-3: The Clean Water Act (CWA) is mentioned and references that the CWA's purpose is "...to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Again, there is not enough focus on the "physical" aspect portion of streams. More focus needs to be placed on geomorphology and stabilization of the streams and their associated banks and floodplains.

Currently, the Ohio Coal Association has the following items of recommendation and concerns with the proposed approach to surveying and monitoring aquatic life in Ohio's streams and rivers and for the TMDLs:

1. Use a geomorphic condition assessment such as Rosgen's methodology to determine key geomorphic condition parameters, such as, entrenchment ratio, width-to-depth ratio and degree of incision.

2. A geomorphic assessment includes an assessment of hydrology or hydrologic condition; thus, the watershed should be evaluated for changes (e.g., land use, storage, others) that might increase or decrease runoff (i.e., magnitude, frequency and duration). However, in most cases, watersheds are dynamic regarding land use changes, which implies an increase in runoff. Increased runoff has significant potential to degrade streams (e.g., incision).
3. A primary need for most all watersheds is to offset the tendency for increases in runoff by creating more watershed storage. More watershed storage will moderate runoff that will reduce the potential for channel degradation (e.g., incision) and downstream flooding. Historically, watershed storage was extensive via the existence of in-stream beaver impoundments. However, these features are now tremendously missing from our watershed due to extirpation of beavers from Ohio by 1830 and these features or similar features need to be greatly expanded upon as a solution to Ohio's channel degradation problems.
4. Geomorphically speaking, in general, there are three (3) key broad level priorities for maintaining healthy streams and rivers, which are as follows:
 - Increase watershed storage (i.e., more in-stream impoundments with features similar to beaver impoundments).
 - Reduce channel incision (i.e., reconnect streams to their floodplains at the bankfull channel stage), and
 - Increase active floodplain width (i.e., broad floodplain at the bankfull channel stage) to further increase watershed storage, moderate flooding and decrease potential for channel degradation (e.g., incision).

Other geomorphic parameters have importance, but conceptually these are the three key broad level priorities. (Ohio Coal Association)

Response 8: Please see the response to comment 7 above. In addition, Ohio EPA considers stream physical integrity in the implementation and restoration of our impaired waters as part of the TMDL report process. Agency recommendations on restoration actions to address nonpoint sources of impairment to streams are consistent with Ohio's Nonpoint Source Management Plan (epa.ohio.gov/dsw/nps/index#120843258-nps-management-plan). The recommended practices within this plan are in line with the three key broad level priorities identified above.

Comment 9: The Integrated report makes the following statement: Water Quality Based Effluent Limits Ohio rules require NPDES permits to be protective of the receiving stream uses, including public water supply, industrial, agricultural, aquatic life, human health and recreational. To develop limits to protect these uses, the first step is determining:

- Discharge Information
 - Concentrations of pollutants
 - Proposed flows
- Receiving Stream Information
 - In-stream chemistry data
 - Low-flow conditions

- Applicable uses

The permit writer does a mass balance to determine the allowable discharge amounts which will be protective of the water quality criteria. Total Maximum Daily Load Receiving streams which are impaired may result in a TMDL for a certain

This statement does not factor in the transfer of NPDES responsibility from OEPA to ODA for CAFO's/manure. Does the Mass Balance analysis that Ohio EPA does include CAFO's/manure/NPDES permits? What are the rules for overall Clean Water Act /NPDES administration when there are two agencies who have NPDES responsibility? (Lake Erie Waterkeeper)

Response 9: The statement in Section C on page C-12 of the Integrated Report applies to all NPDES permits that have discharges to waters of the State, including NPDES permits for CAFOs. The federal regulations governing the NPDES program apply to state programs regardless of which agency is delegated to perform the duties.

Comment 10: Section C.6 of the draft report summarizes the available funding mechanisms to address water quality impairments in Ohio. We noticed that this did not include any reference to Governor DeWine's new H2Ohio program. This program, which is designed as a comprehensive plan to address overall Ohio water health, will play a key role in addressing water impairment of Lake Erie. Both the draft Domestic Action Plan 2020 and the draft Lake Erie Protection and Restoration Plan 2020 refer specifically to H2Ohio; therefore, OMA recommends that H2Ohio funding should be a recognized funding source and it should be added to Section C.6 of the report (The Report does refer to H2Ohio on pages J5-6 but not as a funding source.). (Ohio Manufacturers' Association)

Response 10: A new paragraph on the H2Ohio Plan has been added to Section C.6 of the final report.

Section F

Comment 11: As you know, the District is one of the contributors of data to this report through Ohio EPA's Credible Data Program. In reviewing the report, the District identified some minor discrepancies between the data used in the report and the data collected by the District. Section F: Evaluating Beneficial Uses: Recreation. In Tables F-6 and F-7, the seasonal geomeans and the number of days that beaches were posted for Edgewater, Euclid, and Villa Angela Beaches should be revised as attached. The discrepancies for the 2019 data are likely due to an incomplete dataset in the Ohio Department of Health (ODH) Beachguard website. These missing data points have since been entered in the ODH system. (Northeast Ohio Regional Sewer District)

Response 11: Ohio EPA thanks NEORSO for bringing this data discrepancy to our attention. The entire data set for Edgewater, Euclid and Villa Angela Beaches was re-downloaded from ODH's website and re-analyzed. Section F of the report has been updated to reflect this analysis. A footnote on Table F-5 was also clarified to specify that Ohio EPA includes available beach data after Labor Day if it is available.

Comment 12: In 2018 we raised concerns that the Ohio EPA's methodology to support nutrient impairments in the open waters of the western basin had not been made available to the public for review and comment. While we understand that methodology has since been

published in a peer reviewed journal and adapted for use in the Sandusky Bay as well as the central basin, we are still not aware of any effort by Ohio EPA to formally include this new methodology and de-facto water quality standards as part of Ohio's formal water quality standards. We continue to believe that Ohio EPA's new satellite-based, algal cell count/density numeric standard should undergo the rulemaking procedures set forth in RC Chapter 119 before the standard is used to assess the impairment status of the Lake Erie waters. Does the Ohio EPA plan to conduct notice and comment rule-making as required by RC 6111.041? (Ohio Corn and Wheat Growers Association and Ohio Soybean Association)

Response 12: Ohio EPA continues to disagree that the assessment methodology used in the Integrated Report for Lake Erie recreation impairments due to algae is a “de-facto” water quality standard. It is merely a scientifically validated approach to inform a narrative water quality standard in a portion of Lake Erie. The narrative water quality standards have been adopted in accordance with state rulemaking requirements.

Comment 13: The Draft Integrated Report includes a new assessment methodology for evaluating algae in the vicinity of Sandusky Bay and the Central Basin. While Ohio EPA typically develops water quality standards through a separate notice and comment process, it appears Ohio EPA is consolidating the assessment methodology with the actual assessments of specific water bodies. This approach does not provide the same opportunity for public engagement, and AOMWA believes that the development of algae assessment methodologies should be done as part of a notice and comment process separate and apart from that of the Draft Integrated Report. (Association of Ohio Metropolitan Wastewater Agencies)

Response 13: Please see the response to comment 12 above.

Comment 14: The District noted that a new assessment process for harmful algal blooms (HABs) in the Open Water of the Lake Erie Central Basin is presented in Section F of the Report. The District would advocate that the development of a new assessment process to obtain data for the purposes of assessing a problem should follow a more traditional rulemaking process that includes stakeholder outreach similar to that of TMDLs. The District respectfully requests that Ohio EPA give consideration to removing this language from the Report and collaborate with stakeholders to develop a tool for the open waters of the Central Basin. As a major stakeholder in the Central Basin, the District would offer its expertise to assist in this process. (Northeast Ohio Regional Sewer District, Association of Ohio Metropolitan Wastewater Agencies)

Response 14: Please see the response to comment 12 above.

Comment 15: The Lake Erie portion of the report has assessment units that, except for Sandusky Bay, use the algae density as the basis for nutrient impairment. This is not the right ‘metric’ for the Central Basin. The impact of nutrients/algae in the Central Basin is the size of the dead zone. The dead zone size should be the metric used for the Central Basin. Also the Lake Erie ‘Sandusky’ area is described as a transition area. This is misleading in that Sandusky watershed has very low flow into Lake Erie. If this is an assessment unit, it should be relabeled to Lake Erie Islands or something else because of the minimal impact of the Sandusky watershed on the assessed Lake Erie waters. The transition area discussed is

really the water getting deeper more than anything else. It would seem that this should be part of the Western Basin assessment area – maybe broke into two regions for assessment. (Lake Erie Waterkeeper)

Response 15: The assessments referred to in this comment are to protect only the recreational beneficial use (within Section F of the report). We have no compelling evidence that Central Basin hypoxic conditions interfere with recreational use. As noted in Section G, on page G-14, Ohio EPA is in the process of developing new metrics for determining the aquatic life use attainment (there is further explanation of this work in Section I, on page I-23). Hypoxic conditions are discussed and being evaluated as a potential metric in this assessment.

Note that there are two assessment units that start with the word “Sandusky”; one is an open water unit and the other shoreline. It is the Sandusky open waters that we describe as being in transition from the Western and Central Basin open waters regarding HABs. The Sandusky Bay falls within the Sandusky Shoreline Assessment Unit.

Comment 16: If there is a separate assessment for Sandusky Bay, there should be a separate assessment for Maumee Bay which is also small enough to assess water quality. There should be an assessment of the Maumee Bay shoreline which includes a public beach in a state park. (Lake Erie Waterkeeper)

Response 16: The nature of the HABs in the Sandusky Bay, captured within the Sandusky Bay Shoreline Assessment Unit, are very different from the HABs that occur in Lake Erie’s open waters (as explained in Section F on page F-27). It is because of this difference that the unique recreation HAB assessment method was dictated for the Sandusky shoreline. The HABs in the Maumee Bay, which falls within the Western Shoreline Assessment Unit, are consistent with what occurs in the western open waters. That is why the experts recommended the Agency associate the results of western open waters HAB recreation assessment with the western shoreline area.

Comment 17: OFBF appreciates the recognition that there is an ongoing need to better scientifically understand the relationship between the presence of a HAB and the toxicity of a harmful algal bloom (HAB). Research being conducted by The Ohio State University at Stone Lab is showing that the ratio of cyanobacteria toxin in the water to the amount of cyanobacteria biomass present changes not only from year to year but over the course of the year. Data suggest the highest toxin per biomass ratio routinely occurs at the start of the bloom and this ratio decreases throughout the summer. The result is that the composition of the bloom shifts from highly-toxic to low to non-toxic strains of Microcystis sp. as the recreational season advances.

This fact is recognized and highlighted in the messaging that is delivered during and after the annual Western Lake Erie Basin (WLEB) HAB projection - “the size of the bloom does not relate to degree of toxins produced”. This message enforces the fact that the presence of cyanobacteria and the amount of toxin present is not a uniform relationship. Section F of the report states that when concentrations of algae exceed 20,000 cells/ml (the point when they can be observed via satellite) there is a higher likelihood of cyanotoxins being present in detectable concentrations. OFBF understands the need for Ohio EPA to be conservative due to potential human health concerns but the assessment methodology needs to move

beyond just relying on the presence of cyanobacteria and include the presence of cyanotoxins.

The NOAA Experimental Lake Erie Harmful Algal Bloom Bulletin has a threshold for cyanobacteria detection of 20,000 cells/ml. This is the same low level cyanobacteria density threshold utilized in the Ohio EPA methodology. Each bulletin provides an image displaying a color spectrum of bloom density (low to high) in Lake Erie, based on satellite detection of cyanobacteria. Given the fact that the composition and cyanotoxin production of the algal bloom is dynamic over the course of the recreational season and the NOAA bulletin has the capability of displaying multiple levels of cyanobacteria density, why is the lowest level of detection used in the assessment methodology? Wouldn't it be better to use a medium cyanobacteria density level?

A key component missing from the document is the justification of how the presence of a low density, non-toxic cyanobacteria event adversely impacts the primary and secondary recreational uses of the open waters of the Western Lake Erie Basin. OFBF recommends that this justification gets incorporated to help the reader understand why Ohio EPA feels that the presence of cyanobacteria at threshold detection levels causes recreational use impairment. (Ohio Farm Bureau Federation)

Response 17: The following excerpt from pages F-25 through F-26 addresses this comment.

“In Lake Erie’s western basin, scum formation is likely at this cell density. Potential for skin irritations also may occur at 20,000 cells/mL, but this does not drive the recommended threshold value. The threshold is based on elevated likelihood of scum formations at 20,000 cells/mL and data show that scums consistently have toxin concentration exceeding microcystin concentrations protective of human health recreation exposure.

Furthermore, in large systems like western Lake Erie, blooms can be patchy, therefore, it is critical to integrate data over large areas. Each pixel from a satellite image represents an average cell count across ~9 hectares (~22 acres). Thus the 20,000 cells/mL that is detected by satellite imagery represents an average cell concentration. Clearly, there will be locations within each pixel that exceed 20,000 cells/mL.”

Also refer to the following publication: Davis, Timothy W., Richard Stumpf, George S. Bullerjahn, Robert Michael L. McKay, Justin D. Chaffin, Thomas B. Bridgeman, and Christopher Winslow. (2019) “Science meets policy: A framework for determining impairment designation criteria for large waterbodies affected by cyanobacterial harmful algal blooms.” *Harmful Algae*, 81: 59-64. doi.org/10.1016/j.hal.2018.11.016.

Section G

Comment 18: Does the sediment/siltation category take into account water levels? High and low flow? Depth of the water? What is the difference or connection between sediment/siltation and turbidity? How is this category differentiated in shallow and deeper waters? In the open waters of Lake Erie how is sediment/siltation sources assessed? And for aquatic life, how is it determined if sediments/siltation contribute or harm aquatic life? (Lake Erie Waterkeeper)

Response 18: Ohio EPA currently does not have an aquatic life use assessment metric for the deeper, open water assessment units of Lake Erie. These are currently under development. We therefore

do not currently have a response to questions regarding sediment/siltation in the lake's open waters.

Shoreline assessment units: The sediment/siltation category does not take into account water levels, flow or depth of water. Sedimentation contributes to turbidity when storms agitate the lake bottom. Turbidity is a function of suspended particulate matter, some of the particulate matter is from soil and bank erosion, some could also be from algae.

Excess sediment/silt can fill interstitial spaces between larger rocks thereby reducing the diversity of available habitat to support fish and macroinvertebrates. Silt also can clog the gills of both fish and macroinvertebrates, reduce visibility thereby excluding obligate site feeding fish species, and smother the nests of lithophilic fishes. Lithophilic spawning fish require clean substrates with interstitial voids in which to deposit eggs. Conversely, pioneering species benefit. They are generalists and best suited for exploiting disturbed and less heterogeneous habitats. The net result is a lower diversity of aquatic species compared with a typical warmwater stream with natural habitats. Sediment also impacts water quality, recreation and drinking water. Nutrients adsorbed to soil particles remain trapped in the watercourse. Likewise, bacteria, pathogens and pesticides which also attach to suspended or bedload sediments become concentrated in waterways where the channel is functionally isolated from the landscape.

Comment 19: The reporting on beneficial use impairments in the Lake Erie Nearshore and Areas of Concern is well done and comprehensive enough, but we are concerned that new and emerging threats that are documented for drinking water supplies and recreation represents a threat to other designated uses including aquatic life. Some of the byproducts of cyanobacteria are toxic to fish and other aquatic life thus we are recommending that it be recognized as a potential cause of impairment. While not a robust assessment, we had a small project in Maumee Bay in 2018 the results of which represented a backsliding to conditions observed in the early 1990s.

Furthermore, one site had DELT anomalies far in excess of the BUI delisting criteria. The artificial substrates deployed in Maumee Bay were covered with blue green algae. Given the potential for at least chronic effects we advise looking more closely at the role of Mycrosystin in having adverse impacts on aquatic life use attainment in the nearshore of Maumee Bay and adjacent waters. (Midwest Biodiversity Institute)

Response 19: As noted in Section G and I of the report, Ohio is just starting the process of establishing new aquatic life use designations and/or narrative assessment metrics for Lake Erie. These issues will definitely be considered in that effort.

Comment 20: On page G-14, Ohio EPA states "Ohio EPA is in the process of developing new metrics for determining ALU attainment in all LEAUs." Along with the HAB efforts, we strongly encourage Ohio EPA to include more organizations in this effort, so that these organizations are more fully integrated into these Ohio EPA efforts. Our concern is that the HAB focus has drawn so much attention that attention to the biological assessments Ohio EPA provides has declined, when it needs to be bolstered. Ohio EPA already provides good quality biological assessments of the nearshore and lacustuaries, but we remain concerned that the researchers and participants driving the response to nutrient enrichment on the Western

Basin are not sufficiently exposed to the benefits of including bioassessment indicators and endpoints. (Midwest Biodiversity Institute)

Response 20: Ohio EPA has taken steps to ensure that these concerns will be included in the development of the new Lake Erie aquatic life use work. MBI has been invited to participate in the workgroup.

Comment 21: As indicated earlier in our comments Ohio has one of the leading programs among states in the U.S. that allows the agency to produce something better than a simple statewide, binary estimate of use attainment and non-attainment. Based on our experience in reviewing state programs, the analyses like that in Large Rivers are Making Progress Toward the 100 Percent Attainment by 2020 Aquatic Life Goal in Section A are the outcome of a 40 year commitment to a robust M&A program and at a level of spatial detail that matches the scale of water quality management. Many states, because of a lack of spatial detail in their M&A, over-extrapolate their results from many fewer monitoring sites (including those who employ statistical networks) resulting in not only a reduced accuracy in the application of those results, but a clear severance from meaningfully affecting water quality managements programs.

While we recognize the quality and integrity of the nearly 40 years of M&A on the large river assessment units, we are concerned about the expression of the most recent results in the 2020 IR. The lead in statement “Ohio’s large rivers (the 23 rivers that drain more than 500 square miles) remained essentially unchanged in percent of monitored miles in full attainment compared to the same statistic reported in the 2018 IR. Based on monitoring through 2018, the full attainment statistic now stands at 88.2 percent (1,097 of 1,243 assessed LRAU miles), up 0.7 percent from the 2018 IR” is essentially correct. We will repeat here our 2018 comment by restating that the IR needs to take a step back and report what has actually happened since 2010 and also to include the full set of results back to 1980. In 2018 we provided two graphics to assist in that process where we assessed the likelihood of improving beyond the 2008 peak full attainment rate of 93.1% in an article on the MBI website (Figure 1). Instead, we still see a decline of 4.9% between 2008 and 2020 (-5.6% in 2018), which we also believe represents a leveling off of improvements seen prior to 2008 at a minimum and possibly an actual decline, which calls for further investigation and confirmation. This also highlights the critical importance of maintaining the M&A level of effort otherwise the agency will lose the ability to credibly assess these trends into the future. This issue alone reaffirms our concerns about the pending reduction in number of sites evaluated in the proposed Two-Pronged Approach.

We appreciate the agency including the original anchor years back to 2002 in the above trend display. However, it would also better index historical improvements if the real anchor years prior to 1988 were included. Again, to preclude the misreading of these trends we urge the agency to retain all of the biennial cycles and updating them to include the years in between 1980 and 2020. We would be willing to work with the agency to build such an analysis.

The HUC12 assessment shows a leveling off of improvement and here too, we recommend including the results back to 1980 to provide a solid historical perspective. The attainment rate is well below the large river assessment units and due to the different degrees of success in controlling point and nonpoint sources of impairment.

Many other related issues are included in the attached comment letter about the Two-Pronged Approach that relate to the above discussion so we urge the agency to consider the pertinent sections as comments on the 2020 IR. (Midwest Biodiversity Institute)

Response 21: In the 2020 Integrated Report, Ohio EPA completed the final tracking of large river and watershed assessment units in the same manner as previous reports back to 2010. We will be establishing a new trend presentation and discussion for our waters in the 2022 Integrated Report. We will consider these comments as we craft our new reporting metrics.

Section J

Comment 22: The agency did have a statement in Part J of the 2018 IR that recognizes the critical importance of stream habitat . . . “The long-term solution is to reduce sources of nutrients while holistically restoring stream health and improving the waterway’s ability to assimilate and utilize nutrients. This is also known as the stream’s assimilative capacity. Restoring stream health will not only reduce the amounts of nutrients that reach the receiving water body, but restoration of in- stream and riparian habitat supports a healthy ecosystem, builds resilience to climate change impacts and improves recreational opportunities.” This statement is on target as is the listing of habitat as a TMDL eligible stressor, but this statement is not in the 2020 IR – we are wondering why it was not repeated. Our concern is that the term “habitat” is almost completely absent in Ohio’s Domestic Action Plan for Lake Erie and many of the associated documents produced by the bevy of entities involved in assessing, modeling, and dealing with implementation practices to reduce nutrient loadings to Lake Erie. In our view the majority of these efforts are focused almost entirely on loading determinations without an apparent regard to the assimilative capacity of the watershed network. We suggest the agency exert some leadership in assuring that habitat is included as a primary factor in the management practices for reducing the adverse effects of nutrients in Lake Erie (and this means more than two-stage ditch designs). If habitat continues to be relegated to a subsidiary role, then the attainability of the BUIs in Maumee Bay and Lake Erie will no doubt be questioned which could lead to some undesirable outcomes in the current deregulatory environment. (Midwest Biodiversity Institute)

Response 22: Near-field habitat is still an important stressor to Ohio EPA. In fact, we are in the process of developing TMDLs and habitat improvement metrics for all watershed assessment units with sediment and habitat causes of impairments. This work will extensively use the QHEI metric. In addition, habitat restoration is included in Nine-Element Non-Point Source Implementation Strategies plans in the Lake Erie watershed.

The far-field loading baseline and target work outlined in the 2020 DAP follows Ohio EPA’s nutrient mass balance methods. These do not have explicit factors accounting for in-stream assimilation and/or cycling (sinks or sources) of total phosphorus. That decision was made based on the temporal and spatial scales of these methods and with consultation of academics, including Dr. Laura Johnson (during the first 2016 Nutrient Mass Balance study). We assume no net gains or losses due to instream processing over annual/five-month periods and large watersheds.

Improvements to these assumptions are under way. New research efforts being led by Drs James Hood (OSU) and Rebecca Kreiling (USGS) are studying in-stream nutrient cycling

throughout the Maumee River watershed. The results of this work will allow us to improve our mass balance methods as needed. They will also be useful in further promoting in-stream practices, such as two-stage ditches, that promote nutrient assimilation.

Priority

Comment 23: We understand Ohio EPA’s decision to assign a high priority to Lake Erie’s western shoreline, western open water, and island shoreline assessment units for the impairments to recreation and drinking water supply caused by algae. We are, however, concerned about the long-term impacts to the changes in Ohio’s prioritization methodology for establishing TMDLs. Previous versions of the Integrated Report assigned priority points to each impaired assessment unit providing a ranking of Ohio’s impaired watersheds. Ohio EPA has changed from a clear, prioritized system of ranking watersheds for TMDL development, which helped the public understand the highest priorities, to a “high, medium, or low” system with numerous watersheds listed as “high” and no watersheds being listed as “medium” or “low”. Can you explain the system used to determine which assessment units are assigned a high priority using the new methodology and how the TMDL schedule will be determined moving forward? (Ohio Corn and Wheat Growers Association and Ohio Soybean Association)

Response 23: For the 2020 IR, Ohio EPA transitioned to utilizing U.S. EPA’s Assessment, Total Maximum Daily Load (TMDL) Tracking and Implementation System (ATTAINS). ATTAINS priority ranking consists of high, medium and low. Please see Section J.2 of the report for additional information. In accordance with U.S. EPA guidance, Ohio EPA assigned high priority to TMDLs the Agency expects to complete in the next two years.

Watershed assessment units placed in the high category are listed in Tables J-7, J-8 and J-9 of Section J. For a complete list of prioritized waters (including assessment units in the medium and low categories), please see the Prioritized List tab of the spreadsheet available on Ohio EPA’s webpage at:

epa.ohio.gov/Portals/35/tmdl/2020intreport/Draft_2020_IR_Data_ATTAINS_protected.xlsx.

Ohio EPA is working through its revised TMDL development process and will provide a development projected TMDL schedule in the 2022 Integrated Report that will provide stakeholders a better indication of which medium priority TMDLs are coming up in the development process to become high priority.

Comment 24: Ohio EPA has modified its method for prioritizing TMDLs; previously, the Agency identified priorities based on a numeric system, but the Agency now identifies them based on “high,” “medium,” or “low” priority. See Draft Integrated Report at pg. J-7. The Agency has explained that its modified method of identifying priorities designed to be compatible with U.S. EPA’s ATTAINS system. As many waters are identified as “high” priority at this time, it is unclear which are actually planned to be addressed in the very near future. AOMWA requests that the Agency consider modifying this approach to include the “high,” “medium,” and “low” information while retaining its numeric prioritization identification (i.e., a particular water body’s priority could be identified by both the high/medium/low designation and the traditional numeric priority identification). This modified approach would be compatible with U.S. EPA’s ATTAINS system but would still provide clarity as to

which waterbodies are likely to be addressed as part of the TMDL process in the near future. (Association of Ohio Metropolitan Wastewater Agencies)

Response 24: Please see the response to comment 23 above. As stated on page J-31, the assignment of high priority means the Agency is planning to focus TMDL development for the water in the next two years.

TMDLs

Comment 25: The OMA would ask that Ohio EPA ensure a robust stakeholder process in developing the Maumee Watershed TMDL. We noted the emphasis on stakeholder engagement with the new TMDL process outlined in the report but would like to reiterate the importance of an engaged stakeholder group. The OMA requests to be included in all formal and informal Ohio EPA TMDL work groups. Given that non-point source runoff comprises the predominant source of phosphorus loading in the western basin, non-point source should likewise be represented in any stakeholder work groups as should agronomists and water quality monitoring experts.

This inclusive stakeholder approach will be critical given the wide range of issues, including: land use issues, the complex technical and allocation issues, questions surrounding metrics for attainment, near/far field issues, and the challenges of fitting the process into the legal structure of a TMDL. The TMDL development will have wide-ranging impacts not only on the health of Lake Erie but also on the citizens and businesses in the Maumee Watershed. The stakeholder process is a good place to work through these hard issues and balance the perspectives of all impacted parties. (Ohio Manufacturers' Association)

Comment 26: OCW and OSA are supportive of the Ohio EPAs plans for stakeholder involvement when total maximum daily loads (TMDLs) are developed. What is the best way for the associations to ensure involvement as stakeholders as the state develops TMDLs and their associated implementation plans? The development of a TMDL to address nutrient inputs to the western Lake Erie Basin via the Maumee River is undoubtedly of concern for our members. A statewide bacteria TMDL is also likely to warrant involvement of Ohio's agriculture community. (Ohio Corn and Wheat Growers Association and Ohio Soybean Association)

Comment 27: AOMWA also requests to be included as a stakeholder in the development process for the statewide bacteria TMDL. (Association of Ohio Metropolitan Wastewater Agencies)

Comment 28: Finally, it is also stated in Section F: Evaluating Beneficial Uses: Recreation, that Ohio EPA will be pursuing a statewide Total Maximum Daily Load (TMDL) for bacteria in cooperation with state and local partners. The District would very much like to be a partner in this effort through active engagement. As a regional entity, implementation of a TMDL may have implications on the District and our member communities. Given the knowledge and expertise in this area of our staff, the District would like the opportunity to help direct any management strategies in a meaningful, yet equitable, way. (Northeast Ohio Regional Sewer District)

Comment 29: We are interested in engaging with the Agency in its development of the Multi-Watershed Bacteria TMDL, potential 5-alt plans, and the proposed delisting of streams previously

impaired for habitat alterations. (Ohio Environmental Council, Freshwater Future, and the Alliance for the Great Lakes)

Response 25-29: Thank you for your interest in Ohio EPA's TMDL projects. Ohio EPA will reach out to your organizations as we begin the TMDL development process. If you have not already, please sign up for Ohio EPA's TMDL listserv at:
ohioepa.custhelp.com/app/utils/login_form/redirect/account%252Fprofile.

Comment 30: Recommend that Ohio be a TMDL Lake Erie leader by first getting a multi-state TMDL agreement with U.S. EPA and the states of Michigan and Indiana to conduct the Maumee TMDL. Likewise, though more complex, though having great benefit to Lake Erie - do a combined type of TMDL with Ohio, Michigan and Ontario. There would have to be integration of Ontario/Canadian laws and policies which in some ways are similar in the Canadian Source Water Protection laws. (Lake Erie Waterkeeper)

Response 30: Ohio EPA continues to work closely with Indiana, Michigan and U.S. EPA Region 5 through the Great Lakes Water Quality Agreement.

Comment 31: The Multi Watershed Bacteria TMDL needs to include organic and inorganic sources and DNA identification organic nonpoint sources. There also needs to be a reassessment of Impaired Approved TMDL's to ensure that bacteria has been evaluated in these areas, and that the bacteria TMDL assessment is consistent. (Lake Erie Waterkeeper)

Response 31: The Multi-watershed Bacteria TMDL will address organic sources of *E. coli* bacteria. Ohio EPA is evaluating bacteria source tracking technologies and capabilities for future water quality assessment work. Ohio EPA will continue to follow up on watersheds with approved TMDLs for bacteria as part of our targeted watershed monitoring and will evaluate the need to update or modify the existing TMDL as part of that process.

Comment 32: It is unclear how the St. Joseph River TMDL will be coordinated with monitoring Beaver Creek, Grand Lake St. Marys. (Lake Erie Waterkeeper)

Response 32: Since the water quality survey of the St. Joseph River watershed was completed by Ohio EPA in 2013, there is no need to coordinate the TMDL development for this watershed with the survey we are planning for the Beaver Creek, Grand Lake St. Marys and Wabash River watersheds this summer.

Comment 33: It is recommended that the St. Joseph River TMDL be coordinated with an Indiana St. Joseph TMDL and that these TMDLs be used as part of the upper Maumee River TMDL assessment. (Lake Erie Waterkeeper)

Response 33: Ohio EPA has coordinated with Indiana and Michigan on the St. Joseph River TMDL project through a contract from U.S. EPA Region 5. Indiana's TMDL report for the St. Joseph River is available here: in.gov/idem/nps/4003.htm. The Ohio TMDL report will be available for stakeholder input once updates are made in accordance with the revised TMDL regulations.

Comment 34: Considerations for development of the multi-watershed bacteria TMDL: During the March 2, 2020 webinar, Ohio EPA briefly discussed the process that is planned to be used in the upcoming development of a multi-watershed bacteria TMDL for bacteria. Ohio EPA plans to use a "flow based" bacterial source identification analysis to determine the sources of the bacteria. For example, bacteria present during high streamflow conditions are assumed to

be nonpoint source related, whereas bacteria present during low streamflow conditions are assumed to be point source related. This approach erroneously misses the relationship between wet weather conditions and combined sewer overflow and sanitary sewer overflow events and the quantification of the volume of untreated sewage discharged during each overflow event. In addition, discharges from permitted discharging home sewage treatment systems and failing traditional home sewage treatment systems occur year round.

Numerous alternative tools and approaches are available and used to track sources of fecal contamination impacting streams, rivers, lakes and beaches. Microbial source tracking (MST) approaches should be used in the development of the multi-watershed bacteria TMDL. The utilization of MST techniques will identify the specific sources (human vs. wildlife vs. livestock) of the *E. coli* bacteria providing valuable information into the restoration plan development process. Discussion of MST tools and approaches are contained in a 2005 U.S. EPA Guide Document. (U.S. EPA. June 2005. Microbial Source Tracking Guide Document. EPA/600/R-05/064).

As with all TMDLs, the identification and quantification of all sources of the pollutant(s) of concern is a necessary first step. MST will provide valuable insights into the sources of bacteria (human, wildlife or livestock) leading to the development of realistic and effective restoration plans. (Ohio Farm Bureau Federation)

Response 34: During the question and answer portion of the March 2 webinar, Ohio EPA discussed the use of the load duration curve modeling approach for the Multi-watershed Bacteria TMDL project. As Paul Gledhill explained, a benefit to this modeling technique is the information that can be gained from studying the load duration curve graph. *E. coli* samples that exceed the TMDL target in the high flow regimes point to sources that move with precipitation. *E. coli* samples that exceed the TMDL target in the low flow zones point to sources not related to precipitation. Ohio EPA uses multiple tools to help identify the likely sources of *E. coli* in the areas around and upstream from our sampling locations. Microbial source tracking is another tool in the toolbox. As stated in the response to comment 31 above, Ohio EPA is evaluating bacteria source tracking technologies and capabilities for future water quality assessment work. Ohio EPA's modeling approach and other tools will be discussed further in the TMDL project development process.

Section L

Comment 35: Comments in response to page L-8 > Contaminant Source Discussion > Fertilizer Applications.

In previous iterations of the Integrated Water Quality Monitoring and Assessment Report the first sentence started with "Improper" and was removed in the 2014 version of the report. "Biosolids" was added in the same 2014 report.

Comments:

1. "Improper" should be added back to the first sentence. Anything can be either pollutant or harmless depending on their levels. People can limit their applications according to amount and concentrations to avoid pollution. That's why people test nutrients, metals and fecal levels of biosolids before land application. Land application of biosolids has

environmental and economic benefits that chemical fertilizers do not and acts as a replacement for chemical fertilizers.

2. For future reports, such changes should be mentioned on EPA's website with explanations to avoid confusion. It is important to provide a reason for the changes.
3. The conclusion was based on Ohio's Source Water Assessment and Protection (SWAP) program and DDAGW's ground water impacts database. These data should be published on EPA's website or let readers know how to access them. It is important to show solid data that support the statements. (Quasar Energy Group)

Response 35: The term "improper" has been added to the fertilizer application discussion on page L-8.

Western Basin Lake Erie TMDL

Comment 36: According to the draft Ohio Domestic Action Plan 2020, approximately 25% of the total phosphorus load in the Maumee Watershed originates out of state (see page 4 of DAP). This could potentially pose additional complexities in the TMDL allocation process for the Maumee Watershed. Additionally, the Maumee Watershed does not account for the entire nutrient load to western Lake Erie basin.

The OMA requests to provide further comment as to the scope of a potential TMDL in advance of any formal TMDL process. Early participation by stakeholders -- and throughout process -- is essential and aligns with Ohio EPA's TMDL regulations and guidance as well as U.S. EPA's TMDL development guidelines. (Ohio Manufacturers' Association)

Comment 37: The prioritization, monitoring, and regulatory tools within the CWA, and as recognized throughout the Integrated Report, are vital for confronting HABs and protecting the water resources in western Lake Erie. With this Draft 2020 IR, the Ohio EPA takes an important step in addressing the phosphorus pollution that drives HABs by making three important decisions.

First, the Agency is declaring portions of the western Lake Erie basin as impaired under its 303(d) impairment list. Specifically, the Agency declares Lake Erie's western basin shoreline, western basin open waters, and island shoreline assessment units for impairment of public drinking water supply and recreational uses. Through a number of previous reports, our organizations and fellow stakeholders have advocated that the CWA, buttressed by the volumes of data supporting action, dictated that the HAB crisis required determination of the western Lake Erie basin as impaired by phosphorus pollution under the CWA, and that Ohio EPA must quickly prepare a Total Maximum Daily Load for its open waters. Comments and litigation surrounding the issue notwithstanding, we commend the Agency and the DeWine Administration for putting the future of the western basin as a high priority.

Secondly, from that declaration, the Agency has listed these impairments as the highest priority for TMDL development. We applaud the Agency for making this decision and expediting the development of the TMDL for the western basin over the next 2-3 years. A TMDL provides the accountability and enforceability that is needed to support the other initiatives to protect Lake Erie. Specifically, a TMDL is subject to review by the U.S. EPA for adequacy and "reasonable assurances" that the overall pollution cap and individual allocations are actually achievable. If and when approved, the TMDL is then subject to

judicial review for compliance with the Clean Water Act. With the advent of the Agency's 5-step TMDL public involvement process, the TMDL is also subject to robust review and comment by the public, and accountability to the public.

Finally, instead of following previous administrations' reliance of the implementation of the state Domestic Action Plan under Annex 4 of the Great Lakes Water Quality Agreement as an inadequate substitute for the Clean Water Act's required TMDL, this report plans to utilize the multiple tools at Ohio's disposal to properly combat the HAB crisis. Continued reliance only on voluntary actions and the Domestic Action Plan, will leave Lake Erie in the same place in 2025 as it is today. Thus, a high priority TMDL, coupled with the H2Ohio investment and recommitment to the 40% phosphorus reduction goal, builds a strong strategy needed to prevent harmful algal blooms in western Lake Erie. Ohio needs every tool available to solve this problem.

Therefore, we commend the Agency for moving forward with a TMDL in tandem with these other efforts. We urge the Agency to further utilize more, rather than less, transparency as it expedites this important suite of TMDLs. (Ohio Environmental Council, Freshwater Future, and the Alliance for the Great Lakes)

Comment 38: In response to earlier lawsuits filed by ELPC, Ohio's 2018 Integrated Report recognized that western Lake Erie is "impaired" for phosphorus, and the Draft 2020 Report follows suit. The Draft 2020 Report also appears to take a potentially major new step in the right direction. For the first time, Ohio is now promising to complete a Total Maximum Daily Load ("TMDL") for western Lake Erie as required by section 303(d) the federal Clean Water Act, 33 U.S.C. § 1313. The Draft 2020 Report ranks the western Lake Erie TMDL a "high" priority and says it will be submitted to U.S. EPA within two to three years.

While ELPC applauds this potential course correction, we are deeply concerned that the proposed TMDL will be legally and practically insufficient. That is because Ohio remains committed to pursuing TMDL agricultural runoff reduction goals entirely through voluntary measures and incentives. As explained below, that approach is inconsistent with Ohio and federal law and has no chance of achieving anywhere near the pollution reductions necessary to remediate Lake Erie and bring the toxic algae crisis to an end.

I. TMDLs must provide reasonable assurances that compliance will be achieved

The Clean Water Act, 33 U.S.C. § 1251 et seq., prescribes what states must do to remediate seriously polluted waters like Lake Erie: designate them as "impaired" and develop a TMDL. U.S.C. § 1313(d). A TMDL caps the amount of pollution a waterbody can receive at the level needed to remediate the impairment; it then allocates the necessary reductions among pollution sources. U.S. EPA guidance states that TMDLs allocating load reductions to nonpoint sources must provide "reasonable assurances that nonpoint source reduction will in fact be achieved"; otherwise, "under the CWA, the entire load reduction must be assigned to point sources." These TMDLs also must include implementation plans to substantiate these "reasonable assurances."

Ohio law imposes similar requirements. Sections 3745-2-12(A)(2) and (E) of the Ohio Administrative Code require TMDLs to include implementation plans that provide "reasonable assurances [the State] will attain [water quality] standards in a reasonable time." According to U.S. EPA, "reasonable assurance" requires that nonpoint source controls

are specific to the pollutant of concern, implemented according to an expeditious schedule and supported by reliable delivery mechanisms and adequate funding.

These “reasonable assurance” and implementation plan requirements make sense; without them, TMDLs would be purely aspirational and fail to deliver on the core promise of the Clean Water Act “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” 33 U.S.C. § 1251(a). A western Lake Erie TMDL that failed to comply with the “reasonable assurance” and implementation plan requirements would leave Ohio’s repeated commitment to comply with Annex 4 unfulfilled and leave millions of residents exposed to the threat of toxic algae blooms in perpetuity.

II. The TMDL proposed by the Draft 2020 Report would not provide reasonable assurance of compliance

Section J3 of the Draft 2020 Report states that Ohio will attempt to address nutrients in Lake Erie through the H2Ohio Plan as well as “GLWQA efforts, including Annex 4 – Nutrients, Ohio Domestic Action Plan, [and] TMDLs for Lake Erie Watershed.” Unfortunately, these measures are either ineffective, redundant, or rely solely upon voluntary compliance insufficient to meet nutrient reduction targets. They thus could not supply the requisite “reasonable assurance” that Lake Erie “attain [water quality] standards in a reasonable time.”

Ohio admits that the existing Lake Erie watershed TMDLs (which are on certain tributaries of the Maumee River) are “not abundant enough to meet Lake Erie’s nutrient reduction goals.”⁶ In and of itself, Annex 4 of the Great Lakes Water Quality Agreement imposes no policies or restrictions on Ohio—it simply sets the overall phosphorus reduction goal (40% by 2025) that states are to implement through Domestic Action Plans.

Ohio’s recent Domestic Action Plan update (“DAP”), however, does not come close to putting Ohio on track to meeting Annex 4 targets. On March 2, 2020, ELPC, on behalf of itself and Lake Erie Waterkeeper, filed extensive comments on the DAP, which are attached as Exhibit 1. Those comments demonstrate beyond doubt that even full implementation of the DAP and its policies would not remediate Lake Erie. To avoid repetition, we will not repeat those comments here and instead incorporate them by reference.

One central theme, however, is that Ohio’s exclusive reliance on voluntary measures and incentive payments to agricultural operators to adopt Best Management Practices (“BMPs”) simply cannot succeed. See Ex. 1 at 4–6. Recent DAP comments submitted by Dr. Jeffrey M. Reutter, who led the science team that developed the Annex 4 targets, further support ELPC’s point. (A copy of these comments is attached as Exhibit 2.) Among other things, Dr. Reutter states:

Voluntary measures have been a failure and there has been no success in controlling the amount of manure applied. Without control of the amount of manure applied (bring it down to tri-state guidelines and enforce it), the situation will get worse each year as more animals enter the watershed. Consider a moratorium on more animals in the watershed until you figure this out. Regulation will lead to innovation.

See Ex. 2 at 2.

III. Conclusion

For the reasons explained in our DAP comments, as reinforced by Dr. Reutter’s statements above, the TMDL that the Draft 2020 Report promises to complete for western Lake Erie will, by definition, be legally and practically inadequate. We urge Ohio EPA to reconsider its approach and commit to preparing a western Lake Erie TMDL that will include enforceable regulatory standards sufficient to satisfy the Annex 4 targets to which Ohio has repeatedly committed itself. The people of Ohio—and the broader Lake Erie region—deserve nothing less. (Environmental Law & Policy Center)

Comment 39: This report relies on H2O Ohio for the ‘Plan’ to get the phosphorous reductions required in the Great Lakes Water Quality Agreement Annex 4 provisions. There is no research that indicates that H2O Ohio which uses voluntary measures and BMP’s will ever achieve the targeted 40% reduction. H2O Ohio is not an acceptable plan for the 40% nutrient reduction for western Lake Erie. (Lake Erie Waterkeeper)

Comment 40: Considerations for the development of the Maumee River TMDL

During the March 2, 2020 webinar, Ohio EPA indicated a reliance on the implementation of Governor DeWine’s H2Ohio Initiative and the Ohio Lake Erie Domestic Action Plan as the primary tools that will be incorporated into the TMDL to achieve the 40% phosphorus reduction target. OFBF feels it is very important that realistic expectations of the ability of agriculture to help meet the reduction target are established and agreed upon as the Maumee River TMDL is developed and finalized.

Current research indicates the installation of the most efficient agricultural sediment and nutrient management practices, as identified in the H2Ohio cost curve analysis, has the potential to reduce the edge-of-field phosphorus losses by 40%, however the reduction in the amount of phosphorus delivered to Lake Erie would only be in the range of 15-25%. The following three points help illustrate this point:

- NRCS 2017 CEAP Study indicated that meeting a 40% edge-of-field phosphorus reduction target would reduce the phosphorus load to Lake Erie up to a maximum of 23% due to legacy phosphorus in the delivery system. (USDA-NRCS. 2017. Conservation Practice Adoption on Cultivated Cropland Acres: Effects on Instream Nutrient and Sediment Dynamics and Delivery in Western Lake Erie Basin, 2003-06 and 2012. 77pp.)
- Data collected from the ongoing edge-of-field paired watershed studies conducted by USDA-ARS indicates that an approximate 15% to 20% reduction in phosphorus delivery to Lake Erie is possible due to the implementation of agricultural sediment and nutrient management measures. (Kevin King, USDA-ARS. Personal Communication. 2020)
- Discussions that took place during the development of Ohio Lake Erie Phosphorus Task Force 1 and 2 Reports indicated that the implementation of agricultural sediment and nutrient reduction management measures could reduce delivery to Lake Erie approximately 20%.

In addition, as the TMDL is developed, it will be extremely important that a quantification of all watershed nutrient sources and their potential to assist in reaching the reduction target is integrated into the TMDL document. As stated above, implementation of agricultural

sediment and nutrient management measures alone will not successfully reach the 40% reduction target.

All ecological systems take time to adjust and reach a new equilibrium as changes in management and nutrient inputs occur. Incorporation of a discussion of the ecological concept of lag time and an adaptive management process are imperative to establish realistic expectations.

Lastly, a discussion of the anticipated impact of Ohio's changing weather patterns must be included. Springs are becoming colder and wetter, summers are becoming hotter and drier, there is an increase in high intensity, short duration rainfall events leading to flashy stream flows and increased flooding. Great Lakes water levels and volumes are at record levels altering the hydrological dynamics of Lake Erie. All of these reflect the "new weather norm" influencing nutrient delivery and lake response. (Ohio Farm Bureau Federation)

Responses 36-40: Ohio EPA has an established stakeholder involvement process that will be used to develop the Maumee Watershed TMDL to address impairments in the western basin of Lake Erie. Ohio EPA appreciates the input and will consider these comments as we begin TMDL development.

Comment 41: A lot of money is being spent to reduce nonpoint nutrient runoff in the Maumee watershed while at the same time the State of Ohio is permitting additional CAFO's with soil phosphorous amount of 150 ppm while paying \$65 an acre and \$35 an acre to haul manure to fields with a soil phosphorous of 50 ppm or less. This is part of H2O Ohio but fails to connect to ODA permits. The ODA CAFO permits need to use the H2O Ohio 50 ppm soil phosphorous limits or less, the agronomic amount. (Lake Erie Waterkeeper)

Response 41: This comment is outside the scope of the Integrated Water Quality Monitoring and Assessment Report.

Monitoring Strategy

Comment 42: In June 2019, the Division of Surface Water announced its new "Two-Pronged Approach to Surveying and Monitoring Aquatic Life in Ohio's Streams and Rivers." This proposal features a twelve-year cycle with two key components: a state-wide, probabilistic survey, and watershed focused, targeted surveys. Prior to this proposal, the Division of Surface Water divided Ohio into 98 project areas; the new strategy would divide Ohio into 37 project areas.

In Section J6 of the Draft 2020 IR, the Agency briefly describes its Long-Term Schedules for Monitoring and TMDLs, with a paragraph describing the Agency's recently proposed two-pronged approach. Despite the limited space granted to it in the Draft 2020 IR, we believe that the new monitoring scheme deserves more scrutiny as it will not only play a major role in decision making over the next two-year monitoring cycle, but will impact long-term monitoring and other CWA requirements.

The Ohio EPA has previously suggested that the new approach will ensure the entire state is surveyed more frequently, because the current number of 98 project areas means the Division of Surface Water takes approximately twenty-five years to survey. The new strategy, it argues, will provide more frequent and consistent data, while also

implementing a state-wide probabilistic program that will better inform the Draft 2020 IR. As we point out below, it is our opinion that this change, while perhaps more efficient, could make the Monitoring and Assessment Program less effective. Specifically, we believe that the proposed “Two-Pronged Approach” will adversely impact other Division of Surface Water programs reliant on hyper-localized data.

While we appreciate the intentions and goal of the Agency, we remain skeptical with its two-pronged approach. The significant increase in size of project areas, combined with an overall reduction of samples per watershed, will greatly reduce the efficacy of other Ohio EPA water pollution programs, remains a concern. As it relates to the requirements of section 303(d) and 305(b) requirements, a broader sampling approach and probabilistic sampling may serve the Agency well toward meeting its requirements. A fundamental purpose of the Ohio EPA’s water quality monitoring program, however, is to verify the designated uses of streams across the state, including already identified tributaries and unnamed water bodies. This process, therefore, informs other Ohio EPA programs, especially 401 Water Quality Certifications, Antidegradation assessments, and NPDES permits. Our main concern is, if the Ohio EPA reduces the localized intensity of its data collection, especially in verifying designated uses for streams, the integrity of these other programs could suffer.

Instead of relying on designations monitored, analyzed, and verified by professional staff, permit applicants will submit their own data regarding unverified streams, which may result in biased use attainability analysis. The Ohio Environmental Council has commented on this issue in the past concerning 401 Water Quality Certification applications providing faulty Use Attainability Analysis, misrepresenting the quality of the water resources, and potentially allowing degradation of otherwise healthy streams. We believe that maintaining localized review of specific streams, verified by Ohio EPA monitoring staff, mitigates this real-life concern.

If the Ohio EPA moves forward with an approach that reduces the hyper local Agency to verify designations of specific streams or determine the designations of unidentified streams, it must similarly increase its scrutiny of data received in its other programs. The Ohio EPA should communicate with stakeholder groups to develop a strong plan that recognizes the past deficiencies and identifies a solution moving forward that does not sacrifice the specificity previously provided by the program. It was conveyed to us and the other stakeholders at a March 5, 2020 briefing on the topic, that the Study Plan stage in the TMDL process is the ideal place for local stakeholders to contribute thoughts, suggestions, and even data, to inform the agency on where within the watershed to conduct monitoring. This input, it is our understanding, could even be used to provide information on where additional monitoring could occur in that watershed. We believe that the Draft 2020 IR is a good place to add a commitment by the Agency to bolster the citizen science and credible data program to properly supplement the data collection and monitoring necessary, and to commit to the type of stakeholder dialogue and input suggested through the TMDL Study Plan process.

It was also conveyed that the plan is to conduct at least 420 samples per year based on having five fully staffed field teams available. Neither of these clarifications, however, appear in the Draft 2020 IR. We believe that these are two substantive commitments on

the part of the Agency that go toward the success of the long and short term monitoring program and CWA requirements. Both watershed stakeholders and the USEPA, we believe, would have great interest in such details to fully evaluate the plans for not only addressing the state's CWA 305(b) & 303(d) requirements for 2020, but also the future of streams in Ohioans' backyards. Therefore, we urge the Agency to amend the Draft 2020 IR to include the commitments already expressed to stakeholders concerning the number of samples estimated per year, the increase in staff, stakeholder input opportunities, and to bolster monitoring through program funding opportunities such as the H2Ohio Program. (Ohio Environmental Council, Freshwater Future, and the Alliance for the Great Lakes)

Comment 43: Additional monitoring staff – At the March 5 meeting, thank you for announcing the forthcoming hiring of two additional monitoring staff. As OSRA emphasized in our 2019 comments on the proposed Two-Pronged Approach, we strongly encourage continued monitoring at a level that will be adequate to protect our Scenic Rivers, their tributaries, and other streams. More staff will help, and OSRA is aware of significant staff reductions in the Division of Surface Water in recent years. We encourage Ohio EPA to work diligently to make these staff as productive as possible to get the most monitoring and related analyses done. If Ohio EPA needs additional staff to conduct more monitoring, OSRA will gladly support funding requests to Governor DeWine and the Ohio General Assembly. Importantly, OSRA is proud of the past record of Ohio EPA as a leading state for stream monitoring, appreciates that base, and we would like this record maintained, avoiding any reductions in the level, productivity and quality of the effort.

We ask that Ohio EPA ensure that these field staff are encouraged and supported to become as productive as possible. All Clean Water Act programs based on Ohio's monitoring must be well- supported with data and have adequate information to take and recommend appropriate actions. Therefore, we believe these monitoring sites should remain as numerous and dense in our watersheds as in the past. While matching past numbers of monitoring staff is encouraging, our concern about a reduction in the number of monitoring sites per watershed remains. (Ohio Scenic Rivers Association)

Comment 44: The Two-Pronged Approach – OSRA asked for the March 5 meeting at ODNR because of concerns about loss of monitoring sites in Ohio Scenic River and other watersheds. We greatly appreciate the time and effort the Division put into this meeting. The Division of Surface Water explained the proposed Two-Pronged Approach, and it is covered in Section I of the draft Integrated Report. We understand it is composed of probabilistic (statewide) and targeted (watershed-based) monitoring. We appreciate the use of the probabilistic monitoring to help better address the many small streams' conditions throughout the state. While we recognize the challenges of designating uses for those small streams, we also continue to encourage a high level (or "density") of sampling in the "targeted" or "local" watersheds, ranging from the long-established Scenic Rivers, such as the Little Miami to the newly named Scenic Rivers such as the Ashtabula. As Ohio EPA recognizes in its draft Integrated Report, a large percentage of Ohio headwater streams are rated "impaired" by nonpoint source pollution (e.g., see Figure G-5 on page G-12 of the draft 2020 IR), and these headwaters are critical to the health of the Little Miami River watershed and others. The best assessments include a large number of sites and extensive sampling of aquatic life. We believe that local leaders need the level of information – sampling density – no less than has

been provided in the past. We are concerned that the establishment of these proposed “Project Areas,” which combine watersheds and reduce the total number of sampling sites per watershed, will leave the public and local officials with too sparsely-scattered monitoring sites and resultant information. This reduction in site density could reduce the ability to determine and address local problems such as nonpoint sources, or the ability to define attaining streams and areas to protect. Scenic Rivers and other watersheds have greatly benefited from the Ohio EPA’s past excellent effort to monitor these watersheds with relatively dense sampling. We believe this is beneficial to all and serves to more accurately characterize Ohio’s stream problems and leads to more appropriate and effective remedies. (Ohio Scenic Rivers Association)

Comment 45: Ohio EPA has operated an exemplary monitoring and assessment (M&A) program that is nearing 40 years for inland rivers and streams. This approach allows Ohio EPA to use M&A data and information to support all water quality management programs. States with lesser levels of rigor in their M&A and WQS programs are limited to producing a biennial IR and at a much lesser level of detail in terms of spatial detail and content. There is no question one the essential components of the Ohio program is the systematic implementation of M&A and the rigor in the spatial context and biological, chemical, and physical indicators upon which the assessments are based. However, the absence of a monitoring schedule is of concern. While we understand the impact of the Supreme Court ruling on the TMDL program, the 80% reduction in 2018-19 in what has been the baseline M&A effort for nearly 40 years raises many questions not only about the future direction of monitoring, but the Ohio EPA surface water program as a whole. We therefore urge the agency to reveal the intent of any changes to stakeholders, especially those who have come to rely on the outputs and outcomes of one of the most comprehensive approaches in the U.S. As it reads now the Ohio EPA Monitors Water Quality in Ohio and Reports its Findings discussion in Part A potentially provides a potentially misleading message about the future of the program that many stakeholders have simply expected to exist well into the future. It does not mention the monitoring changes proposed in Section J by the proposed Two-Pronged Approach. There are many other concerns, more than we can state in these comments, but we do not see how any fundamental interruption in the design and execution of this program will allow the agency to effectively execute its mission of protecting and restoring water quality in support of measuring the attainability and attainment of designated uses. We have also resubmitted our comments on the Two-Pronged Approach done in response the July 10, 2019 stakeholder outreach event and as described in our cover letter.

The Ohio EPA program is rated as one of the most rigorous and comprehensive in accordance with the U.S. EPA program evaluation guidance “Biological Assessment Program Review: Assessing Level of Technical Rigor to Support Water Quality Management” (U.S. EPA 2013). The most recent review conducted in 2007 resulted in Ohio program attaining Level 4 (the highest) and a score of 98.1%. At least part of the score is the result of the agency being able to manage and sustain a mature M&A program at a spatial scale that meets the needs of being able to assess the effectiveness of water quality management programs, tracking trends, and responding to new threats. That critical elements score could decline under the proposed Two- Pronged Approach to M&A, but we still do not have sufficient details to make that judgement.

While the 2007 program review emphasized the inland rivers and streams program, it is quite evident that what was accomplished over three decades of development and implementation has trickled down to having similarly robust methods for assessing other waterbody types (wetlands, the Lake Erie Nearshore, and the Ohio River) and to support one of the most detailed and accurate accounting of stream and river use designations in the U.S. Therefore, the agency needs to reveal in detail how fundamental changes made in the near future will affect all aspects of future IRs, WQS, and water quality management programs that have been directly supported by M&A. (Midwest Biodiversity Institute)

Responses 42-45: Ohio EPA appreciates all the stakeholder input into our newly proposed monitoring process to date. We are continuing outreach efforts to ensure everyone fully understands the enhancements being proposed. Staff and sample density appear to be the largest concerns and we will continue to evaluate resources to try to accomplish stakeholder's expectations.

Comment 46: Ohio EPA/ODNR interactions – It was good to see Scenic Rivers and Ohio EPA staff learn more about each other's' programs in the March 5 meeting at ODNR on stream monitoring and the draft Integrated Report. OSRA would appreciate more of this, with continued interaction on a regular basis, both in the Columbus and district/regional offices. We feel it would be productive for both agencies, and could help reach more of the public with information on Ohio's Clean Water Act needs and progress. Success of the strategies identified in the Integrated Report and TMDLs depend on active and productive relationships. (Ohio Scenic Rivers Association)

Response 46: Ohio EPA agrees that the meeting was very productive and is interested in annual, if not semi-annual, meetings to share program updates and discuss questions/concerns.

Copies of comment letters follow.

Comments Received during the Request for Comments CWA Section 303(d) TMDL Priority List for 2020



Brian M. Gresser, P.E.,
President, AOMWA
2460 Akron-Peninsula Rd.
Akron, OH 44313
(330) 375-2964

March 13, 2020

VIA E-MAIL (epatmdl@epa.ohio.gov)

Ohio EPA - Division of Surface Water (DSW)
Attn: 303(d) Comments
P.O. Box 1049
Columbus, OH 43215

Re: Draft Ohio 2020 Integrated Water Quality Monitoring and Assessment Report

Dear Rule Coordinator:

The Association of Ohio Metropolitan Wastewater Agencies (“AOMWA”) appreciates the opportunity to comment concerning the Draft Ohio 2020 Integrated Water Quality Monitoring and Assessment Report (“Draft Integrated Report”). 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 300 billion gallons of wastewater each year.¹ AOMWA and its members have a keen interest in the Draft Integrated Report and the water quality policy recommendations included within the Report.

Accordingly, AOMWA provides the following comments concerning the Draft Integrated Report:

- We fully support the issues raised in the comment letter submitted by the Northeast Ohio Regional Sewer District (“NEORS”), and incorporate those comments in their entirety as if rewritten herein. NEORS’s comments include a request that Ohio EPA include NEORS in the stakeholder engagement process for the statewide bacteria TMDL; AOMWA also requests to be included as a stakeholder in the development process for the statewide bacteria TMDL.
- The Draft Integrated Report includes a new assessment methodology for evaluating algae in the vicinity of Sandusky Bay and the Central Basin. While Ohio EPA typically develops water quality standards through a separate notice and comment process, it appears Ohio EPA is consolidating the assessment methodology with the actual assessments of specific water bodies. This approach does not provide the same opportunity for public engagement, and AOMWA believes that the development of algae assessment

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

methodologies should be done as part of a notice and comment process separate and apart from that of the Draft Integrated Report.

- Ohio EPA has modified its method for prioritizing TMDLs; previously, the Agency identified priorities based on a numeric system, but the Agency now identifies them based on “high,” “medium,” or “low” priority. See Draft Integrated Report at pg. J-7. The Agency has explained that its modified method of identifying priorities designed to be compatible with U.S. EPA’s ATTAINS system. As many waters are identified as “high” priority at this time, it is unclear which are actually planned to be addressed in the very near future. AOMWA requests that the Agency consider modifying this approach to include the “high,” “medium,” and “low” information while retaining its numeric prioritization identification (i.e., a particular water body’s priority could be identified by both the high/medium/low designation and the traditional numeric priority identification). This modified approach would be compatible with U.S. EPA’s ATTAINS system, but would still provide clarity as to which waterbodies are likely to be addressed as part of the TMDL process in the near future.

AOMWA appreciates your consideration of these comments and Ohio EPA’s willingness to engage AOMWA and other stakeholders on this issue. We look forward to working with the Agency on this and other water quality-related issues moving forward. Should you have any questions, please contact Rees Alexander at rees.alexander@squirepb.com or (614) 365-2798. Thank you for your attention to and consideration of these comments.

Sincerely,



Brian M. Gresser, P.E.
President, AOMWA

cc: (via e-mail)
Andrew Etter, Squire Patton Boggs (US) LLP
Rees Alexander, Squire Patton Boggs (US) LLP



March 13, 2020

Ohio Environmental Protection Agency
P.O. Box 1049
Columbus, Ohio 43216-1049
Attn: 303(d) Comments

Re: Request for Extension Deadline for Review of the Draft 2020 Integrated Water Quality Monitoring and Assessment Report

To Whom It May Concern,

The Ohio Coal Association (OCA) respectfully submits a request for an additional 30 days to review the subject documentation. The DRAFT OEPA 2020 Integrated report was public noticed on February 13, 2020. The USACE Huntington District public noticed their Stream & Wetland Valuation Metric (SWVM) on February 19, 2020 with an initial public comment period of March 20, 2020. We feel that commenting on SWVM is a more crucial issue to our industry and to our state; however, we are requesting an extension so that we can give your draft report the full attention it deserves. In the interim, I am attaching some initial comments to your draft report for your review.

If you have any questions or would like further information, please contact me at (330) 339-2100.

Respectfully,



Paul W. Leist
Environmental Committee Chairman

OCA Initial Comments for the Ohio EPA's DRAFT 2020 Integrated Water Quality Monitoring and Assessment Report.

Section A, pages A-10 through A-15:

In reviewing the most common causes of aquatic life impairment in the DRAFT 2020 *Integrated Report Water Quality Monitoring and Assessment Report* (DRAFT 2020 Integrated Report) in Section A (pp. A-10 to A-15) three (3) of the five (5) most common causes of aquatic life impairment- Nutrient Enrichment, Habitat Modification and Siltation/Sedimentation - are each strongly influenced by stream morphology or the geomorphic condition of the stream (i.e., is the stream geomorphically stable, unstable or have some degree of instability). In other words, stream morphology or geomorphic condition is a *primary* factor, if not the dominant factor, in determining the functioning (i.e., health) of our streams now that point source discharges have been effectively controlled.

An example of how not understanding the geomorphic condition of streams leads to incorrect priorities to solve pollution problems is provided in this DRAFT 2020 Integrated Report. In the case of Siltation/Sedimentation common cause, the discussion next to the stream photograph states (p. A-11) the following:

“Siltation/sedimentation describes the deposition of fine soil particles on the bottom of stream and river channels. Deposition typically follows high-flow events that erode and pick up soil particles from the *land*.”

To be clear, most of the sediment in our streams comes from the streambanks of geomorphically unstable streams (e.g., upwards of 80%) and not from the land as discussed in the report. If you are going to solve problems, you have to correctly define the problem. This report does not sufficiently define the source of the problem when it comes to siltation/sedimentation.

Additionally, geomorphically unstable streams directly lead to degradation (modification) of habitat and stream processes that assimilate pollutant loads, such as nutrient enrichment. For example, as streams become geomorphically unstable, riffles are eroded and pools are filled, channels incise and stream bank heights increase leading to bank failure and silt/sediment entering the stream. Stable geomorphic conditions will process silt/sediment from stream channels onto floodplains during out-of-bank flows that will occur annually or more often along geomorphically stable streams. Nutrients, such as, nitrogen and phosphorus are typically attached to silts and clays. If silts and clays are deposited on floodplains, then enormous amounts of nutrients are removed from the stream (i.e., significant water quality improvements). Additionally, with silts and clays removed from streams, the water becomes clearer and sunlight (UV) can kill more pathogens within the water.

Therefore, a primary tactic in the overall strategy to reduce silt/sediment in streams is to understand the geomorphic condition of the stream channels. If they are in an unstable condition, then stream restoration would be the top priority to reduce silt and sediment in our streams. However, the DRAFT 2020 Integrated Report does not even identify stream instability as an example silt/sediment source. This major error is most likely the result of the OEPA not properly assessing and evaluating the geomorphic conditions of streams during stream assessments, which is fundamental to understanding how streams are functioning. The Clean Water Act's objective is to maintain and restore the chemical, physical and biological integrity of the Nation's waters. A geomorphic condition assessment is required to evaluate the physical integrity of streams.

Further, this lack of assessing and understanding the geomorphic condition of streams leads to incorrect priorities that cause confusion, misunderstanding and wasteful spending of public and business resources in Ohio. Additionally, restored and existing geomorphically stable streams are effectively self-maintaining and will provide water quality improvement services at no additional cost to the public perpetually. These natural functions (processes) will, overtime, remove most or all of the inputs of silt and sediment from construction sites and overland erosion given that these inputs are not excessive (i.e., a 'free' secondary cleaning service).

Section C1, page C-3:

The Clean Water Act (CWA) is mentioned and references that the CWA's purpose is "...to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Again, there is not enough focus on the "physical" aspect portion of streams. More focus needs to be placed on geomorphology and stabilization of the streams and their associated banks and floodplains.

Currently, the Ohio Coal Association has the following items of recommendation and concerns with the proposed approach to surveying and monitoring aquatic life in Ohio's streams and rivers and for the TMDLs:

1. Use a *geomorphic condition assessment* such as Rosgen's methodology to determine key geomorphic condition parameters, such as, entrenchment ratio, width-to-depth ratio and degree of incision.
2. A geomorphic assessment includes an assessment of *hydrology or hydrologic condition*; thus, the watershed should be evaluated for changes (e.g., land use, storage, others) that might increase or decrease runoff (i.e., magnitude, frequency and duration). However, in most cases, watersheds are dynamic regarding land use changes, which implies an increase in runoff. Increased runoff has significant potential to degrade streams (e.g., incision).
3. A primary need for most all watersheds is to offset the tendency for increases in runoff by creating more watershed storage. More watershed storage will moderate runoff that will reduce the potential for channel degradation (e.g., incision) and downstream flooding. Historically, watershed storage was extensive via the existence of in-stream beaver impoundments. However, these features are now tremendously missing from our watershed due to extirpation of beavers from Ohio by 1830 and these features or similar features need to be greatly expanded upon as a solution to Ohio's channel degradation problems.
4. Geomorphically speaking, in general, there are three (3) key broad level priorities for maintaining healthy streams and rivers, which are as follows:
 - Increase watershed storage (i.e., more in-stream impoundments with features similar to beaver impoundments),
 - Reduce channel incision (i.e., reconnect streams to their floodplains at the bankfull channel stage), and
 - Increase active floodplain width (i.e., broad floodplain at the bankfull channel stage) to further increase watershed storage, moderate flooding and decrease potential for channel degradation (e.g., incision).

Other geomorphic parameters have importance, but conceptually these are the three key broad level priorities.



ENVIRONMENTAL LAW & POLICY CENTER

Protecting the Midwest's Environment and Natural Heritage

March 13, 2020

Melinda Harris
Supervisor, TMDL & Integrated Report Programs
Division of Surface Water, Ohio EPA
50 W. Town Street, Suite 700
Columbus, OH 43215
epatmdl@epa.ohio.gov
Melinda.harris@epa.ohio.gov

Submitted via email

The Environmental Law & Policy Center of the Midwest (“ELPC”) respectfully submits the following comments on Ohio’s Draft 2020 Integrated Report (“Draft 2020 Report”), prepared as part of Ohio’s obligations under the clean Water Act. ELPC appreciates the chance to comment on this important issue.

ELPC is the Midwest’s leading public interest environmental legal advocacy organization. Our focus is on improving environmental quality and protecting our natural resources through innovative and multi-disciplinary solutions. ELPC works to preserve the integrity of our region’s waters and has a particular commitment to protecting western Lake Erie from harmful, often toxic, algae blooms that have plagued it every summer for well over a decade. These comments focus on the Draft 2020 Report’s treatment of the western Lake Erie algae bloom problem.

As you know, these harmful algae blooms coat western Lake Erie in thick green scum, imperil access to safe, clean drinking water, harm fisheries, deter outdoor recreation, and hurt the local economy. The algae overgrowth is caused by phosphorus pollution, 88% of which Ohio EPA has recognized comes from agricultural runoff. The State of Ohio has committed to reducing those

35 East Wacker Drive, Suite 1600 • Chicago, Illinois 60601
(312) 673-6500 • www.ELPC.org
Harry Drucker, Chairperson • Howard A. Learner, Executive Director
Chicago, IL • Columbus, OH • Des Moines, IA • Grand Rapids, MI
Indianapolis, IN • Minneapolis/St. Paul, MN • Madison, WI • Washington, D.C.

phosphorus loads by 40% from 2008 levels by 2025 pursuant to Annex 4 of the Great Lakes Water Quality Agreement.

In response to earlier lawsuits filed by ELPC, Ohio's 2018 Integrated Report recognized that western Lake Erie is "impaired" for phosphorus, and the Draft 2020 Report follows suit. The Draft 2020 Report also appears to take a potentially major new step in the right direction. For the first time, Ohio is now promising to complete a Total Maximum Daily Load ("TMDL") for western Lake Erie as required by section 303(d) the federal Clean Water Act, 33 U.S.C. § 1313. The Draft 2020 Report ranks the western Lake Erie TMDL a "high" priority and says it will be submitted to U.S. EPA within two to three years.¹

While ELPC applauds this potential course correction, we are deeply concerned that the proposed TMDL will be legally and practically insufficient. That is because Ohio remains committed to pursuing TMDL agricultural runoff reduction goals entirely through voluntary measures and incentives. As explained below, that approach is inconsistent with Ohio and federal law and has no chance of achieving anywhere near the pollution reductions necessary to remediate Lake Erie and bring the toxic algae crisis to an end.

I. TMDLs must provide reasonable assurances that compliance will be achieved

The Clean Water Act, 33 U.S.C. § 1251 *et seq.*, prescribes what states must do to remediate seriously polluted waters like Lake Erie: designate them as "impaired" and develop a TMDL. 33 U.S.C. § 1313(d). A TMDL caps the amount of pollution a waterbody can receive at the level needed to remediate the impairment; it then allocates the necessary reductions among pollution sources. U.S. EPA guidance states that TMDLs allocating load reductions to nonpoint sources must provide "reasonable assurances that nonpoint source reduction will in fact be achieved"; otherwise, "under the CWA, the entire load reduction must be assigned to point sources."² These TMDLs also must to include implementation plans to substantiate these "reasonable assurances."

Ohio law imposes similar requirements. Sections 3745-2-12(A)(2) and (E) of the Ohio Administrative Code require TMDLs to include implementation plans that provide "reasonable assurances [the State] will attain [water quality] standards in a reasonable time." According to U.S. EPA, "reasonable assurance" requires that nonpoint source controls are specific to the pollutant of concern, implemented according to an expeditious schedule and supported by reliable delivery mechanisms and adequate funding.³

¹ OHIO ENVT'L PROT. AGENCY, 2020 DRAFT INTEGRATED REPORT J-4 (Feb. 2020).

² U.S. ENVT'L PROT. AGENCY, GUIDANCE FOR WATER QUALITY-BASED DECISIONS: THE TMDL PROCESS (Apr. 1991), <https://www.epa.gov/sites/production/files/2018-10/documents/guidance-water-tmdl-process.pdf>.

³ U.S. ENVT'L PROT. AGENCY, PROTOCOL FOR DEVELOPING NUTRIENT TMDLS 7-5 (Nov. 1999), <https://nepis.epa.gov/Exec/ZyPDF.cgi/20004PB2.PDF?Dockey=20004PB2.PDF>.

These “reasonable assurance” and implementation plan requirements make sense; without them, TMDLs would be purely aspirational and fail to deliver on the core promise of the Clean Water Act “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” 33 U.S.C. § 1251(a). A western Lake Erie TMDL that failed to comply with the “reasonable assurance” and implementation plan requirements would leave Ohio’s repeated commitment to comply with Annex 4 unfulfilled and leave millions of residents exposed to the threat of toxic algae blooms in perpetuity.

II. The TMDL proposed by the Draft 2020 Report would not provide reasonable assurance of compliance

Section J3 of the Draft 2020 Report states that Ohio will attempt to address nutrients in Lake Erie through the H2Ohio Plan as well as “GLWQA efforts, including Annex 4 – Nutrients, Ohio Domestic Action Plan, [and] TMDLs for Lake Erie Watershed.”⁴ Unfortunately, these measures are either ineffective, redundant, or rely solely upon voluntary compliance insufficient to meet nutrient reduction targets. They thus could not supply the requisite “reasonable assurance” that Lake Erie “attain [water quality] standards in a reasonable time.”⁵

Ohio admits that the existing Lake Erie watershed TMDLs (which are on certain tributaries of the Maumee River) are “not abundant enough to meet Lake Erie’s nutrient reduction goals.”⁶ In and of itself, Annex 4 of the Great Lakes Water Quality Agreement imposes no policies or restrictions on Ohio—it simply sets the overall phosphorus reduction goal (40% by 2025) that states are to implement through Domestic Action Plans.

Ohio’s recent Domestic Action Plan update (“DAP”), however, does not come close to putting Ohio on track to meeting Annex 4 targets. On March 2, 2020, ELPC, on behalf of itself and Lake Erie Waterkeeper, filed extensive comments on the DAP, which are attached as Exhibit 1. Those comments demonstrate beyond doubt that even full implementation of the DAP and its policies would not remediate Lake Erie. To avoid repetition, we will not repeat those comments here and instead incorporate them by reference.

One central theme, however, is that Ohio’s exclusive reliance on voluntary measures and incentive payments to agricultural operators to adopt Best Management Practices (“BMPs”) simply cannot succeed. *See* Ex. 1 at 4–6. Recent DAP comments submitted by Dr. Jeffrey M. Reutter, who led the science team that developed the Annex 4 targets, further support ELPC’s point. (A copy of these comments is attached as Exhibit 2.) Among other things, Dr. Reutter states:

⁴ 2020 DRAFT INTEGRATED REPORT at J-13.

⁵ OHIO ADMIN. CODE § 3745-2-12(A)(2), (E).

⁶ 2020 DRAFT INTEGRATED REPORT at J-15.

Voluntary measures have been a failure and there has been no success in controlling the amount of manure applied. Without control of the amount of manure applied (bring it down to tri-state guidelines and enforce it), the situation will get worse each year as more animals enter the watershed. Consider a moratorium on more animals in the watershed until you figure this out. Regulation will lead to innovation.

See Ex. 2 at 2.

III. Conclusion

For the reasons explained in our DAP comments, as reinforced by Dr. Reutter's statements above, the TMDL that the Draft 2020 Report promises to complete for western Lake Erie will, by definition, be legally and practically inadequate. We urge Ohio EPA to reconsider its approach and commit to preparing a western Lake Erie TMDL that will include enforceable regulatory standards sufficient to satisfy the Annex 4 targets to which Ohio has repeatedly committed itself. The people of Ohio—and the broader Lake Erie region—deserve nothing less.

Once again, we thank you for considering our comments and would be happy to answer any questions you may have.

Sincerely,

Robert Michaels, Senior Attorney
Alda Yuan, Associate Attorney
Lucas Stephens, Senior Research Analyst
Environmental Law & Policy Center
35 E Wacker Dr., Suite 1600
Chicago, IL 60601
312-795-3724

Caroline Cox, Associate Attorney
Environmental Law & Policy Center
21 W. Broad Street, Floor 8
Columbus, OH 43215
312-795-3742

EXHIBIT 1



ENVIRONMENTAL LAW & POLICY CENTER

Protecting the Midwest's Environment and Natural Heritage

March 2, 2020

Joy Mulinex
Executive Director
Ohio Lake Erie Commission
P.O. Box 1049
Columbus, OH 43216
dap@lakeerie.ohio.gov

Submitted via email

The Environmental Law and Policy Center of the Midwest (“ELPC”) and Lake Erie Waterkeeper (“LEW”) respectfully submits the following comments on Ohio’s 2020 update to its Domestic Action Plan (DAP), prepared as part of Annex 4 of the Great Lakes Water Quality Agreement (Annex 4). ELPC appreciates the chance to comment on this important issue.

ELPC is a leading public interest environmental legal advocacy organization. Our focus is on improving environmental quality and protecting our natural resources through innovative and multi-disciplinary solutions. ELPC has a commitment to Ohio and has worked to protect Lake Erie from rampant algal growth due to excess phosphorus pollution.

LEW seeks to have fishable, swimmable, drinkable water for the Lake Erie Watershed. Lake Erie Waterkeeper was founded in 2004 and licensed by the Waterkeeper Alliance in 2005. The initial program covered the western basin of Lake Erie. The program was expanded to the entire Lake Erie watershed in 2011.

As explained below, the DAP should offer a detailed roadmap for reaching Annex 4 targets. The DAP appropriately identifies agricultural nonpoint sources from the Maumee Basin watershed as the key to phosphorus loading into Lake Erie and contains a number of other laudable features.

35 East Wacker Drive, Suite 1600 • Chicago, Illinois 60601
(312) 673-6500 • www.ELPC.org
Harry Drucker, Chairperson • Howard A. Learner, Executive Director
Chicago, IL • Columbus, OH • Des Moines, IA • Grand Rapids, MI
Indianapolis, IN • Minneapolis/St. Paul, MN • Madison, WI • Washington, D.C.

Unfortunately, however, it does not come close to providing an adequate roadmap for the required phosphorus reductions. The DAP relies exclusively on voluntary best management practices (BMPs), which are simply not sufficient for reaching Annex 4 targets, as the DAP's own sources recognize.

In addition, the DAP doesn't prioritize dissolved reactive phosphorus (DRP) despite recognizing that DRP is the best indicator of harmful algal bloom growth. The DAP also misallocates subwatershed targets by applying a 40% reduction across the board instead of accounting for existing data about how different watersheds contribute variably to the phosphorus pollution problem. Finally, the DAP lacks quantitative metrics for accountability, which will make tracking progress and improving on existing efforts all but impossible. These serious oversights reduce the value of the DAP as a plan of action and indicate that Ohio is in danger of failing to meet its Annex 4 targets.

I. Domestic Action Plans must offer a roadmap for reaching phosphorus reduction targets

The United States and Canada signed the Great Lakes Water Quality Agreement in 1972 to address transnational water quality issues. Annex 4 of the agreement explicitly addresses excess nutrients in the Great Lakes. Under Annex 4, Canada and the United States both agreed to develop binational objectives for phosphorus concentrations by 2016 and to develop reduction strategies and Domestic Action Plans by 2018.¹

The GLWQA Nutrients Annex Subcommittee set a goal of 40% reduction by 2025 in both total phosphorus and dissolved phosphorus loads from 2008 baselines. They arrived at this figure after a science-driven review of the reductions necessary to eliminate harmful algal blooms. Though the binational subcommittee set these targets, it did not provide a road map for reaching that goal. Instead, each state and province must issue Domestic Action Plans.

The DAPs are collectively responsible for outlining the strategies and actions each state will take to reach the phosphorus reduction targets necessary to ensure the health of the Great Lakes. In other words, a state prepares a DAP both to evaluate progress toward the 40% reduction targets as well as to develop a plan to achieve those targets. Therefore, DAPs are not simply vague goals or agenda-setting documents. Rather, DAPs should include detailed analysis of how certain policies or practices will lead to reductions in phosphorus loads. Ideally, DAPs would include a comprehensive overview of all the phosphorus reduction efforts a given state is undertaking as well as projections for expected reductions from those efforts.

¹ Great Lakes Water Quality Agreement (September 2012), <http://binational.net/2012/09/05/2012-glwqa-aeqgl/> [GLWQA]

In 2015, Ohio, Michigan, and Ontario “signed a collaborative agreement to work to achieve the recommended 40% reductions in phosphorus by 2025. The Collaborative Agreement also set an aspirational goal of 20% reduction by 2020.”²

Ohio has failed to meet that aspirational 20% goal.³ According to Ohio’s own study, there has been no “clear decrease in loading yet, especially in nonpoint source dominated watersheds like the Maumee where the loading in 2017 was the highest of the years reported.”⁴ The DAP should examine the reasons for Ohio’s failure to achieve the 20% interim goal with an aim towards adjusting its strategy going forward. Otherwise, Ohio risks mistargeting its efforts, and thereby not only wasting valuable time and funds but more importantly, failing to achieve the 2025 reduction goals. Each year this goal is not met risks human health and the ecological integrity of the Great Lakes.

II. Ohio’s 2020 Draft Domestic Action Plan fails to offer a credible or realistic phosphorus reduction roadmap.

ELPC recognizes that the DAP gets some key things right:

- First, it properly centers the Maumee River watershed, which is the primary contributor of phosphorus into Western Lake Erie, and identifies reduction of springtime loads as the top priority.⁵
- Second, many of the BMP programs outlined in Appendix D contain excellent provisions, including requiring producers to have a nutrient management plan to be eligible for funding. Nutrient management plans provide accountability as well as additional data for future nutrient reduction efforts.
- Third, many of the specific management practices themselves are also well designed. For instance, to receive funding for manure incorporation, producers are required to show that fields receiving manure “have a soil test showing Bray P1 levels of 50 ppm or less.”⁶
- Fourth, Ohio prioritizes sentinel watersheds – tributaries that have a monitoring station and drain less than 50 square miles, which makes them good test beds to investigate the strategies that deliver the most phosphorus reductions.
- Fifth, the DAP creates a helpful framework for BMPs, grouping them into three different approaches: nutrient management, erosion management, and water management.⁷

² US Action Plan for Lake Erie: Commitments and Strategy for Phosphorus Reduction (February 2018), https://www.epa.gov/sites/production/files/2018-03/documents/us_dap_final_march_1.pdf

³ Ohio EPA, Nutrient Mass Balance Study for Ohio’s Major River (April 2018), https://epa.ohio.gov/Portals/35/documents/Nutrient%20Mass%20Balance%20Study%202018_Final.pdf

⁴ Nutrient Mass Balance Study at 2.

⁵ Ohio Lake Erie Commission, Promoting Clean and Safe Water in Lake Erie: Ohio’s Domestic Action Plan 2020 to Address Nutrients, <https://lakeerie.ohio.gov/LakeEriePlanning/OhioDomesticActionPlan2018.aspx> [DAP]

⁶ DAP at 62.

⁷ DAP at 6.

- Finally, Ohio demonstrates continued support for scientific research and a commitment to public involvement. We would simply caution that any advisory board should contain a cross section of the community, including advocates for those whose drinking water is under threat as well as representatives from agricultural groups.

Overall, however, the DAP does not provide the detailed roadmap for phosphorus reduction and Annex 4 compliance that Ohio needs if it is to have any hope of solving the algal bloom crisis. We discuss six distinct problems with the DAP below.

A. The DAP relies on voluntary BMPs, which will not achieve Annex 4 targets

Despite the positive developments we applaud above, Ohio's basic strategy for achieving phosphorus reductions from agricultural nonpoint sources is flawed because it relies on the voluntary adoption of BMPs, which Ohio EPA's own former Director Craig Butler recognizes are insufficient to clean Lake Erie.⁸ The current planned system of payments through H2Ohio for voluntary BMPs will result in continued harmful algal blooms in western Lake Erie for the foreseeable future.

This was confirmed by the recently released modeling study led by scientists at the Ohio State University, which found that even the most optimistic BMP-adoption scenarios failed to consistently meet Annex 4 target loads.⁹ As the DAP admits, a 2016 NRCS report estimated that 95% of cropland acres would need to adopt BMPs to achieve Annex 4 targets.¹⁰ Yet, surveys of producers have shown that the highest feasible BMP-adoption rates top out at 50-68%.¹¹ This significant gap is the difference between a healthy Lake Erie that provides clean, safe drinking water and a polluted lake that endangers those who live on its shores.

The gap between needed reductions and feasible expectations of voluntary BMPs will only widen because Ohio continues to permit new CAFOs and has undercounted existing CAFOs, which are considerable sources of excess phosphorus. In 2019, ELPC released a report using satellite imagery to calculate that over half the manure in the Ohio portion of the Maumee Basin comes from facilities unaccounted for by Ohio's permitting and regulatory framework for CAFOs.¹² Ohio is

⁸ Andy Chow, Ohio EPA Director Calls for Nutrient Runoff Regulations to Clean Lake Erie, Statehouse News Bureau (Jun. 19, 2018), <https://www.stateneews.org/post/ohio-epa-director-calls-nutrient-runoff-regulations-clean-lake-erie>

⁹ Martin, J.F., et al. "Evaluating Management Options to Reduce Lake Erie Algal Blooms with Models of the Maumee River." *OSU Knowledge Exchange* (November 2019), <http://kx.osu.edu/project/environment/habri-multi-model>

¹⁰ DAP at 18.

¹¹ Martin et al. at vii.

¹² ELPC and EWG, *Explosion of Unregulated Factory Farms in Maumee Watershed Fuels Lake Erie's Toxic Blooms* (2019), <http://elpc.org/cafomonitoring/>

underestimating the amount of manure, and therefore phosphorus, that will be added to the basin. Additionally, Ohio recently issued permits to two additional CAFOs within the Maumee Watershed. One, owned by Profit Family Pork LLC,¹³ will be home to nearly ten thousand hogs and generate over fifty thousand pounds of phosphorus in manure each year. Thus, even as Ohio implements voluntary BMP programs, it is also permitting additional facilities that will make the phosphorus problem worse and increase the challenges to achieving its Annex 4 targets.

Rather than relying solely on voluntary BMPs, therefore, Ohio needs to utilize existing regulatory tools and pass new ones that are up to the challenges ahead.¹⁴ Nowhere does the DAP discuss use of the watershed in distress designation, despite the fact that a study found implementing the designation for the Grand Lake St. Marys watershed in 2011 produced significant nutrient reductions.¹⁵ In fact, Governor Kasich issued an executive order in 2018 that would have designated eight watersheds within the Maumee Basin as watersheds in distress.¹⁶ Though the executive order ultimately died with the Soil and Water Commission, the Ohio Department of Agriculture completed a study concluding that the watersheds identified were indeed in distress,¹⁷ and nothing would stop the current administration from re-starting the process.¹⁸ The DAP nevertheless fails to mention this regulatory tool.

Ohio's draft DAP also makes only passing reference to enhanced regulations, noting that changes "would require legislative action."¹⁹ Even to the extent this is true, the DAP is failing in its purpose by stopping there. Instead, the DAP should contain recommendations for regulatory changes and outline how each would contribute to the ultimate goal of a healthy Lake Erie. For example, the DAP could propose stricter limitations for nutrient management plans in watersheds that regularly exceed Annex 4 flow-weighted concentration targets. Or the DAP might suggest a moratorium on new animal feeding operations in those watersheds. The DAP could propose experiments of remedial efforts in sentinel watersheds, applying stricter restrictions to one sentinel watershed and implementing only voluntary BMPs in the other to compare the impact.

¹³ Ohio Department of Agriculture, A final Permit to Install (PTI) and final Permit to Operate (PTO) has been issued for Profit Family Pork, <https://agri.ohio.gov/wps/portal/gov/oda/divisions/livestock-environmental-permitting/news-and-events/profit%2Bfamily%2Bpork%2Bfinal%2Bpn>

¹⁴ Liu, Hongxing, et al. "Best Management Practices and Nutrient Reduction: An Integrated Economic-Hydrological Model of the Western Lake Erie Basin." (2019). *Economics Working Papers*: Department of Economics, Iowa State University. 19022.

¹⁵ Jacquemin, Stephens J., et al. "Changes in Water Quality of Grand Lake St. Marys Watershed Following Implementation of a Distressed Watershed Rules Package." *J. Environ. Qual* 113.47 (2017).

¹⁶ Office of the Governor of the State of Ohio, Executive Order 2018-09K: Taking Steps to Protect Lake Erie (July 11, 2018)

¹⁷ Ohio Department of Agriculture, Distressed Watershed Designation Analysis: Selected Western Lake Erie Basin Watersheds (July 19, 2018), <https://agri.ohio.gov/wps/portal/gov/oda/divisions/soil-and-water-conservation/forms/lewshdindistressanalysis>

¹⁸ Kilbert, Kenneth K. "Distressed Watershed: A Designation to Ease the Algae Crisis in Lake Erie and Beyond." *DICK. L. REV.* 124.1 (2019).

¹⁹ DAP at 8.

At the very least, the DAP should consider devoting funds to improving the enforcement of existing regulations to limit the worst management practices throughout the watershed as much as possible. Ohio Department of Agriculture's history of regulating CAFOs raises concerns that it ineffectively enforces permits, monitors, and fines CAFOs that fail to comply with their manure management plans. Our recent review of the agency's inspection reports shows CAFOs routinely apply manure to fields with soil phosphorus tests above the agronomic rate of 40–50 ppm without any consequences.²⁰ The agency also appears to regularly approve exceptions to established manure management practices, such as not spreading manure on saturated fields, allowing CAFOs to continue loading Ohio's water with phosphorus.²¹ The risk to surface water from CAFOs is especially great because these facilities are major sources of spatially concentrated phosphorus in manure, and often dispose of excess manure as waste. Proper enforcement of prohibitions against spreading manure on snow-covered or frozen ground, or soil saturated by precipitation, would go some way toward mitigating this risk.

In short, voluntary BMPs – which the DAP relies on exclusively – are demonstrably insufficient to achieve the necessary reductions. To properly fulfill its role as a roadmap to achieving Ohio's Annex 4 obligations and prevent future algal blooms, the DAP needs to broaden the scope of its strategy and realistically assess what voluntary BMPs are capable of.

B. The DAP improperly focuses on total phosphorus to the exclusion of dissolved reactive phosphorus

The DAP focuses exclusively on total phosphorus and contains no discussion of dissolved reactive phosphorus nor any strategy for meeting the Annex 4 targets for DRP. This omission seriously diminishes the relevance of the DAP to the goal of preventing future algal blooms in western Lake Erie.

Researchers have found that DRP is a much better indicator of harmful algal bloom growth than total phosphorus, and indeed, that a combination of spring-time DRP loading and the cumulative DRP load of the previous nine years best predicts the size of the algal bloom in Lake Erie each summer.²² DRP more directly induces cyanobacterial growth because it is 100% bioavailable, while particulate-bound phosphorus is only ~25% bioavailable.²³ Moreover, DRP loads and

²⁰ See, e.g., Ohio Department of Agriculture, DLEP Facility Inspection Report, Croton Layer #4 at 9 (Oct. 11, 2018), wherein manure applications to fields with STP of 215 – 591 ppm elicited no enforcement action.

²¹ See, e.g., Ohio Department of Agriculture, DLEP Facility Inspection Report, Marseilles (Layer 6) (Aug. 18, 2018); Ohio Department of Agriculture, DLEP Facility Inspection Report, Marseilles (Layer 6) (Oct. 10, 2018)

²² Ho, Jeff C., and Anna M. Michalak. "Phytoplankton blooms in Lake Erie impacted by both long-term and springtime phosphorus loading." *Journal of Great Lakes Research* 43.3 (2017): 221-228.

²³ Baker, David B., et al. "Needed: Early-term adjustments for Lake Erie phosphorus target loads to address western basin cyanobacterial blooms." *Journal of Great Lakes Research* 45.2 (2019): 203-211.

concentrations have been steadily increasing since the mid 90's, while total phosphorus loads and concentrations have remained relatively stable or indeed, even declined modestly in certain areas – likely reflecting the success of some erosion control efforts.²⁴

Nutrient reduction strategies, plans, and implementation efforts will only succeed at preventing future algal blooms if they focus on limiting dissolved phosphorus losses from agricultural fields. While reducing DRP loads from runoff and tile drainage may be more difficult than reducing total phosphorus loads from erosion, that fact is no excuse for the DAP's failure to address one half of the Annex 4 targets, especially the half that is worsening and that has been shown to cause the algal blooms.

The DAP's claim that there is a lack of data for DRP reduction is incorrect. Numerous scientific studies have linked elevated soil-phosphorus levels with high concentrations of DRP in runoff and tile drainage,²⁵ and many studies contain recommendations for specific practices that limit DRP losses from agricultural fields.²⁶ An effective DAP would include a comprehensive plan to identify areas with high soil-phosphorus levels, limit or prohibit further phosphorus applications in those areas, and target mitigation strategies to draw down soil-phosphorus while reducing DRP export to surface waters.

C. The DAP's allocation of subwatershed targets is flawed

Allocation of subwatershed reduction targets is an essential element of a DAP because it enables the targeting of remedial efforts. The method used in Appendix A to distribute target loads to the HUC12 scale, however, is severely flawed and risks setting targets that are unachievable for some watersheds, while not limiting pollution enough in others.

The EPA guidance that Ohio cites prescribes several methods to allocate Annex 4 targets to subwatersheds.²⁷ We advise following a flow-based approach and distributing the flow-weighted

²⁴ Choquette, Anne F., et al. "Tracking changes in nutrient delivery to western Lake Erie: Approaches to compensate for variability and trends in streamflow." *Journal of Great Lakes Research* 45.1 (2019): 21-39.

²⁵ King, Kevin W., et al. "Phosphorus availability in Western Lake Erie Basin drainage waters: legacy evidence across spatial scales." *Journal of environmental quality* 46.2 (2017): 466-469.

Duncan, Emily W., et al. "Linking soil phosphorus to dissolved phosphorus losses in the Midwest." *Agricultural & Environmental Letters* 2.1 (2017).

Ni, Xiaojing, et al. "Impact factors and mechanisms of dissolved reactive phosphorus (DRP) losses from agricultural fields: A review and synthesis study in the Lake Erie basin." *Science of the Total Environment* 714 (2020).

²⁶ Baker, David B., et al. "Needed: Early-term adjustments for Lake Erie phosphorus target loads to address western basin cyanobacterial blooms." *Journal of Great Lakes Research* 45.2 (2019): 203-211.

Wilson, Robyn S., et al. "Commentary: Achieving phosphorus reduction targets for Lake Erie." *Journal of Great Lakes Research* 45.1 (2019): 4-11.

Martin, J.F., et al. "Evaluating Management Options to Reduce Lake Erie Algal Blooms with Models of the Maumee River Watershed. Final Report." *OSU Knowledge Exchange* (2019).

²⁷ Tetra Tech. "Methodology for Connecting Annex 4 Water Quality Targets with TMDLs in the Maumee River Basin." *Task Order No. EP-B175-00001* (2018).

mean concentration Annex 4 targets to each watershed. This approach would be relatively simple to implement and monitor, and would better reflect changes in land management that affect future phosphorus loads. If a load-based method is employed, however, real-world loading data from in-stream monitoring stations throughout the Maumee basin should be used to more accurately estimate baseline loads and targets. To that end, Ohio already possesses an extensive monitoring network that can help target solutions and identify priority watersheds. Either of these approaches would better identify specific watersheds that regularly and disproportionately exceed Annex 4 limits and assign reductions proportionate to those exceedances.

The DAP's allocation uses neither of these methods. Instead, it bases targets on estimated loads from average phosphorus yields across three classes of land use, and assumes that all watersheds will require 40% load reductions, ignoring much of the observed variation in how Maumee tributaries contribute to phosphorus pollution. Indeed, the EPA guidance specifically advises against requiring 40% load reductions across the board. This method risks forcing watersheds with already low phosphorus loads (perhaps already meeting Annex 4 flow-weighted targets) to reduce even further. Forcing reductions in those areas would not advance the ball (indeed, it may not even be possible). The DAP contends that targeting the watersheds that contribute more pollution would somehow be "inequitable," but in reality, it would just accurately reflect current pollution rates throughout the basin, regardless of source. What is "inequitable" is allowing the most serious polluters to carry less than their full weight of reductions while the people who rely on Lake Erie for drinking water, recreation, and economic well-being are forced to endure summer after summer of toxic algae outbreaks.

An ideal methodology would include a review of spatially-explicit DRP loading and concentration trends over the past several years, compare these to nutrient sources, and incorporate both into comprehensive reduction targets.

D. The DAP's plan for tracking H2Ohio is misaligned with the implementation plan

We agree that implementing agricultural BMP projects and other nutrient reduction efforts requires a robust tracking system. The DAP, however, proposes to aggregate these metrics by county, presumably to line up with how H2Ohio funds will be distributed. The obvious problem with this level of aggregation is that county boundaries do not align with watershed boundaries – the scale at which the reduction efforts and targets will be implemented. This misalignment will prevent any clear association between nutrient loading trends, targets, and reduction efforts. We recommend that H2Ohio tracking systems aggregate data on the extent and adoption of BMPs by HUC12 - the scale at which reduction targets have been developed, or by HUC8 – the scale at which monitoring data are available basin-wide.

E. The DAP lacks quantitative metrics for accountability

We understand that implementation of agricultural BMPs will be administered through Soil and Water Conservation Districts according to 9-element watershed plans that are still under development. Nevertheless, the DAP should make some attempt to estimate total nutrient reductions according to each strategy and provide a timeline for reduction benchmarks.

These metrics are critical for enabling the public to track the progress of nutrient reductions via the constituent efforts of the DAP, and for holding the various responsible state agencies accountable for their roles in meeting Annex 4 targets. Yet the DAP fails to answer some of the most basic questions that would make that possible, including:

- Will the strategies outlined in the DAP produce nutrient reductions that meet Annex 4 targets *by 2025*, and if not, when are they expected to meet the Annex 4 targets?
- How much progress towards the Annex 4 targets will be achieved each year until they are met?
- What proportion of the Annex 4 targets is wetland restoration expected to achieve, and by when? What proportion will be achieved through nutrient management? Erosion control? Water management? Etc.
- How do these expectations compare to planned expenditures for each strategy under H2Ohio?

Simply providing flawed loading targets, as described above, and a suite of BMPs to Soil and Water Conservation Districts and *encouraging* them to create implementation plans (without funding) is not a targeted, effective plan and seriously misallocates public funds.

The limited comments in the DAP indicating that the proposed nutrient reduction efforts will “take time” and that “the response in the rivers and lakes will continue to be slow” are vague and not acceptable substitutes for a timeline that could provide some level of accountability.

While we applaud Ohio for recommitting to the Collaborative Agreement, the assertion in the DAP under the Managing Expectations section that “there is a long way to go to meet the [Annex 4] targets” does not inspire confidence in the ability of the current plan to meet 40% phosphorus reductions by 2025. The DAP should include some consideration of how this plan could be amended to accelerate progress, should it fail to reach those goals. Such an approach is the essence of the adaptive management philosophy espoused by Ohio, yet no alternative ways to meet management objectives are proposed or discussed within the DAP. While we understand that the challenge of reducing nonpoint source phosphorus pollution from over 4 million acres in the Maumee River watershed is immense, and the recovery of Lake Erie may considerably lag implementation of land-management changes, Ohio should nevertheless be prepared with

contingency plans in the predictable event that voluntary measures prove inadequate to meet these challenges.

F. The DAP fails to address climate change risks

There is no mention of climate change in the DAP. Researchers predict that climate change will increase the severity of future algal blooms both in Lake Erie and more widely across the United States due to warming temperatures and changing patterns of precipitation. Extreme precipitation events are forecasted to increase in frequency and intensity across the Midwest, causing increased runoff of nutrients and ensuing eutrophication of surface waters.²⁸ Internal phosphorus loading may also increase with rising temperatures.²⁹ Both of these climate-induced mechanisms will make it more difficult to reduce nutrient losses from agricultural soils and, therefore, underscore the vital importance of reducing nutrient inputs such as fertilizer and manure. These predictable trends are relevant to the loading targets and projections included in the DAP and should be factored into management strategies going forward.

III. Conclusion

Lake Erie is a natural resource of incalculable value to Ohio. Every day, Ohioans drink from it, sail on it, and walk its shores. Every summer for the last twenty years, their ability to do all these things has been endangered by the algal blooms that curl across hundreds of miles of Lake Erie's surface, coating it with toxic scum. The state of Ohio has a responsibility to its citizens to address this harm. Ohio has affirmed this responsibility repeatedly in international agreements, public reports, and numerous press conferences. Yet the algal blooms and the phosphorus pollution that causes them continue to plague the Great Lakes.

ELPC urges Ohio to use the opportunity presented by the DAP to take stock of its approach toward achieving the phosphorus reductions it has committed to. A clear-eyed analysis of Ohio's progress, or lack of thereof, leads to the inevitable conclusion that reliance on voluntary BMPs will simply not achieve the necessary reductions. Nonpoint source phosphorus pollution is a challenge, but it is not an immutable characteristic of agricultural land management, nor should it be accepted as such. Intelligent policies, informed by scientific research, can prevent future algal blooms and restore Lake Erie.

²⁸ Michalak, Anna M., et al. "Record-setting algal bloom in Lake Erie caused by agricultural and meteorological trends consistent with expected future conditions." *Proceedings of the National Academy of Sciences* 110.16 (2013): 6448-6452.

Sinha, E., A. M. Michalak, and V. Balaji. "Eutrophication will increase during the 21st century as a result of precipitation changes." *Science* 357.6349 (2017): 405-408.

²⁹ Ho, Jeff C., and Anna M. Michalak. "Exploring temperature and precipitation impacts on harmful algal blooms across continental US lakes." *Limnology and Oceanography* (2019).

We appreciate your consideration of our comments.

Sincerely,

Robert Michaels, Senior Attorney
Alda Yuan, Associate Attorney
Lucas Stephens, Senior Research Analyst
Environmental Law & Policy Center
35 E Wacker Dr. Suite 1600
Chicago, IL 60601
312-795-3724

Sandy Bihn, Executive Director
Lake Erie Waterkeeper
3900 N Summit St
Toledo, Ohio 43611
419-367-1691

EXHIBIT 2

1 March 2020

Comments by Dr. Jeffrey M. Reutter on:

“Promoting Clean and Safe Water in Lake Erie: Ohio’s Domestic Action Plan 2020 to Address Nutrients”

Let me begin by complementing the Governor, the agency directors, and all involved with writing this plan. It is a huge improvement over the previous plan and it is very well written. I expect that this plan may produce some slight reduction in the FWMC of phosphorus from each of the tributaries, but there it is highly unlikely that it will allow us to reach our target reductions.

Efforts on wetlands, sewage plants, and septic systems will produce benefits. This, in and of itself, is an improvement over the previous plan.

The numbers I have seen as payments for the 10 BMPs listed in this plan make it an incredibly expensive plan and a windfall for farmers. We must not forget that data presented in the 9-author white paper and other articles show that we could reach the target reductions simply by following the tri-state guidelines for both fertilizer and manure and inserting them when applied. The other 8 BMPs on the list are the most expensive per acre, directionally correct, but with unknown reduction amounts. It would be cheaper to enforce application limits and provide incentives to insert, and do nothing else. Those two items would produce huge reductions. If after a few years we found that they were not enough, we could provide additional incentives for other BMPs.

Also note that if regulations are not acceptable, it is highly likely that we could solve the entire problem with a high tax on phosphorus. The revenue could be used to assist farmers with costs in inserting fertilizer and manure, and the tax would make it more economical to transport manure great distances.

My final overall comment is that the report lacks urgency and says nothing about the new information we are learning about the dangerous health impacts of algal toxins.

My additional comments will be listed by page number in the report. I am sorry that I did not have time to give it a more thorough review.

Page 1:

It is very good that we have recommitted in 2019 to the Collaborative goal of the 40% reduction.

Note that when the Objectives and Targets Task Team of Annex 4 sought and received approval from both US and Canadian Governments, the main rationale was that we felt it was important to continue to evaluate the 40% target reduction to be sure we believe it continues to be a reasonable target. That target would produce blooms like the small ones in 2004 and 2012, or smaller, 9 years out of 10. If climate change continues to produce more frequent severe storms, the frequency of HABs worse than 2004 or 2012

we become greater than 1 year out of 10, and the 40% reduction target may have to be increased to achieve a satisfactory result.

Page 2:

Note the typo in the year on the first bullet.

Regarding target loads, the 40% reduction is accurate, but it would be good to pull the info in footnote number 5 into the target information included in the 4 bullet points. Key here is the point that we also set targets for FWMC (0.23 and 0.05 mg/l for TP and DRP, respectively) and believe those targets to be more important than the actual loads, as indicated by the fact that we recommended that we track our progress at achieving the target reductions by monitoring FWMC. Many people, particularly the agriculture community, miss this incredibly important point.

Include explanation that TP is only about 25% bioavailable and DRP is 100% bioavailable, that TP has not increased significantly over the years but DRP is up over 130%, and it is the increase in DRP that is driving the problem of HABs in the Western Basin. This is a very important point to include.

Regarding understanding nutrient sources, you should include the information that current guidelines allows animal manure to be spread at about 4 times the rate recommended for commercial fertilizer. It is irresponsible not to point out that problem.

Page 3 and 4

The breakdown of the phosphorus sources and the discussion of the priority tributaries are well done.

Page 5

Well done, but explain how the calculations were done, e.g., is it based on models or measurements of concentrations within the tributaries.

Page 6

Your success with depend entirely on how well you do the 4 items listed under nutrient management. The other 6 BMPs are all directionally important, but will not have the impact of the first 4 BMPs. Voluntary measures have been a failure and there has been no success in controlling the amount of manure applied. Without control of the amount of manure applied (bring it down to tri-state guidelines and enforce it), the situation will get worse each year as more animals enter the watershed. Consider a moratorium on more animals in the watershed until you figure this out. Regulation will lead to innovation.

Page 8 Agriculture Regulatory Programs

Need much improvement here. Current programs are too lenient and ineffective as written.

Page 15

The targets and values in Table 4, FWMC for TP and DRP, are much more important than the loads in Table 5.

Page 18

It is wonderful that we have recommitted to reach the 40% reduction by 2025, but I see no penalty for not reaching it, and I don't expect that we will reach it with a very expensive voluntary program.

Ohio EPA, Division of Surface Water
Attn: 303(d) Comments
P.O. Box 1049
Columbus, Ohio 43216-1049

Comments: Ohio Integrated report

Sent via email March 13, 2020

To: epatmdl@epa.ohio.gov

From: Sandy Bihn, Executive Director, Lake Erie Waterkeeper sandylakeerie@aol.com

2020 Comments to the Ohio EPA 'Integrated Report' prepared for USEPA to meet Clean Water Act Requirements.

1. The Integrated report makes the following statement: Water Quality Based Effluent Limits Ohio rules require NPDES permits to be protective of the receiving stream uses, including public water supply, industrial, agricultural, aquatic life, human health and recreational. To develop limits to protect these uses, the first step is determining: • Discharge Information o Concentrations of pollutants o Proposed flows • Receiving Stream Information o In-stream chemistry data o Low-flow conditions o Applicable uses The permit writer does a mass balance to determine the allowable discharge amounts which will be protective of the water quality criteria. Total Maximum Daily Load Receiving streams which are impaired may result in a TMDL for a certain
This statement does not factor in the transfer of NPDES responsibility from OEPA to ODA for CAFO's/manure. Does the Mass Balance analysis that Ohio EPA does include CAFO's/manure/NPDES permits? What are the rules for overall Clean Water Act /NPDES administration when there are two agencies who have NPDES responsibility?
2. The Lake Erie portion of the report has assessment units that, except for Sandusky Bay, use the algae density as the basis for nutrient impairment. This is not the right 'metric' for the Central Basin. The impact of nutrients/algae in the Central Basin is the size of the dead zone. The dead zone size should be the metric used for the Central Basin. Also the Lake Erie 'Sandusky' area is described as a transition area. This is misleading in that Sandusky watershed has very low flow into Lake Erie. If this is an assessment unit, it should be relabeled to Lake Erie Islands or something else because of the minimal impact of the Sandusky watershed on the assessed Lake Erie waters. The transition area discussed is really the water getting deeper more than anything else. It would seem that this should be part of the Western Basin assessment area – maybe broke into two regions for assessment.
3. If there is a separate assessment for Sandusky Bay, there should be a separate assessment for Maumee Bay which is also small enough to assess water quality. There should be an assessment of the Maumee Bay shoreline which includes a public beach in a state park.
4. Recommend that be a TMDL Lake Erie leader by first getting a multi-state TMDL agreement with USEPA and the States of Michigan and Indiana to conduct the Maumee TMDL. Likewise, though more complex, though having great benefit to Lake Erie - do a combined type of TMDL with Ohio,

Michigan and Ontario. There would have to be integration of Ontario/Canadian laws and policies which in some ways are similar in the Canadian Source Water Protection laws.

5. The Multi Watershed Bacteria TMDL needs to include organic and inorganic sources and DNA identification organic nonpoint sources. There also needs to be a reassessment of Impaired Approved TMDL's to ensure that bacteria has been evaluated in these areas, and that the bacteria TMDL assessment is consistent.
6. It is unclear how the St. Joseph River TMDL will be coordinated with monitoring Beaver Creek, Grand Lake St. Marys.
7. It is recommended that the St. Joseph River TMDL be coordinated with an Indiana St. Joseph TMDL and that these TMDL's be used as part of the upper Maumee River TMDL assessment.
8. It is unclear in the report on the TMDL assessment process regarding high flow and low flow nutrient runoff within the assessment unit and upstream and downstream of the assessment unit, please explain.
9. For all TMDL's and monitoring, there should be a numerical total Phosphorous standard and a standard for dissolved/soluble phosphorous – the Great Lakes Water Quality Agreement provides some guidance. If only total phosphorous is assessed, then much of the phosphorous/nutrient runoff, which is critical to reduce algae is missing and this is unacceptable.
10. Does the sediment/siltation category take into account water levels? High and low flow? Depth of the water? What is the difference or connection between sediment/siltation and turbidity? How is this category differentiated in shallow and deeper waters? In the open waters of Lake Erie how is sediment/siltation sources assessed? And for aquatic life, how is it determined if sediments/siltation contribute or harm aquatic life?
11. There needs to be consistency in what is monitored for, how it is reported and QUQC
12. This report relies on H2O Ohio for the 'Plan' to get the phosphorous reductions required in the Great Lakes Water Quality Agreement Annex 4 provisions. There is no research that indicates that H2O Ohio which uses voluntary measures and BMP's will ever achieve the targeted 40% reduction. H2O Ohio is not an acceptable plan for the 40% nutrient reduction for western Lake Erie.
13. A lot of money is being spent to reduce nonpoint nutrient runoff in the Maumee watershed while at the same time the State of Ohio is permitting additional CAFO's with soil phosphorous amount of 150 ppm while paying \$65 an acre and \$35 an acre to haul manure to fields with a soil phosphorous of 50 ppm or less. This is part of H2O Ohio but fails to connect to ODA permits. The ODA CAFO permits need to use the H2O Ohio 50 ppm soil phosphorous limits or less, the agronomic amount.,

These are items that were included in the last Integrated report:

1. Is this item addressed in this report?

There is a statement in Section J 3 the report that "TMDLs were not developed to address the excessive wet weather loads delivered to Lake Erie." This dooms all nutrient reduction plans for Lake Erie and other waters impaired due to algae. It is estimated that in 2017, 78% of the load entering Lake Erie came from nine rainfall events. This simply means that reductions during low flow will never come near the 40% reduction needs to reduce Lake Erie's harmful algae. There should be a

western Lake Erie TMDL scheduled that is designed to include all US western Lake Erie watersheds and would assess high flow nutrient – phosphorous and nitrogen inputs during high flow. This would include an implementation plan that has targets for high flow nutrient reductions.

2. This report fails to address the dead zone in the Central Basin for impairment assessment. The dead zone clearly needs to be part of the Central Basin Assessment.

There should be an assessment for determining impairment for the central basin of Lake Erie which would be based on frequency and size of the dead zone along with if the dead zone is impacting the central basin public drinking water intakes.

3. How is this addressed in the 2020 report? And how is manure as a nutrient and pathogen sources addressed throughout the Integrated report?

The report does not follow the Clean Water Act provision for reasonable assurances to address pollution from non point and needs to do so.

4. It appears in the report that the Great Lakes Water Quality Annex 4 provisions are being used as a substitute for TMDL's and other Clean Water Act requirements. The Agreements should instead be using and following the Clean Water Act, as required by law, instead of substituting with the Domestic Action plans which for Ohio, lack accountability and measurement.

5. Does the 2020 report commit to a Grand Lake St. Marys implantation plan?

Grand Lake St. Marys (GLSM) is Ohio's largest inland lake. Ohio lists GLSM as impaired and has conducted a TMDL that was completed in 2008. The Clean Water Act requires that once there is a TMDL, there is an implementation plan that shows progress (or the lack of) to continue to insure that over time progress is made to have Grand Lake St. Marys delisted. Ohio elected (there is correspondence with USEPA on this) to substitute the implementation plan to a distressed watershed, which Ohio claimed would work better than the implementation plan. GLSM has been posted for no contact for swimming for the past nine years. It has become clear that it was a mistake for USEPA to approve Ohio's deviation from the Clean Water Act/implementation plan process. What should have been done, is for Ohio to make the distressed watershed as part of the implementation plan with a requirement to report progress – or the failure of – and to take additional steps to reduce nutrient loadings, especially from manure into Grand Lake St. Marys. Monitoring shows that total phosphorous has gone down but dissolved reactive phosphorus – the driver of the algae, has not been reduced. There is much economic and environmental consequences to the continuing toxic algae problem in GLSM. Clearly, Ohio's approach to reduce toxic algae in GLSM is not working. In fact, Ohio DNR is now proposing to dredge a part of the lake with a beach and put up a n air curtain to keep the waters of GLSM away from the beach – quite bizarre and certainly not reducing sources as required under the Clean Water Act.

6. How is this addressed in the 2020 plan?

Ohio was required by USEPA years ago to develop nutrient standards which would be very helpful for assessing nutrient reduction progress. Phosphorous standards for rivers and lakes need to be developed in a stated and committed time frame as is required under the Clean Water Act.

7. Has this changed in this report?

Ohio in its assessment units and scoring has the lowest number of points allowable in the human health category. Human health is extremely important.

8. It appears that Ohio is addressing this previous comment Thank You
Ohio's assessment units for Lake Erie and its TMDL analysis are as clear as mud to the average reader. It appears the scoring for recreation is low while for public drinking water higher. Both of these should receive the highest points because of cyanobacteria/microcystin has very high toxicity that is dangerous for Lake Erie public water intakes and for all who swim or come in contact with the algae.
9. Ohio is addressing this previous comment. Thank You
Western Lake Erie needs a TMDL and Ohio EPA should schedule one because of the threat to drinking water, human health, recreation and aquatic life. The voluntary agreement based path that Ohio is taking has no track record for success. Chesapeake tried agreements for thirty years and they failed. It was not until there was a TMDL that real progress was made.
10. What is the status of the below?
The Auglaize and Tiffin Rivers should not be delisted because Heidelberg data shows that these two rivers are major sources of nutrients that are causing problems for Lake Erie. It appears that OEPA is delisting for low flow etc. and is not considering high flow when there is the most significant runoff to Lake Erie. Ohio's assessment system is fatally flawed when it fails to assess high flow runoff after heavy rains.



Midwest Biodiversity Institute, Inc.
P.O. Box 21561
Columbus, OH 43221-0561

Ohio EPA, Division of Surface Water
P.O. Box 1049
Columbus, Ohio 43216-1049
Attn: 303(d) comments
epa.tmdl@epa.ohio.gov

March 13, 2020

To Whom It May Concern:

The Midwest Biodiversity Institute (MBI) has reviewed the draft Ohio “2020 Integrated Water Quality Monitoring and Assessment Report” released on February 13, 2020. 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. As part of our mission MBI has conducted in depth reviews of 25 state, three federal, and two tribal programs since 2002. These reviews have included the development and implementation of the monitoring and indicators needed to produce the biennial 305[b]/303[d] Integrated Report (IR) for each state. In addition, MBI has also conducted comprehensive watershed bioassessments in Ohio and other states that emulate the essential concepts and attributes of the Ohio EPA program that has been reflected by prior IRs and basin assessments. It is from this base of experience that we offer the attached comments and suggestions for improving the draft report and the proposed changes to monitoring and assessment.

Historically, Ohio EPA has operated one of the leading state surface water quality programs, spanning a period of nearly 40 years. We believe that it is in the best interests of the State of Ohio and the many stakeholders with an invested interest in water quality to see that the IR continues to accurately document the positive accomplishments achieved over that time period while at the same time providing an accurate assessment of recent trends. Ohio is one of only a few states that can report at this level of detail and accuracy and we (and others) are counting on this level of quality continuing well into the future. While the fundamental structure of the monitoring and assessment program is currently proposed to be modified, we remain committed to advising the agency and others in a positive, but frank manner.

Besides making some direct observations about the content of the 2020 IR, most of our concerns continue to be about the proposed Two-Pronged Approach to monitoring and assessment. We and others submitted comments in response to the roll out of the Two-Pronged Approach on July 10, 2019. To our knowledge neither we nor anyone else has received a formal response to those comments and observations, thus we are resubmitting them as comments on the pertinent portions of the 2020 IR that deal with monitoring and assessment. While we appreciate the opportunity that was recently afforded to selected NGOs

and to hear more details about the agency's plans on March 5, 2020 at Ohio DNR, we remain concerned that we are not yet able to fully ascertain the details that underlie the Two-Pronged Approach. Incomplete information leads to an incomplete understanding which makes it difficult to evaluate some of the claims made by the agency about what the Two-Pronged Approach will actually be able to deliver. In our view, the information that has been provided, including the invited private discussion that we attended with select DSW staff and managers on July 9, 2019, has been piecemeal and incomplete. Thus our comments to some degree reflect our best inference about the reduction in sites sampled, spatial coverage, and all of the consequences to Clean Water Act programs that emanate from that.

Once again we encourage the agency to engage stakeholders in the development of the new and modified tools and indicators that are apparent from the slides provided on March 5. We also request additional time to sift through the March 5 presentation, ask questions, and provide additional comments at a later date. While we do appreciate the agency's effort to meet and discuss on March 5 we have simply had insufficient time to unpack both the new and old information and evaluate the ramifications of each. Some of these changes will have serious regulatory implications some of which could undermine 40 years of established water quality policy. We believe it is imperative that we and other stakeholders have a fuller understanding which will require additional interactions with the agency. We have previously expressed our concerns with a lack of public input prior to the roll out of the Two-Pronged Approach in July 2019, so a reasonable extension of time would afford a good opportunity for the agency to better engage the public about the underlying details that have thus far been difficult to decipher.

We appreciate the opportunity to provide input to critical water quality program issues at Ohio EPA.

Very truly yours,



Peter A. Precario, Executive Director
Midwest Biodiversity Institute
P.O. Box 21561
Columbus, OH 43221-0561
(614) 457-6000 x1101
pprecario@mwbinst.com
www.midwestbiodiversity.org



Chris O. Yoder, Research Director
Midwest Biodiversity Institute
P.O. Box 21561
Columbus, OH 43221-0561
(614) 457-6000 x1102
cyoder@mwbinst.com
www.midwestbiodiversity.org

**Comments on Draft 2020 Ohio Integrated Report
Submitted by Midwest Biodiversity Institute**

Monitoring to Support Impaired Waters Listings and TMDLs

Ohio EPA has operated an exemplary monitoring and assessment (M&A) program that is nearing 40 years for inland rivers and streams. This approach allows Ohio EPA to use M&A data and information to support *all* water quality management programs. States with lesser levels of rigor in their M&A and WQS programs are limited to producing a biennial IR and at a much lesser level of detail in terms of spatial detail and content. There is no question one the essential components of the Ohio program is the systematic implementation of M&A and the rigor in the spatial context and biological, chemical, and physical indicators upon which the assessments are based. However, the absence of a monitoring schedule is of concern. While we understand the impact of the Supreme Court ruling on the TMDL program, the 80% reduction in 2018-19 in what has been the baseline M&A effort for nearly 40 years raises many questions not only about the future direction of monitoring, but the Ohio EPA surface water program as a whole. We therefore urge the agency to reveal the intent of any changes to stakeholders, especially those who have come to rely on the outputs and outcomes of one of the most comprehensive approaches in the U.S. As it reads now the ***Ohio EPA Monitors Water Quality in Ohio and Reports its Findings*** discussion in Part A potentially provides a potentially misleading message about the future of the program that many stakeholders have simply expected to exist well into the future. It does not mention the monitoring changes proposed in Section J by the proposed Two-Pronged Approach. There are many other concerns, more than we can state in these comments, but we do not see how any fundamental interruption in the design and execution of this program will allow the agency to effectively execute its mission of protecting and restoring water quality in support of measuring the attainability and attainment of designated uses. We have also resubmitted our comments on the Two-Pronged Approach done in response the July 10, 2019 stakeholder outreach event and as described in our cover letter.

The Ohio EPA program is rated as one of the most rigorous and comprehensive in accordance with the U.S. EPA program evaluation guidance *“Biological Assessment Program Review: Assessing Level of Technical Rigor to Support Water Quality Management”* (U.S. EPA 2013). The most recent review conducted in 2007 resulted in Ohio program attaining Level 4 (the highest) and a score of 98.1%. At least part of the score is the result of the agency being able to manage and sustain a mature M&A program at a spatial scale that meets the needs of being able to assess the effectiveness of water quality management programs, tracking trends, and responding to new threats. That critical elements score could decline under the proposed Two-Pronged Approach to M&A, but we still do not have sufficient details to make that judgement.

While the 2007 program review emphasized the inland rivers and streams program, it is quite evident that what was accomplished over three decades of development and implementation has trickled down to having similarly robust methods for assessing other waterbody types (wetlands, the Lake Erie Nearshore, and the Ohio River) and to support one of the most detailed and accurate accounting of stream and river use designations in the U.S. Therefore, the agency needs to reveal in detail how fundamental changes made in the near future will affect all aspects of future IRs, WQS, and water quality management programs that have been directly supported by M&A.

Reference:

U.S. EPA. 2013. Biological Assessment Program Review: Assessing Level of Technical Rigor to Support Water Quality Management. EPA 820-R-13-001. Office of Water, Office of Science and Technology, Washington, D.C. 144 pp.
http://water.epa.gov/scitech/swguidance/standards/criteria/aqlife/biocriteria/technical_index.cfm.

Lake Erie Nearshore & AOCs

The reporting on beneficial use impairments in the Lake Erie Nearshore and Areas of Concern is well done and comprehensive enough, but we are concerned that new and emerging threats that are documented for drinking water supplies and recreation represents a threat to other designated uses including aquatic life. Some of the byproducts of cyanobacteria are toxic to fish and other aquatic life thus we are recommending that it be recognized as a potential cause of impairment. While not a robust assessment, we had a small project in Maumee Bay in 2018 the results of which represented a backsliding to conditions observed in the early 1990s. Furthermore, one site had DELT anomalies far in excess of the BUI delisting criteria. The artificial substrates deployed in Maumee Bay were covered with blue green algae. Given the potential for at least chronic effects we advise looking more closely at the role of *Mycrosystin* in having adverse impacts on aquatic life use attainment in the nearshore of Maumee Bay and adjacent waters.

The agency did have a statement in Part J of the 2018 IR that recognizes the critical importance of stream habitat . . . *“The long-term solution is to reduce sources of nutrients while holistically restoring stream health and improving the waterway’s ability to assimilate and utilize nutrients. This is also known as the stream’s assimilative capacity. Restoring stream health will not only reduce the amounts of nutrients that reach the receiving water body, but restoration of in-stream and riparian habitat supports a healthy ecosystem, builds resilience to climate change impacts and improves recreational opportunities.”* This statement is on target as is the listing of habitat as a TMDL eligible stressor, but this statement is not in the 2020 IR – we are wondering why it was not repeated. Our concern is that the term “habitat” is almost completely absent in ***Ohio’s Domestic Action Plan for Lake Erie*** and many of the associated

documents produced by the bevy of entities involved in assessing, modeling, and dealing with implementation practices to reduce nutrient loadings to Lake Erie. In our view the majority of these efforts are focused almost entirely on loading determinations without an apparent regard to the assimilative capacity of the watershed network. We suggest the agency exert some leadership in assuring that habitat is included as a primary factor in the management practices for reducing the adverse effects of nutrients in Lake Erie (and this means more than two-stage ditch designs). If habitat continues to be relegated to a subsidiary role, then the attainability of the BUIs in Maumee Bay and Lake Erie will no doubt be questioned which could lead to some undesirable outcomes in the current deregulatory environment.

On page G-14, Ohio EPA states “Ohio EPA is in the process of developing new metrics for determining ALU attainment in all LEAUs.” Along with the HAB efforts, we strongly encourage Ohio EPA to include more organizations in this effort, so that these organizations are more fully integrated into these Ohio EPA efforts. Our concern is that the HAB focus has drawn so much attention that attention to the biological assessments Ohio EPA provides has declined, when it needs to be bolstered. Ohio EPA already provides good quality biological assessments of the nearshore and lacustuaries, but we remain concerned that the researchers and participants driving the response to nutrient enrichment on the Western Basin are not sufficiently exposed to the benefits of including bioassessment indicators and endpoints.

Aquatic Life Use Attainment in Inland Rivers and Streams

As indicated earlier in our comments Ohio has one of the leading programs among states in the U.S. that allows the agency to produce something better than a simple statewide, binary estimate of use attainment and non-attainment. Based on our experience in reviewing state programs, the analyses like that in ***Large Rivers are Making Progress Toward the 100 Percent Attainment by 2020 Aquatic Life Goal*** in Section A are the outcome of a 40 year commitment to a robust M&A program and at a level of spatial detail that matches the scale of water quality management. Many states, because of a lack of spatial detail in their M&A, over-extrapolate their results from many fewer monitoring sites (including those who employ statistical networks) resulting in not only a reduced accuracy in the application of those results, but a clear severance from meaningfully affecting water quality managements programs.

While we recognize the quality and integrity of the nearly 40 years of M&A on the large river assessment units, we are concerned about the expression of the most recent results in the 2020 IR. The lead in statement *“Ohio’s large rivers (the 23 rivers that drain more than 500 square miles) remained essentially unchanged in percent of monitored miles in full attainment compared to the same statistic reported in the 2018 IR. Based on monitoring through 2018, the full attainment statistic now stands at 88.2 percent (1,097 of 1,243 assessed LRAU miles), up 0.7*

percent from the 2018 IR” is essentially correct. We will repeat here our 2018 comment by restating that the IR needs to take a step back and report what has actually happened since 2010 and also to include the full set of results back to 1980. In 2018 we provided two graphics to assist in that process where we assessed the likelihood of improving beyond the 2008 peak full attainment rate of 93.1% in an article on the MBI website¹ (Figure 1). Instead, we still see a decline of 4.9% between 2008 and 2020 (-5.6% in 2018), which we also believe represents a leveling off of improvements seen prior to 2008 *at a minimum* and possibly an actual decline, which calls for further investigation and confirmation. This also highlights the critical importance of maintaining the M&A level of effort otherwise the agency will lose the ability to credibly assess these trends into the future. This issue alone reaffirms our concerns about the pending reduction in number of sites evaluated in the proposed Two-Pronged Approach.

We appreciate the agency including the original anchor years back to 2002 in the above trend display. However, it would also better index historical improvements if the real anchor years prior to 1988 were included. Again, to preclude the misreading of these trends we urge the agency to retain all of the biennial cycles and updating them to include the years in between 1980 and 2020. We would be willing to work with the agency to build such an analysis.

The HUC12 assessment shows a leveling off of improvement and here too, we recommend including the results back to 1980 to provide a solid historical perspective. The attainment rate is well below the large river assessment units and due to the different degrees of success in controlling point and nonpoint sources of impairment.

Many other related issues are included in the attached comment letter about the Two-Pronged Approach that relate to the above discussion so we urge the agency to consider the pertinent sections as comments on the 2020 IR.

¹ A Retrospective on the Clean Water Act in Ohio: Is Today As Good As It Gets?
<https://midwestbiodiversityinst.org/publications/articles/a-retrospective-on-the-clean-water-act-in-ohio-is-today-as-good-as-it-gets>.

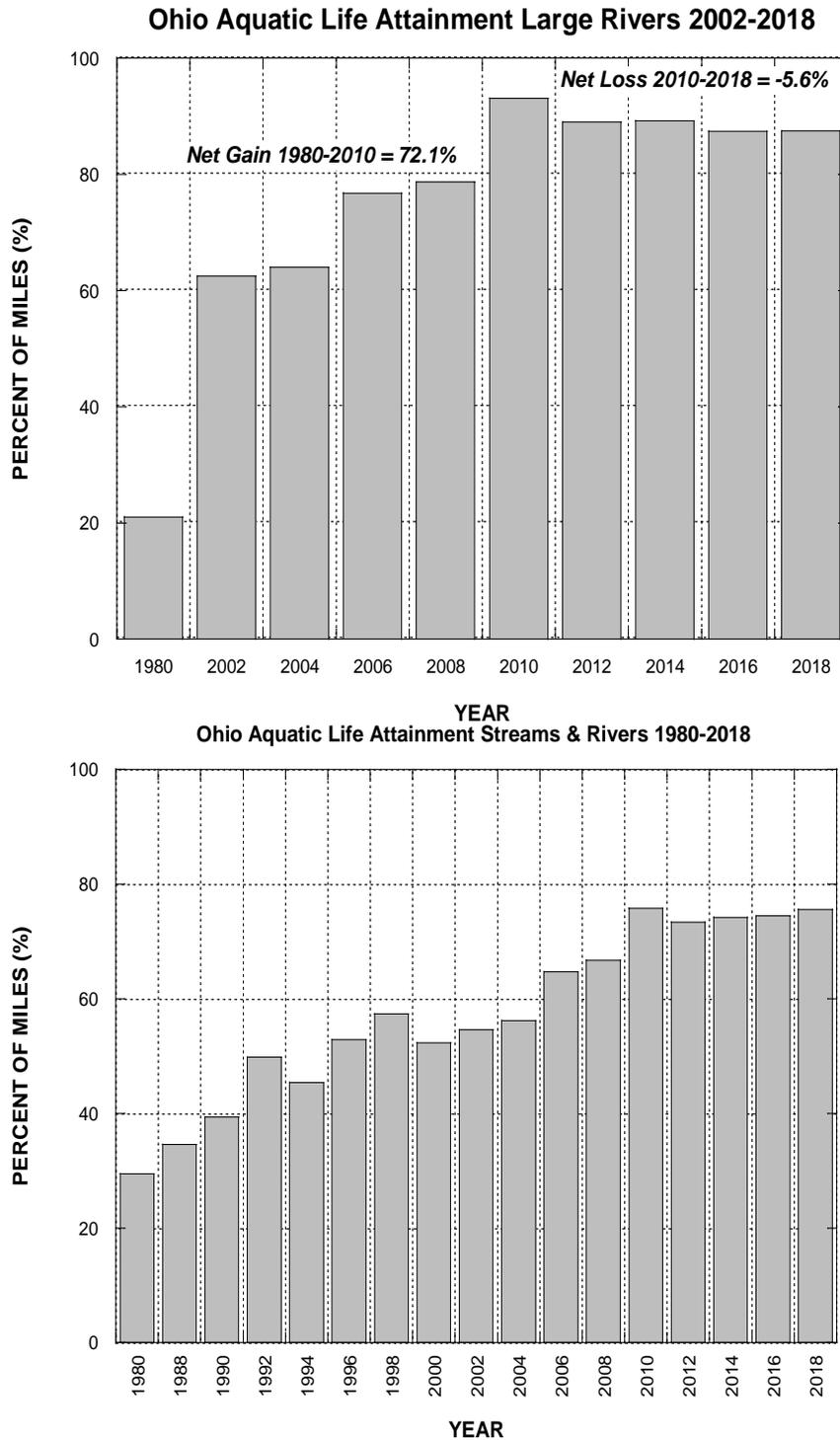


Figure 1. Trends in attainment of aquatic life uses in Ohio large river assessment units between 1980 and the 2002-18 reporting periods by Ohio EPA (upper) and for all stream and river units combined between 1980 and the 1988-2018 reporting periods (lower).



Midwest Biodiversity Institute, Inc.
P.O. Box 21561
Columbus, OH 43221-0561

Ohio EPA, Division of Surface Water
P.O. Box 1049
Columbus, Ohio 43216-1049
Attn: Enhanced Two-Pronged Approach Comments
EPATMDL@epa.ohio.gov

August 12, 2019

To Whom It May Concern:

The Midwest Biodiversity Institute (MBI) is submitting these comments about the proposed *Two-Pronged Approach to Surveying and Monitoring Aquatic Life in Ohio's Streams and Rivers* announced on June 14, 2019. 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.

As part of this mission MBI has conducted in-depth reviews of 25 state, three federal, and two tribal programs since 2002 supported by U.S. EPA and individual states. The reviews have included the development and implementation of the monitoring and indicators needed to not only produce biennial 305[b]/303[d] Integrated Reports (IR), but to support multiple Clean Water Act (CWA) and other water quality management programs at the same time. These reviews have focused on the inclusion of numerical biological criteria and tiered aquatic life uses in state WQS and the monitoring and assessment needed to support their implementation. In addition, MBI has conducted comprehensive watershed bioassessments in Ohio and other states that emulate the essential concepts and attributes of the existing Ohio EPA program. MBI has also served as a contractor and grantee to U.S. EPA for the series of national river and stream assessments including the 2004-5 Wadeable Streams Assessment (WSA; Region V states), and each National Rivers and Streams Assessment (NRSA) in 2008-9, 2013-14, and 2018-19 both in Ohio and nearly 20 other states. We also conducted a project that compared the results from a probabilistic and a targeted pollution survey design for non-wadeable rivers in New England (2008-9). It is from this extensive base of experience that we offer programmatic and technical comments and suggestions about the proposed monitoring and assessment designs for Ohio rivers and streams.

Historically, Ohio EPA has operated one of the leading state programs over the past 40 years, something that the agency acknowledged at its outreach event on July 10, 2019, and which is widely acknowledged across the U.S. We believe that it is in the best interests of the State of Ohio and stakeholders with an invested interest in water quality to see that the monitoring and assessment program be able to retain the many positive accomplishments achieved over that time period. Ohio has been one of the few states that can assess the quality of their rivers and streams at this level of detail and accuracy. It is only through sound monitoring design and the

integration of chemical, physical, and biological indicators that the many positive accomplishments in water quality improvement can be properly documented while at the same time, providing an accurate assessment of recent trends and emerging issues. Because of the pollution assessment focused design and the logistical support provided by adequate budgets, Ohio has been one of only a few states that can report at a high level of detail and accuracy and we strongly recommend that it continue well into the future. Doing anything less will inevitably result in the program beginning to backslide toward a state of relative mediocrity that, unfortunately, too many state programs now reflect.

The enhanced two-pronged proposal is a significant step backwards and it will be unable to achieve the level of detail, accuracy, and completeness of the program of the past 40 years. The connection to that era is much weaker than the agency is seemingly willing to acknowledge. We are also concerned about the apparent rationale of the proposed design - visiting watersheds on a more frequent basis than once every 20+ years. While we are not aware of how strong this demand actually is, we believe that knowledgeable watershed stakeholders would certainly expect the same level of monitoring that has been historically conducted, not the significant reduction in watershed coverage that the new proposal reflects.

The reality is that the agency now finds itself in a resource limited situation that is the result of failing to adequately maintain the monitoring program in general, and the biological assessment program in particular, over the past five years and perhaps further back than that. We have previously pointed out the decline in sites sampled and reports published since the 80% cutback in monitoring was implemented in 2018 for the stated purpose of addressing the backlog of TSDs attributed to the TMDL legislation (ORC 6111.56). However, we have seen only five TSDs produced to date. Based on the prior production of TSDs since 2000 this is about 50% of the average number TSDs published per year and that with a full field program underway. In addition the productivity of field crews has declined since the late 1990s and early 2000s. Whether it is self-inflicted or not, such reduced productivity levels could be restored thus relieving some of the pressure to spread sampling too thinly across the state. There is no second chance to produce timely data once that time has passed and we are concerned that any resulting negative consequences will not be apparent for several years. Ohio's rivers and streams are experiencing an unprecedented improvement in quality and condition, especially in terms of their biological attributes. Therefore it is vital to maintain the quantity and quality of monitoring information given the uncertainties about the future direction of CWA regulatory programs in Ohio and the U.S. and in the face of emerging and large scale stressors such as recent increases in the quantity and severity of precipitation events.

We have recently seen the benefits of the CWA being called into question and we are concerned that elected officials and policymakers will act on such claims. One study in particular concluded that the benefits of the CWA were only one-fourth of the costs since the

1972 FWPCA amendments were passed¹. Even more concerning is that this conclusion was based on a misleading analysis simple chemical monitoring trends at widely spaced fixed stations. The authors concluded that improvements in water quality leveled off within “a few years” after water quality based effluent limits for major POTWs were attained. When held up to the light of the more robust assessments of Ohio EPA and as detailed in successive 305(b) reports since 1980, and more recently by 305[b]/303[d] Integrated Reports, this conclusion is woefully off the mark and can only serve to undermine the true benefits that have resulted from CWA implementation by the states and U.S. EPA. Regrettably, most state and federal agencies do not have the sufficiency of Ohio’s monitoring design nor the historical database to support analyses that can credibly contradict this conclusion. In fact, Ohio may well be the *only* program that can accomplish this depth of analysis on a statewide basis. Clearly, Ohio needs to maintain its monitoring program to maintain its leadership role in this most important aspect of CWA implementation.

Our strong recommendation is that the program be restored to the levels of effectiveness, productivity, output, and support that were routinely provided for in the 1990s and 2000s so that any interruptions in such water quality improvements can be quickly detected and responded to – detecting changes on the order of 15 years is simply insufficient to address Ohio’s pressing needs. The proposed two pronged approach effectively represents a dilution of previous monitoring and is based on very optimistic and incomplete technical assumptions and analyses. Further, the proposal tracks with some examples that we have seen in our state program reviews, ones that exemplify the over-extrapolation of data from single sites while claiming credit for assessing more miles of streams and rivers for the singular objective of meeting their 305[b]/303[d] obligations. If the agency is unwilling or unable to address its internal resource shortfalls, then an alternate approach would be to equip watershed stakeholders with the organization, resources, and technical capacity to accomplish more spatially robust and detailed monitoring and assessment themselves. For example, MBI currently works with four self-funded groups in northeastern Illinois that support this detailed level of biological and water quality assessment. The organization and experiences of these groups could certainly serve as a model for executing the same in Ohio.

We have related concerns with probabilistic designs, such as that being proposed by the agency, in that they have been oversold by U.S. EPA as an easier and more resource “efficient” way to satisfy the statewide 305[b]/303[d] reporting requirement, but doing little to support day-to-day water quality management needs. MBI has had direct experience with probabilistic designs observing them to miss or under-rate important stressor gradients (e.g., ammonia in the WSA) and missing high quality sites that were not included in even intensified probability

¹ Keiser, D.A. and J.S. Shapiro. 2018. Consequences of The Clean Water Act and the Demand for Water Quality. *The Quarterly Journal of Economics* (2018): 1–48.

designs (New England Large Rivers REMAP). In the state program reviews we have learned about the liabilities of states adopting probability designs as their primary network only to learn about such limitations when issues arose at the watershed level. Our experience is that most states have resisted EPA's overselling of this design and have instead opted for more watershed focused, targeted designs. While it is difficult to rebut the assertions of probabilistic designs as being unbiased, we question their utility in supporting a state's responsibility for implementing CWA programs at a spatial scale that actually matters. It is unfortunate that U.S. EPA has tacitly set a very low bar for state monitoring programs such that monitoring to *minimally* meet 305[b]/303[d] obligations is acceptable. In fact, in our first review of the Region V state programs in 2004 a major conclusion was that monitoring design in some states was driven predominantly by supporting statewide status to the near exclusion of other objectives².

Ohio EPA decided a long time ago that they could do much better, as has been demonstrated by the accomplishments of the past 40 years. It has been a fundamental premise of the Ohio program that monitoring and assessment should function to support all relevant water quality management programs in addition to its more commonplace role of supporting status assessments (i.e., 305[b]/303[d]). While we can understand the potentially interesting aspects of conducting such assessments, we question their practical utility and are concerned about potentially misleading conclusions resulting from the inherent flaws of applying what is an inherently terrestrial concept to stream and river networks. Some of the programmatic concerns we see with the proposal are:

- A reduced capacity to meet what we see as the agency's primary obligations to maintain and implement the Ohio Water Quality Standards (WQS);
- An exchanging of monitoring program *effectiveness* for program *efficiency* resulting in a reduction in the level of program rigor as outlined in the U.S. EPA *Biological Assessment Program Review: Assessing Level of Technical Rigor to Support Water Quality Management* (U.S. EPA 2013) and the *Region V State Biological Assessment Programs Review: Critical Technical Elements Evaluation and Program Evaluation Update (2002-2010)* published in 2011;
- Potential difficulties in meeting certain provisions of the recent TMDL legislation (ORC 6111.562) namely the habitat and point source provisions;
- Potential issues with reducing the level of monitoring and assessment and WQS support originally envisioned by the Wastewater Fee legislation of the mid-1990s (Senate Bill 180);
- The conversion of what has been a pollution focused assessment program to a condition focused assessment program;

² Region V State Bioassessment and Ambient Monitoring Programs: Initial Evaluation and Review (January 2004).

- A disconnection posed by the probabilistic design and the long-term trend assessment offered by the past 40 years of pollution focused assessment; and,
- A potentially serious decline in the capacity of the Ohio biological assessment program to accurately assess and diagnose impairments at a spatial scale sufficient to continue supporting CWA programs as they have been for the past 40 years.

The agency will be able to continue a semblance of prior levels of support over the short-term for perhaps the next 3-5 years, thus the full effect of the reduction in programmatic capacity and outputs will not be immediate and will be more difficult for different observers to recognize in the future. As we indicated at our meeting with the agency on July 9, if this new course is followed then the agency needs to be forthcoming and transparent about which and what level of prior CWA program support will be lessened under the proposed approach.

We were also disappointed that Ohio EPA chose to develop this new proposal on its own and without outside stakeholder participation and input. We believe that for a major change such as this it would have been both prudent and necessary to invite key stakeholders to participate in the development of the monitoring and assessment design. This would have generated a more diverse input from those who will be the most affected by the proposed approach. We urge the agency to convene such a stakeholder working group in order to address the concerns of each even if it means delaying the formal roll out beyond the 2020 IR. This need is important enough to forgo that stated objective. While it is not a rulemaking, it significantly affects how effectively the agency will be able to support and maintain several water program rules.

Lastly, we appreciate the opportunity afforded to MBI for a preliminary discussion on July 9 before the July 10 outreach event and for the follow up meeting with Bob Miltner to discuss technical issues. We hope that our comments will be taken as constructive criticisms aimed at assisting the agency in maintaining what is a nationally recognized and robust program of monitoring and assessment, Water Quality Standards, and CWA management programs.

Very truly yours,



Peter A. Precario, Executive Director
Midwest Biodiversity Institute
P.O. Box 21561
Columbus, OH 43221-0561
(614) 457-6000 x1101
pprecario@mwbinst.com
www.midwestbiodiversity.org



Chris O. Yoder, Research Director
Midwest Biodiversity Institute
P.O. Box 21561
Columbus, OH 43221-0561
(614) 457-6000 x1102
cyoder@mwbinst.com
www.midwestbiodiversity.org

Detailed Comments on Technical and Programmatic Aspects of the Enhanced Two-Pronged Monitoring and Assessment Proposal by Ohio EPA

The proposed *Two-Pronged Approach to Surveying and Monitoring Aquatic Life in Ohio's Streams and Rivers* announced on June 14, 2019 is the apparent product of a significant undertaking by agency managers and staff that includes both technical and programmatic considerations. Technical considerations include the basis for the new designs and the assumptions and analyses that went into their derivation. Programmatic considerations include the use of the monitoring and assessment data and results to support multiple CWA program issues and needs. Certainly the technical rigor of the monitoring design has implications for the breadth of support for CWA programs as it ultimately defines the resolution and detail of that function.

Technical Design Considerations

Our comments and observations about the technical considerations and analyses that went into the derivation of the proposed approaches are to a degree limited by what was provided in the way of presentations that included graphs of various analyses. We were not provided any written documentation that more fully describes the techniques used and their rationale thus our comments are somewhat limited by what we were provided. However, we are using our own experiences with targeted and probabilistic designs in making comments, observations, and recommendations. From what we have been able to gather under the above stated limitations is that targeted and a probabilistic designs that are a departure from the prior 40 years of monitoring and assessment are being proposed.

We would also point out that the original Ohio EPA design is based, in part, on the concepts of pollution gradients first advanced by Bartsch (1948) and Doudoroff and Warren (1951) to facilitate the detection and quantification of degradation and recovery from pollution influences along a river or stream reach (i.e., pollution impact reaches). In this design a sufficient number of sampling sites are located upstream from major sources of impact, in zones of immediate impact and potentially acute effects, and continuing downstream through reaches of increasing and lessening degradation and reaches of recovery. That design has supported multiple monitoring and water quality management objectives for 40 years. We believe there is an implicit expectation among stakeholders that it be maintained and not diluted.

Targeted Basin Design and Execution

The targeted design or "Project Areas" is watershed focused and with the claim that it is a more efficient allocation of sampling resources within 37 watershed project areas. This compares to

an existing framework that is organized by 98 watershed project areas. The result of the proposed allocation of sampling sites is fewer sites per watershed unit area. The technical analysis and justification used IBI scores from “recent” years and is based on the variation in IBI scores adding sites until the variation levels off. While we have no criticisms of this as a technical approach, we question using only the IBI as the arbiter of attainment or more accurately “condition”. Ohio EPA practice is for attainment status to be based on both fish and macroinvertebrates so it begs the question what would have been the results of the site allocation using both the IBI and the ICI (or its narrative equivalent)? Knowing that the fish and macroinvertebrates do not always agree about attainment it seems this would have required more sites in a project area. Even so, this only addresses “condition” hence our use of the term “condition assessment” to describe what we see as the focus of the technical analysis on the IBI and ultimately representing a shift in the objectives of the program. Our concern is that Ohio EPA has always practiced “pollution assessments” that have used not only biological condition, but chemical/physical and other data as indicators of stress and exposure and using biological response as the endpoint of concern. This inherently includes multiple dimensions of data types, background characteristics, degrees of impact, variable responses, etc. and we are wondering had these additional variables and dimensions been included in the analyses would the result have been the same intensity of site coverage as what Ohio had practiced all along? In any event we urge that these additional factors be considered in the determination of how many sites are needed to assess both condition and pollution. Otherwise the agency should acknowledge the limitations of the proposed design that diminishes the pollution assessment aspects of the past 40 years.

We would also point out that the rotating basin design originally adopted by the agency in 1990 and used through the 2000s was originally based on 331 HUC units (11 digit) and 23 river units. We have cited this in Level 3 credible data training to orient trainees to Ohio EPA monitoring practices. We are now wondering how the 331 units relate to the 98 units. It would not seem to be a significant reduction since the total sites sampled stayed the same through 2017. However, the new proposal is a significant reduction from this former level of effort. The upshot is that the agency seems to be transforming monitoring to an emphasis on condition assessment and away from pollution assessment as a primary objective. The NPDES focused surveys do seem to be in part a continuation of point source pollution assessment, but all we have are maps of sites in a couple of project areas. From our initial inspection of these maps the watershed assessment aspects have been greatly reduced and far-field sites that were a fundamental part of river surveys going back to 1979 seem to have been removed. The original program was always designed to assess pollution first with condition assessment the result of assessing pollution. This is a different focus from what many states practice and what U.S. EPA advocates and it has distinguished the Ohio EPA program as being more effective at supporting water quality management.

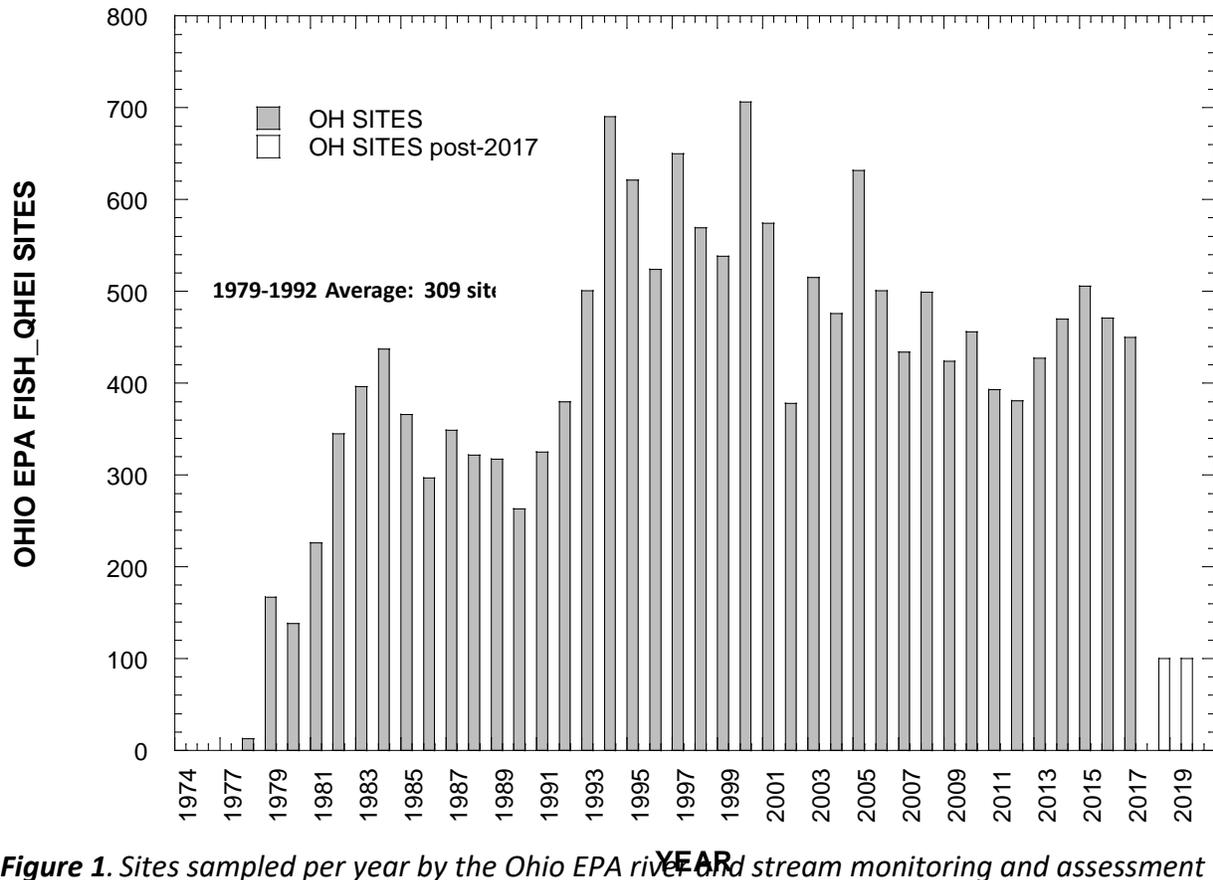


Figure 1. Sites sampled per year by the Ohio EPA river and stream monitoring and assessment program 1979-2017. Projected numbers of sites in 2018 and 2019 are estimated.

The production of fish and habitat sites during 1979-2017 is shown in Figure 1. That level of production was achieved with a compliment of 4-5 full time crews in a given year. The highest level of production was attained in the 1990s with paid overtime and fish being sampled twice at larger stream and all river sites. The almost 22% reduction of sites in 2000-17 is partially attributed to the reduced amount of overtime allowed among other self-imposed constraints. While overtime always carries with it the perception of being more costly, it is in effect more efficient because all other fixed costs are zero. Thus during the 1990s an extra field crew worth of production was attained at the cost of one FTE and no additional fixed costs. A field crew then was producing more than 100 sites per year. We were informed on July 9 that the expected production is now 70-75 sites per year and also with only one fish sampling pass. This reduced production has to be considered as a major factor in the apparent resource restrictions that have resulted in the agency’s decision to cut back on monitoring and spread fewer

resources over wider areas. Getting back to the former levels of production should be a management priority and it will take more than simply adding FTEs to the current capacity.

The justification for returning to watersheds more frequently should be viewed in light of the actual return interval to selected rivers in the 1980s, 1990s, and 2000s. While we believe it is the agency's job to reconstruct these sequences we have done so for the lower Little Miami River which when coupled with the MSDGC supported surveys is a 5.8 year average cycle (1983, 1989, 1998, 2007, 2012, and 2017). In Mill Creek the average return interval has been 4.8 years (1992, 1997, 2011, 2013, 2016). We surmise that a similar return interval would be determined for many other rivers and streams across the state over the same time period. It was only since about 2010 that the return interval slowed, and drastically so, such that we are now looking at 20+ year return intervals. In comparison the 12 year interval of the new proposal seems too long between surveys and at the cost of fewer sites per unit watershed area.

Probabilistic Design

We have had significant concerns with probabilistic designs through direct experience and with the singular focus in overall condition and in some cases the disconnection of field observation from data analysis. We acknowledge that it is an easier route to meeting 305[b]/303[d] obligations, but for Ohio to adopt such an approach after 40 years of being able to resist the overselling of this approach by U.S. EPA it is a significant disappointment. We can share more detail about our experiences with probabilistic designs missing important environmental stressors and high quality sites if it is of any interest to the agency. In fairness, we do not see the agency pursuing this (as some states have) as the primary monitoring design, or at least we hope that is not the case. But at a time when every site is needed due to the lower production of sites with current resources it seems this is a questionable diversion from what has been the agency's principal focus, assuring that streams and rivers are properly designated and then assessing condition within a context of stream and river reach pollution. We suggest that the agency seriously consider joining the National Rivers and Streams Assessments (NRSA) which as we understand it can be detailed to provide a statewide assessment. While we acknowledge that there are important methodological differences (especially for macroinvertebrates) the incentive of receiving \$6,000 per site could offset some of these obstacles. The real benefit to Ohio EPA would be the wadeable size streams since the agency is planning their own survey of large rivers claiming it to be a virtual census.

River and stream networks have inherent properties such as dendritic branching, directed flow, and abrupt changes in physical, chemical and biological attributes at tributary junctions (Peterson and Ver Hof 2014; Ver Hof et al. 2014) and with changes exerted by non-randomly positioned point and nonpoint sources of pollution. This challenges the efficacy of the comparative simplicity of many probabilistic designs. Probabilistic and synoptic designs seem

to ignore these properties, which increases the chances of obtaining misleading results and with poor scientific inference. Simply extrapolating (i.e., kriging) widely spaced sites across a landscape ignores these inherent properties of rivers and streams and their watershed networks. We have been looking into a possible alternative approach that seems to overcome the weaknesses of probabilistic designs. The Spatial Statistical Network(SSN) model for data on stream networks seems to provide a more realistic spatial framework from which to design monitoring that answers specific questions many of which are germane to CWA management needs. It overcomes what the SSN authors refer to as an inappropriate form of kriging which we believe probabilistic designs do perhaps unwittingly. SSNs account for network topology (i.e., flow direction, stream size, tributary confluences) and offer significant improvements over traditional statistical techniques that were developed originally for terrestrial applications. The SSNs are applicable to common types of stream data (e.g., water quality attributes, biological surveys, habitat conditions) through application of several distributions (e.g., Gaussian, binomial, Poisson). The models also account for spatial autocorrelation among measurements, which makes them powerful tools for mining information from large datasets aggregated from multiple sources. Additional details are available at the SSN/STARS website³. We believe that in essence the Ohio EPA design of the past 40 years has emulated or duplicated many of the properties of the SSN approach. Even at that, targeted sites would still need to be added to address programmatic needs. This is also an example of where up front stakeholder involvement could have changed the outcome of the current proposal.

Regarding the large river panel of the proposed probabilistic design we would recommend that it be merged with the NPDES focused design which could address some of our concerns about gaps in coverage. The slides seem to indicate a belief that it is a virtual census anyway so given our concerns stated herein we would be more comfortable seeing the two combined in a design that essentially duplicates past Ohio EPA mainstem river pollution surveys. Yes, it will take longer than one or two years to cycle through the state, but that has been the case anyway and those results have served everyone quite well. We might see this as an equitable trade-off for going along with a one-off effort, or better yet joining the NRSA for the wadeable and headwater panels, our general concerns with probabilistic surveys notwithstanding.

Programmatic Considerations

Programmatic considerations include how the data, information, and assessments from monitoring are used to support CWA management programs. This has been a fundamental aspect of the state program reviews that have not only considered the technical aspects of biological and water quality assessment, but the program support aspects as well. The

³ <http://www.fs.fed.us/rm/boise/AWAE/projects/SpatialStreamNetworks.shtml>.

dichotomy that has emerged from these reviews is that all states monitor to meet their biennial 305[b]/303[d] obligations, but not all states strive to support their CWA programs with monitoring that is actually relevant to the needs of each program. In fact some states have exclusively focused on implementing monitoring designs that almost singularly fulfill only 305[b]/303[d] and this practice has been allowed by U.S. EPA. Fulfilling the needs of “day-to-day” CWA program management support is secondary and in some cases not done at all. Thus monitoring design is a critical factor in overall CWA program effectiveness.

Water Quality Standards (WQS)

The Ohio EPA monitoring program from its inception in 1978 was purposed to support the implementation of the Ohio WQS namely the tiered aquatic life uses. This has been the first and foremost objective of aquatic life monitoring and assessment, to determine if the use assigned to a waterbody is appropriate and attainable. This has been the linchpin to everything that follows. When the Ohio WQS adopted a stream and stream segment basis for assigning aquatic life use tiers in 1985, those streams without sufficient data to be assigned to any other tier were assigned Warmwater Habitat (WWH) on a default basis. Until a stream was assessed with sufficient data an asterisk (*) denote such streams in OAC 3745-1-08 through 3745-1-30. As more streams and rivers were assessed with adequate biological, habitat, and chemical/physical data the asterisks were changed to a plus (+) which indicates that the assigned use tier has been verified. Over 40 years literally thousands of stream and river segments were verified with adequate data and analysis in the form of a Use Attainability Analysis (UAA). Many default WWH assignments were revised to Exceptional Warmwater Habitat (EWH), Coldwater Habitat (CWH), Modified Warmwater Habitat (MWH), or Limited Resource Waters (LRW).

If anything this history points out and validates the legal standing of individually named streams (and unnamed streams) and the mandatory role of monitoring and assessment to support and maintain the WQS. Our concern is that the proposed design will slow addressing the backlog of unverified uses and it could also jeopardize the integrity of stream segment specific UAAs. Recent proposals by the agency to in effect shortcut the UAA process only reinforce this concern. To verify the magnitude of this backlog we examined the number of unverified uses in the Hocking (OAC 3745-1-08) and Scioto River (OAC 3745-1-09) basins. The results follow in Table 1.

The results show a number of things, namely a large number of unverified non-WWH uses and one remaining Limited Warmwater Habitat (LWH) use which is essentially defunct and which the agency is obligated to assign to one of the other use tiers under a post-promulgation agreement with U.S. EPA in 1979. The unnamed verified streams are those that were assigned

Table 1. *Counts of unverified aquatic life uses in the Hocking (OAC 3745-1-08) and Scioto River (OAC 3745-1-09) basins as of 2019. Verified streams that were previously unnamed are also shown for each basin.*

Basin	Total Segments	Unverified WWH	Unverified EWH	Unverified LWH	Unnamed Verified
Hocking River	185	22	6	1	31
Scioto River	722	134	61	0	41

one of the tiered uses based on an acceptably done UAA. What is also noteworthy is that in some of the subbasins many of the verified uses are EWH or CWH with unverified WWH streams mixed within. It is very likely in these subbasins that WWH is not the correct use and a bioassessment is needed to assign the correct use. In other subbasins there is a consistent assignment of WWH as the verified use tier. We are not confident that this can be modeled as stream-specific variations is simply too unpredictable. This example shows that the job of assigning appropriate and attainable uses to streams, named and unnamed, is far from complete. Unless there is a more dedicated effort to verify and if necessary correct default use assignments some may never be properly assessed casting doubt on subsequent management actions whether it be an NPPDES permit, stormwater management, or 401 certification to name three.

Biological Criteria and Reference Sites

A key obligation that the agency assumed with the adoption of numeric biological criteria in 1990 was the establishment of a network of regional reference sites to represent the range of attainable quality upon which to set the biological criteria for the respective use designation tiers. To support this WQS program function a network of 500+ reference sites was established in 1980-89 and these represented all of the strata incorporated into the biological criteria (i.e., level III ecoregions, stream size, etc.). Additionally this network of sites was incorporated into the 5 year basin approach in 1990 such that the reference sites were resampled every 10 years and while serving double duty as assessment sites. U.S. EPA gives the highest credit to states that resample reference sites in the state program review process and it has been an expectation for nearly 30 years. Ohio EPA now has at least 3 cycles of resampling and was into a fourth before the basin rotation was interrupted in 2018. We asked if this cycle would be resumed on July 9 and the answer was not reassuring. Discontinuing or diminishing this resampling on a 10 year cycle will reduce the critical elements scores for reference sites and reference condition. It will also affect the ability of the agency to determine thresholds for

chemical, habitat, and other physical parameters since reference data serves as a benchmark for natural background and otherwise attainable conditions.

Enhancing Local Watershed Based Programs

This would include locally operated watershed programs that could include Level 3 credible data similar to how the Chicago area watershed groups are organized. One potential problem with the proposal is that it could send the wrong message to such groups and especially where the agency is requiring such monitoring as part of an NPDES permit (e.g., MSDGC). There is usually sufficient skepticism embedded in such places such that they might see Ohio EPA backing off of monitoring coverage as justification for them to follow suit. The seminal organization is the DuPage River Salt Creek Workgroup (DRSCW) that was formed in 2004 in response to their dissatisfaction with the TMDLs being produced and with a spatially weak monitoring and assessment design. The DRSCW⁴ is a 501(c)(3) consortium of governmental and non-governmental agencies and groups and is self-funded by annual dues paid by the members. In response to concerns about the East & West Branch DuPage River TMDLs and the Salt Creek TMDL, a local group of communities, POTWs, and environmental organizations came together to better determine the stressors to the aquatic systems through a long term water quality monitoring program and develop and implement viable remediation projects. DRSCW adopted an Ohio EPA style of intensive watershed assessment design that focuses on pollution assessment following Illinois EPA methods for the collection of data. Initiated in 2006 the monitoring has proceeded through four watersheds on a rotating cycle such that most watersheds have been assessed 3 or 4 times. DRSCW has used these assessments as leverage to negotiate permit terms and conditions with both Illinois and U.S. EPA that allow funding of restoration projects guided by an Integrated Prioritization System (IPS) that was first developed in 2010 and which is undergoing a major update to include all of northeastern Illinois. Three additional groups in adjacent counties and watersheds have emerged since 2016 and include the Des Plaines River Watershed Workgroup (DRWW), the North Branch Watershed Workgroup (NBWW), and the Lower Des Plaines Watershed Workgroup (LDPWW). These groups have followed the DRSCW example by initiating their own watershed focused pollution assessments and joining the IPS update effort. The advantages of considering this model for Ohio watersheds where there is an interest in pursuing it is that it develops much better local stakeholder participation and buy in with addressing stream and river impairments. It would also fill the critical gaps that will be left by the proposed new monitoring design and it could be done under the Ohio Credible Data Law and Regulations. We would be happy to arrange a webinar with DRSCW so that they can share their experiences.

⁴ <http://www.drscw.org/wp/>

Another pathway to more local monitoring is already in place via NPDES permit requirements the best example of which is the MSDGC CSO requirement since 2010. If that requirement continues in the next permit cycle it could serve as an example of using what Ohio has indeed learned over the past 40 years and applying it to a comparatively difficult array of sources and stressors. The sheer cost of remediating CSOs/SSOs highlights the demand for more locally derived data to drive what are going to be costly restoration efforts at the required level of spatial detail. During 2009-18 MSDGC spent \$1.011 billion on the first phase of their wet weather remediation program⁵. This has been at least partially evaluated with intensive watershed bioassessments and supported by an Integrated Prioritization System (IPS) tool intended to better focus restoration efforts to the most relevant limiting stressors determined by the watershed bioassessments. At the same time other uses of the same data are being used to better inform the Hamilton Co. 2407 stormwater policy not to mention numerous stream use designation adjustments.

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⁵ <http://projectgroundwork.org/projects/reporting.htm>

March 12, 2020

Ohio EPA
Division of Surface Water
P.O. Box 1049
Columbus, Ohio 43216-1049
Attn: 303(d) Comments

To Whom It May Concern:

The Northeast Ohio Regional Sewer District (District) appreciates the opportunity to comment on the *Ohio 2020 Integrated Water Quality Monitoring and Assessment Report*. The District also appreciates the time and effort on behalf of the Ohio Environmental Protection Agency (EPA) to compile such a comprehensive, state-wide report. As you know, the District is one of the contributors of data to this report through Ohio EPA's Credible Data Program. In reviewing the report, the District identified some minor discrepancies between the data used in the report and the data collected by the District.

- **Section F: Evaluating Beneficial Uses: Recreation.** In Tables F-6 and F-7, the seasonal geomeans and the number of days that beaches were posted for Edgewater, Euclid, and Villa Angela Beaches should be revised as attached. The discrepancies for the 2019 data are likely due to an incomplete dataset in the Ohio Department of Health (ODH) Beachguard website. These missing data points have since been entered in the ODH system.
- **Interactive Map.** Although the District is listed as a source of biological data in Table D-2, it appears that this information was inadvertently omitted from the interactive map for individual watershed assessment units.

The District noted that a new assessment process for harmful algal blooms (HABs) in the Open Water of the Lake Erie Central Basin is presented in Section F of the Report. The District would advocate that the development of a new assessment process to obtain data for the purposes of assessing a problem should follow a more traditional rulemaking process that includes stakeholder outreach similar to that of TMDLs. The District respectfully requests that Ohio EPA give consideration to removing this language from the Report and collaborate with stakeholders to develop a tool for the open waters of the Central Basin. As a major stakeholder in the Central Basin, the District would offer its expertise to assist in this process.

Finally, it is also stated in Section F: Evaluating Beneficial Uses: Recreation, that Ohio EPA will be pursuing a statewide Total Maximum Daily Load (TMDL) for bacteria in cooperation with state and local partners. The District would very much like to be a partner in this effort through

active engagement. As a regional entity, implementation of a TMDL may have implications on the District and our member communities. Given the knowledge and expertise in this area of our staff, the District would like the opportunity to help direct any management strategies in a meaningful, yet equitable, way.

If you have any questions concerning these comments, or would like to discuss these matters further, please do not hesitate to contact Seth Hothem, Supervisor of Environmental Assessment, at 216-641-6000 or hothems@neorsd.org.

Thank you for your consideration of these issues.

Sincerely,



Frank Greenland
Director of Watershed Programs

Corrections for Table F6

Beach	2015		2016		2017		2018		2019	
	Seasonal Geomean	Number of Days Posted								
Edgewater	79	23	35	10	30	7	37	51	13	
Euclid	152	44	76	16	99	30	82	113	31	
Villa Angela	230	57	111	37	112	36	108	127	35	

* Data based on time period from the Monday prior to Memorial Day through Labor Day

Corrections for Table F7

Beach	2015		2016		2017		2018		2019		All years%
	Seasonal Geomean	Number of Days Posted									
Edgewater	23/113		10/106		7/105		14/104		13/105		67/533 (12.6%)
Euclid	44/113		16/106		30/105		32/106		31/106		153/536 (28.5%)
Villa Angela	57/113		37/106		36/105		35/105		35/106		200/535 (37.4%)

* Data based on time period from the Monday prior to Memorial Day through Labor Day



March 13, 2020

Ohio EPA – Division of Surface Water (DSW)
Attn: 303(d) Comments
P.O. Box 1049
Columbus, Ohio 43216-1049

via email to epatmdl@epa.ohio.gov

Re: Draft Ohio 2020 Integrated Water Quality Monitoring and Assessment Report

Ohio's corn, soybean, and small grain farmers have been working for over a decade to do their part in addressing water quality issues in Lake Erie by investing millions of their own dollars, implementing new conservation practices on their operations, and working closely with other agricultural organizations, universities, and environmental groups to achieve success.

The Ohio Corn and Wheat Growers Association (OCW) and the Ohio Soybean Association (OSA) represent their interests and have recently reviewed the Draft Ohio 2020 Integrated Water Quality Monitoring and Assessment Report (2020 Integrated Report). OCW and OSA have some questions regarding the 2020 Integrated Report. An informed understanding helps the staff and boards of OCW and OSA address concerns and questions raised by our members.

While OSA and OCW do not believe a TMDL is the best way to advance the goals that have been set for Lake Erie, we recognize that an Ohio-led TMDL with state-wide stakeholder input is better than one developed at the federal level. We appreciate Governor DeWine's leadership on water quality and his commitment to supporting farmers through significant state funding in H2Ohio.

In 2018 we raised concerns that the Ohio EPA's methodology to support nutrient impairments in the open waters of the western basin had not been made available to the public for review and comment. While we understand that methodology has since been published in a peer reviewed journal and adapted for use in the Sandusky Bay as well as the central basin, we are still not aware of any effort by Ohio EPA to formally include this new methodology and de-facto water quality standards as part of Ohio's formal water quality standards. We continue to believe that Ohio EPA's new satellite-based, algal cell count/density numeric standard should undergo the rulemaking procedures set forth in RC Chapter 119 before the standard is used to assess the impairment status of the Lake Erie waters. **Does the Ohio EPA plan to conduct notice and comment rule-making as required by RC 6111.041?**

OCW and OSA are supportive of the Ohio EPAs plans for stakeholder involvement when total maximum daily loads (TMDLs) are developed. **What is the best way for the associations to ensure involvement as stakeholders as the state develops TMDLs and their associated**

implementation plans? The development of a TMDL to address nutrient inputs to the western Lake Erie Basin via the Maumee River is undoubtedly of concern for our members. A statewide bacteria TMDL is also likely to warrant involvement of Ohio's agriculture community.

We understand Ohio EPA's decision to assign a high priority to Lake Erie's western shoreline, western open water, and island shoreline assessment units for the impairments to recreation and drinking water supply caused by algae. We are, however, concerned about the long-term impacts to the changes in Ohio's prioritization methodology for establishing TMDLs. Previous versions of the Integrated Report assigned priority points to each impaired assessment unit providing a ranking of Ohio's impaired watersheds. Ohio EPA has changed from a clear, prioritized system of ranking watersheds for TMDL development, which helped the public understand the highest priorities, to a "high, medium, or low" system with numerous watersheds listed as "high" and no watersheds being listed as "medium" or "low". Can you explain the system used to determine which assessment units are assigned a high priority using the new methodology and how the TMDL schedule will be determined moving forward?

We appreciate your consideration of our requests, recommendations, and questions as you move forward with the 2020 Integrated Report.

Respectfully,



Tadd Nicholson
Executive Director
Ohio Corn and Wheat Growers Association



Kirk B. Merritt
Executive Director
Ohio Soybean Association



March 13, 2020

Sent via email to epa.tmdl@epa.ohio.gov

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

Attn: 303(d) Comments

Comments from the Ohio Environmental Council, Freshwater Future, and the Alliance for the Great Lakes on Ohio's Draft 2020 Integrated Water Quality Monitoring and Assessment Report

On behalf of the Ohio Environmental Council ("OEC"), Freshwater Future, and the Alliance for the Great Lakes and thousands of members throughout the state, we thank the Ohio EPA (the "Agency") for the opportunity to submit comments regarding the draft Ohio 2020 Integrated Water Quality Monitoring and Assessment Report ("Draft 2020 IR").

Our organizations work to ensure clean, safe, and accessible water for all Ohioans. In furtherance of that goal, the OEC, Freshwater Future, and the Alliance for the Great Lakes advocate for the health and integrity of all of the waters of the state. Our advocacy and public education covers the 23 large rivers, to Lake Erie and the inland lakes, to the headwater streams, to the remaining high quality wetlands. We are interested in engaging with the Agency in its development of the Multi-Watershed Bacteria TMDL, potential 5-alt plans, and the proposed delisting of streams previously impaired for habitat alterations. With all of that said, however, we submit these comments on two key aspects of the Draft 2020 IR that reflect the values and planning that are essential to the protection of Ohio's waters: prioritization of Western Lake Erie for Total Maximum Daily Load development, and changes to the Monitoring and Assessment Program (two-pronged approach).

Prioritization of Western Lake Erie for Total Maximum Daily Load (TMDL) Development

Almost on a yearly basis, harmful algal blooms (“HABs”), resulting mainly from phosphorus pollution from agricultural sources, contaminate significant portions of the western Lake Erie basin. These HABs create health, safety and economic impacts to the region and to the state as a whole. Climate change has exacerbated the HAB crisis and portends to worsen as climate change results in more severe and frequent spring rainstorms that cause much of the agricultural runoff into the lake.

The prioritization, monitoring, and regulatory tools within the CWA, and as recognized throughout the Integrated Report, are vital for confronting HABs and protecting the water resources in western Lake Erie. With this Draft 2020 IR, the Ohio EPA takes an important step in addressing the phosphorus pollution that drives HABs by making three important decisions.

First, the Agency is declaring portions of the western Lake Erie basin as impaired under its 303(d) impairment list. Specifically, the Agency declares Lake Erie’s western basin shoreline, western basin open waters, and island shoreline assessment units for impairment of public drinking water supply and recreational uses. Through a number of previous reports, our organizations and fellow stakeholders have advocated that the CWA, buttressed by the volumes of data supporting action, dictated that the HAB crisis required determination of the western Lake Erie basin as impaired by phosphorus pollution under the CWA, and that Ohio EPA must quickly prepare a Total Maximum Daily Load for its open waters. Comments and litigation surrounding the issue notwithstanding, we commend the Agency and the DeWine Administration for putting the future of the western basin as a high priority.

Secondly, from that declaration, the Agency has listed these impairments as the highest priority for TMDL development. We applaud the Agency for making this decision and expediting the development of the TMDL for the western basin over the next 2-3 years. A TMDL provides the accountability and enforceability that is needed to support the other initiatives to protect Lake Erie. Specifically, a TMDL is subject to review by the U.S. EPA for adequacy and “reasonable assurances” that the overall pollution cap and individual allocations are actually achievable. If and when approved, the TMDL is then subject to judicial review for compliance with the Clean Water Act. With the advent of the Agency’s 5-step TMDL public involvement process, the TMDL is also subject to robust review and comment by the public, and accountability to the public.

Finally, instead of following previous administrations' reliance of the implementation of the state Domestic Action Plan under Annex 4 of the Great Lakes Water Quality Agreement as an inadequate substitute for the Clean Water Act's required TMDL, this report plans to utilize the multiple tools at Ohio's disposal to properly combat the HAB crisis. Continued reliance only on voluntary actions and the Domestic Action Plan, will leave Lake Erie in the same place in 2025 as it is today. Thus, a high priority TMDL, coupled with the H2Ohio investment and recommitment to the 40% phosphorus reduction goal, builds a strong strategy needed to prevent harmful algal blooms in western Lake Erie. Ohio needs every tool available to solve this problem.

Therefore, we commend the Agency for moving forward with a TMDL in tandem with these other efforts. We urge the Agency to further utilize more, rather than less, transparency as it expedites this important suite of TMDLs.

The Agency's decision to move from not declaring the open waters impaired in 2016, to expediting the TMDL for the western basin in 2020, could be argued as merely a result of the federal litigation and intense stakeholder advocacy over those years. On the other hand, much of that decision was based on the vast amounts of professional monitoring and assessment done in the watershed by the Agency and other water quality professionals. How the monitoring and assessment will be done in the future, however, is being proposed to change statewide. While the changes are presented as efficiencies, the we remain skeptical of the change's effectiveness, especially as it relates to Ohio's requirements under the Clean Water Act - from TMDLs to 401 water quality certifications.

Changes to the Monitoring and Assessment Program (Two-Pronged Approach)

In June 2019, the Division of Surface Water announced its new "Two-Pronged Approach to Surveying and Monitoring Aquatic Life in Ohio's Streams and Rivers." This proposal features a twelve-year cycle with two key components: a state-wide, probabilistic survey, and watershed focused, targeted surveys. Prior to this proposal, the Division of Surface Water divided Ohio into 98 project areas; the new strategy would divide Ohio into 37 project areas.

In Section J6 of the Draft 2020 IR, the Agency briefly describes its Long-Term Schedules for Monitoring and TMDLs, with a paragraph describing the Agency's recently proposed two-pronged approach. Despite the limited space granted to it in the Draft 2020 IR, we believe that the new monitoring scheme deserves more scrutiny as it

will not only play a major role in decision making over the next two-year monitoring cycle, but will impact long-term monitoring and other CWA requirements.

The Ohio EPA has previously suggested that the new approach will ensure the entire state is surveyed more frequently, because the current number of 98 project areas means the Division of Surface Water takes approximately twenty-five years to survey. The new strategy, it argues, will provide more frequent and consistent data, while also implementing a state-wide probabilistic program that will better inform the Draft 2020 IR. As we point out below, it is our opinion that this change, while perhaps more efficient, could make the Monitoring and Assessment Program less effective. Specifically, we believe that the proposed “Two-Pronged Approach” will adversely impact other Division of Surface Water programs reliant on hyper-localized data.

While we appreciate the intentions and goal of the Agency, we remain sceptical with its two-pronged approach. The significant increase in size of project areas, combined with an overall reduction of samples per watershed, will greatly reduce the efficacy of other Ohio EPA water pollution programs, remains a concern. As it relates to the requirements of section 303(d) and 305(b) requirements, a broader sampling approach and probabilistic sampling may serve the Agency well toward meeting its requirements. A fundamental purpose of the Ohio EPA’s water quality monitoring program, however, is to verify the designated uses of streams across the state, including already identified tributaries and unnamed water bodies. This process, therefore, informs *other* Ohio EPA programs, especially 401 Water Quality Certifications, Antidegradation assessments, and NPDES permits. Our main concern is, if the Ohio EPA reduces the localized intensity of its data collection, especially in verifying designated uses for streams, the integrity of these other programs could suffer.

Instead of relying on designations monitored, analyzed, and verified by professional staff, permit applicants will submit their own data regarding unverified streams, which may result in biased use attainability analysis. The Ohio Environmental Council has commented on this issue in the past concerning 401 Water Quality Certification applications providing faulty *Use Attainability Analysis*, misrepresenting the quality of the water resources, and potentially allowing degradation of otherwise healthy streams. We believe that maintaining localized review of specific streams, verified by Ohio EPA monitoring staff, mitigates this real-life concern.

If the Ohio EPA moves forward with an approach that reduces the hyper local Agency to verify designations of specific streams or determine the designations of unidentified

streams, it must similarly increase its scrutiny of data received in its other programs. The Ohio EPA should communicate with stakeholder groups to develop a strong plan that recognizes the past deficiencies and identifies a solution moving forward that does not sacrifice the specificity previously provided by the program. It was conveyed to us and the other stakeholders at a March 5, 2020 briefing on the topic, that the Study Plan stage in the TMDL process is the ideal place for local stakeholders to contribute thoughts, suggestions, and even data, to inform the agency on where within the watershed to conduct monitoring. This input, it is our understanding, could even be used to provide information on where additional monitoring could occur in that watershed. We believe that the Draft 2020 IR is a good place to add a commitment by the Agency to bolster the citizen science and credible data program to properly supplement the data collection and monitoring necessary, and to commit to the type of stakeholder dialogue and input suggested through the TMDL Study Plan process.

It was also conveyed that the plan is to conduct at least 420 samples per year based on having five fully staffed field teams available. Neither of these clarifications, however, appear in the Draft 2020 IR. We believe that these are two substantive commitments on the part of the Agency that go toward the success of the long and short term monitoring program and CWA requirements. Both watershed stakeholders and the USEPA, we believe, would have great interest in such details to fully evaluate the plans for not only addressing the state's CWA 305(b) & 303(d) requirements for 2020, but also the future of streams in Ohioans' backyards. Therefore, we urge the Agency to amend the Draft 2020 IR to include the commitments already expressed to stakeholders concerning the number of samples estimated per year, the increase in staff, stakeholder input opportunities, and to bolster monitoring through program funding opportunities such as the H2Ohio Program.

Conclusion

The Draft 2020 IR, like all Clean Water Act ("CWA") Section 305(b)/303(d) Integrated Reports, is more than just a tool to check off a couple boxes on the list of the Agency's CWA duties. An Integrated Report is a statement of values - the resources we value and the expectations we have for the long term health of those resources. The Integrated Report is also a planning tool to meet those values, and to properly plan for attaining the goals of the CWA through the Act's financing and regulatory schemes.



As both a value statement and planning document, robust stakeholder involvement and public transparency is essential to water quality protection. We are encouraged by the discussions that the Agency has conducted with us and colleague environmental and community groups - both during and after the release of the Draft 2020 IR. We are especially appreciative of the open discussion on how the Agency intends to utilize the five step public involvement process for its TMDL program. Admittedly, we were early skeptics of the efficacy of the five-step public involvement process that the General Assembly added to Ohio Revised Code 6111.561 in response to the March 24, 2015, Ohio Supreme Court decision in *Fairfield Cty. Bd. of Commrs. v. Nally*, and whether it would allow the necessary input and meaningful consideration of communities impacted by water quality. However, we are optimistic based on how the DeWine Administration, as we understand, plans to involve all stakeholders meaningfully in those processes. We, therefore, urge the Agency to err on the side of more and earlier transparency and Agency accountability to those who use and depend on Ohio's water resources.

Respectfully submitted,

Trent Dougherty & Pete Bucher
Ohio Environmental Council

Kristy Meyer
Freshwater Future

Crystal Davis
Alliance for the Great Lakes



*Working together for Ohio farmers to advance
agriculture and strengthen our communities.*

March 13, 2020

Ohio EPA Division of Surface Water
Attention: 303(d) Comments
P.O. Box 1049
Columbus, Ohio 43216-1049

Re: Ohio Farm Bureau Federation's comments on the draft 2020 Integrated Water Quality Monitoring and Assessment Report

The use of sound science is of the utmost importance for the Ohio Farm Bureau in reviewing environmental regulatory proposals. The recreational use assessment protocol for Lake Erie and the development of TMDLs for the Maumee River and multi-watershed bacteria must be grounded in quality scientific analysis. Our industry has invested millions of dollars in research to ensure the practices we promote to farmers are making a difference to improve water quality. Our members expect your agency to meet the same standard of tested and data-backed strategies as we all partner to address water quality challenges.

Attached to this letter you will find the Ohio Farm Bureau Federation's comments on the draft 2020 Integrated Water Quality Monitoring and Assessment Report. Our comments focus on three areas:

- The assessment method for recreational use attainment for algae in Lake Erie described in Section F of the report,
- Agriculture's ability to meet the 40% phosphorus reduction target as it relates to the development of the Maumee River TMDL,
- Process proposed to be used by Ohio EPA to develop a multi-watershed bacteria TMDL.

If you have any questions regarding these comments, please contact Dr. Larry Antosch, at 614-246-8264 or lantosch@ofbf.org.

Thank you for consideration of Ohio Farm Bureau Federation's comments.

Sincerely,

Adam J. Sharp
Executive Vice President
Ohio Farm Bureau Federation

AS/lma

Ohio Farm Bureau Federation – Comments related to the Draft Ohio 2020 Integrated Water Quality Monitoring and Assessment Report

The Ohio Farm Bureau Federation (OFBF) appreciates the opportunity to review and provide comments on the draft 2020 Integrated Water Quality Monitoring and Assessment Report. Our comments below focus on three areas:

- The assessment method for recreational use attainment for algae in Lake Erie described in Section F of the report.
- Agriculture’s ability to meet the 40% phosphorus reduction target as it relates to the development of the Maumee River TMDL.
- Process proposed to be used by Ohio EPA to develop a multi-watershed bacteria TMDL.

Comments and questions regarding the method to assess recreational use attainment for algae in Lake Erie.

OFBF appreciates the recognition that there is an ongoing need to better scientifically understand the relationship between the presence of a HAB and the toxicity of a harmful algal bloom (HAB). Research being conducted by The Ohio State University at Stone Lab is showing that the ratio of cyanobacteria toxin in the water to the amount of cyanobacteria biomass present changes not only from year to year but over the course of the year. Data suggest the highest toxin per biomass ratio routinely occurs at the start of the bloom and this ratio decreases throughout the summer. The result is that the composition of the bloom shifts from highly-toxic to low to non-toxic strains of Microcystis sp. as the recreational season advances.

This fact is recognized and highlighted in the messaging that is delivered during and after the annual Western Lake Erie Basin (WLEB) HAB projection - “the size of the bloom does not relate to degree of toxins produced”. This message enforces the fact that the presence of cyanobacteria and the amount of toxin present is not a uniform relationship. Section F of the report states that when concentrations of algae exceed 20,000 cells/ml (the point when they can be observed via satellite) there is a **higher likelihood** of cyanotoxins being present in detectable concentrations. OFBF understands the need for Ohio EPA to be conservative due to potential human health concerns but the assessment methodology needs to move beyond just relying on the presence of cyanobacteria and include the presence of cyanotoxins.

The NOAA Experimental Lake Erie Harmful Algal Bloom Bulletin has a threshold for cyanobacteria detection of 20,000 cells/ml. This is the same low level cyanobacteria density threshold utilized in the Ohio EPA methodology. Each bulletin provides an image displaying a color spectrum of bloom density (low to high) in Lake Erie, based on satellite detection of cyanobacteria. Given the fact that the composition and cyanotoxin production of the algal bloom is dynamic over the course of the recreational season and the NOAA bulletin has the capability of displaying multiple levels of cyanobacteria density, why is the lowest level of detection used in the assessment methodology? Wouldn’t it be better to use a medium cyanobacteria density level?

A key component missing from the document is the justification of how the presence of a low density, non-toxic cyanobacteria event adversely impacts the primary and secondary recreational uses of the

open waters of the Western Lake Erie Basin. OFBF recommends that this justification gets incorporated to help the reader understand why Ohio EPA feels that the presence of cyanobacteria at threshold detection levels causes recreational use impairment.

Considerations for the development of the Maumee River TMDL

During the March 2, 2020 webinar, Ohio EPA indicated a reliance on the implementation of Governor DeWine's H2Ohio Initiative and the Ohio Lake Erie Domestic Action Plan as the primary tools that will be incorporated into the TMDL to achieve the 40% phosphorus reduction target. OFBF feels it is very important that realistic expectations of the ability of agriculture to help meet the reduction target are established and agreed upon as the Maumee River TMDL is developed and finalized.

Current research indicates the installation of the most efficient agricultural sediment and nutrient management practices, as identified in the H2Ohio cost curve analysis, has the *potential* to reduce the edge-of-field phosphorus losses by 40%, however the reduction in the amount of phosphorus delivered to Lake Erie would only be in the range of 15 - 25%. The following three points help illustrate this point:

- NRCS 2017 CEAP Study indicated that meeting a 40% edge-of-field phosphorus reduction target would reduce the phosphorus load to Lake Erie up to a maximum of 23% due to legacy phosphorus in the delivery system. (*USDA-NRCS. 2017. Conservation Practice Adoption on Cultivated Cropland Acres: Effects on Instream Nutrient and Sediment Dynamics and Delivery in Western Lake Erie Basin, 2003-06 and 2012. 77pp.*)
- Data collected from the ongoing edge-of-field paired watershed studies conducted by USDA-ARS indicates that an approximate 15% to 20% reduction in phosphorus delivery to Lake Erie is possible due to the implementation of agricultural sediment and nutrient management measures. (*Kevin King, USDA-ARS. Personal Communication. 2020*)
- Discussions that took place during the development of Ohio Lake Erie Phosphorus Task Force 1 and 2 Reports indicated that the implementation of agricultural sediment and nutrient reduction management measures could reduce delivery to Lake Erie approximately 20%.

In addition, as the TMDL is developed, it will be extremely important that a quantification of all watershed nutrient sources and their potential to assist in reaching the reduction target is integrated into the TMDL document. As stated above, implementation of agricultural sediment and nutrient management measures alone will not successfully reach the 40% reduction target.

All ecological systems take time to adjust and reach a new equilibrium as changes in management and nutrient inputs occur. Incorporation of a discussion of the ecological concept of lag time and an adaptive management process are imperative to establish realistic expectations.

Lastly, a discussion of the anticipated impact of Ohio's changing weather patterns must be included. Springs are becoming colder and wetter, summers are becoming hotter and drier, there is an increase in high intensity, short duration rainfall events leading to flashy stream flows and increased flooding. Great Lakes water levels and volumes are at record levels altering, the hydrological dynamics of Lake Erie. All of these reflect the "new weather norm" influencing nutrient delivery and lake response.

Considerations for development of the multi-watershed bacteria TMDL

During the March 2, 2020 webinar, Ohio EPA briefly discussed the process that is planned to be used in the upcoming development of a multi-watershed bacteria TMDL for bacteria. Ohio EPA plans to use a “flow based” bacterial source identification analysis to determine the sources of the bacteria. For example, bacteria present during high streamflow conditions are assumed to be nonpoint source related, whereas bacteria present during low streamflow conditions are assumed to be point source related. This approach erroneously misses the relationship between wet weather conditions and combined sewer overflow and sanitary sewer overflow events and the quantification of the volume of untreated sewage discharged during each overflow event. In addition, discharges from permitted discharging home sewage treatment systems and failing traditional home sewage treatment systems occur year round.

Numerous alternative tools and approaches are available and used to track sources of fecal contamination impacting streams, rivers, lakes and beaches. Microbial source tracking (MST) approaches should be used in the development of the multi-watershed bacteria TMDL. The utilization of MST techniques will identify the specific sources (human vs. wildlife vs. livestock) of the *E. coli* bacteria providing valuable information into the restoration plan development process. Discussion of MST tools and approaches are contained in a 2005 USEPA Guide Document. (*USEPA. June 2005. Microbial Source Tracking Guide Document. EPA/600/R-05/064*).

As with all TMDLs, the identification and quantification of all sources of the pollutant(s) of concern is a necessary first step. MST will provide valuable insights into the sources of bacteria (human, wildlife or livestock) leading to the development of realistic and effective restoration plans.



March 13, 2020

VIA Electronic Mail (epatmdl@epa.ohio.gov)

Ohio EPA, Division of Surface Water
Attn: 303(d) Comments
P.O. Box 1049
Columbus, OH 43216-1049

Re: Comments on the draft *2020 Integrated Water Quality Monitoring and Assessment Report*

Dear Sir or Madam,

Last month Ohio EPA released its draft *2020 Integrated Water Quality Monitoring and Assessment Report*. The report identified Lake Erie's western basin as an "impaired" water and, for the first time, placed a high priority on development of a total maximum daily load (TMDL) analysis. The report closely follows two previous draft reports from the Ohio Lake Erie Commission, the *Domestic Action Plan 2020* and the *Lake Erie Protection and Restoration Plan 2020*.

Thank you for the opportunity to provide comments to Ohio EPA's *2020 Integrated Water Quality and Monitoring Assessment Report* (Report).

The Ohio Manufacturers' Association (OMA) represents more than 1,300 members throughout Ohio. For more than 100 years, the OMA has supported reasonable, necessary, and transparent regulation that promotes the health and well-being of Ohio's citizens and the environment. Manufacturers across the state are actively engaged in improving the health of one of Ohio's most important resources: Lake Erie.

The OMA appreciates the extensive work and research that Ohio EPA performed to prepare the draft report. Our comments center on three specific areas: Stakeholder Involvement, Funding Review, and the Maumee Watershed.

Stakeholder involvement

The OMA would ask that Ohio EPA ensure a robust stakeholder process in developing the Maumee Watershed TMDL. We noted the emphasis on stakeholder engagement with the new TMDL process outlined in the report but would like to reiterate the importance of an engaged stakeholder group. The OMA requests to be included in all formal and informal Ohio EPA TMDL work groups. Given that non-point source runoff comprises the predominant source of phosphorus loading in the western basin, non-point source should likewise be represented in any stakeholder work groups as should agronomists and water quality monitoring experts.

This inclusive stakeholder approach will be critical given the wide range of issues, including: land use issues, the complex technical and allocation issues, questions surrounding metrics for attainment, near/far field issues, and the challenges of fitting the process into the legal structure of a TMDL. The TMDL development will have wide-ranging impacts not only on the health of Lake Erie but also on the citizens and businesses in the Maumee Watershed. The stakeholder process is a good place to work through these hard issues and balance the perspectives of all impacted parties.

Funding Overview

Section C.6 of the draft report summarizes the available funding mechanisms to address water quality impairments in Ohio. We noticed that this did not include any reference to Governor DeWine's new H2Ohio program. This program, which is designed as a comprehensive plan to address overall Ohio water health, will play a key role in addressing water impairment of Lake Erie. Both the draft *Domestic Action Plan 2020* and the draft *Lake Erie Protection and Restoration Plan 2020* refer specifically to H2Ohio; therefore, OMA recommends that H2Ohio funding should be a recognized funding source and it should be added to Section C.6 of the report (The Report does refer to H2Ohio on pages J5-6 but not as a funding source.).

Maumee Watershed

According to the draft *Ohio Domestic Action Plan 2020*, approximately 25% of the total phosphorus load in the Maumee Watershed originates out of state (see page 4 of DAP). This could potentially pose additional complexities in the TMDL allocation process for the Maumee Watershed. Additionally, the Maumee Watershed does not account for the entire nutrient load to western Lake Erie basin.

The OMA requests to provide further comment as to the scope of a potential TMDL in advance of any formal TMDL process. Early participation by stakeholders -- and throughout process -- is essential and aligns with Ohio EPA's TMDL regulations and guidance as well as U.S. EPA's TMDL development guidelines.

Here is my contact information, as I will serve as your OMA point of contact for stakeholder and work group information and coordination: (614) 629-6814 or rbrundrett@ohiomfg.com. Also, please include OMA's environmental counsel, Frank Merrill of Bricker & Eckler LLP at (614) 227-8871). Thank you.

Sincerely,



Rob Brundrett
Director, Public Policy Services

cc: Julianne Kurdila, Chair, OMA Environment Committee
Frank Merrill, Esq., Bricker & Eckler LLP



Ohio EPA, Division of Surface Water
Attn: 303(d) Comments
P.O. Box 1049
Columbus, Ohio 43216-1049
epatmdl@epa.ohio.gov

March 13, 2020

Comments of the Ohio Scenic River Association re: Ohio EPA's Draft 2020 Integrated Report

Dear Ohio EPA:

The Ohio Scenic Rivers Association appreciates the opportunity to comment on the Ohio EPA's draft 2020 Integrated Report. While the document is extensive and the effort that went into it is very much appreciated, in our comments below we mostly will focus on the stream monitoring issues that we commented on in our August 11, 2019, letter to Ohio EPA concerning the proposed Two-Pronged Approach. Many of the same points were covered at the March 5 meeting with Ohio EPA that was held at the Ohio Department of Natural Resources, with ODNR staff also attending, especially those from the Scenic Rivers Program. This monitoring proposal is covered in Section J of the draft report.

Additional monitoring staff –

At the March 5 meeting, thank you for announcing the forthcoming hiring of two additional monitoring staff. As OSRA emphasized in our 2019 comments on the proposed Two-Pronged Approach, we strongly encourage continued monitoring at a level that will be adequate to protect our Scenic Rivers, their tributaries, and other streams. More staff will help, and OSRA is aware of significant staff reductions in the Division of Surface Water in recent years. We encourage Ohio EPA to work diligently to make these staff as productive as possible to get the most monitoring and related analyses done. If Ohio EPA needs additional staff to conduct more monitoring, OSRA will gladly support funding requests to Governor DeWine and the Ohio General Assembly. Importantly, OSRA is proud of the past record of Ohio EPA as a leading state for stream monitoring, appreciates that base, and we would like this record maintained, avoiding any reductions in the level, productivity and quality of the effort.

We ask that Ohio EPA ensure that these field staff are encouraged and supported to become as productive as possible. All Clean Water Act programs based on Ohio's monitoring must be well-supported with data and have adequate information to take and recommend appropriate actions. Therefore, we believe these monitoring sites should remain as numerous and dense in our watersheds as in the past. While matching past numbers of monitoring staff is encouraging, our concern about a reduction in the number of monitoring sites per watershed remains.

Ohio EPA/ODNR interactions –

It was good to see Scenic Rivers and Ohio EPA staff learn more about each other's' programs in the March 5 meeting at ODNR on stream monitoring and the draft Integrated Report. OSRA would appreciate more of this, with continued interaction on a regular basis, both in the Columbus and district/regional offices. We feel it would be productive for both agencies, and could help reach more of the public with information on Ohio's Clean Water Act needs and progress. Success of the strategies identified in the Integrated Report and TMDLs depend on active and productive relationships.

The Two-Pronged Approach –

OSRA asked for the March 5 meeting at ODNR because of concerns about loss of monitoring sites in Ohio Scenic River and other watersheds. We greatly appreciate the time and effort the Division put into this meeting. The Division of Surface Water explained the proposed Two-Pronged Approach, and it is covered in Section J of the draft Integrated Report. We understand it is composed of probabilistic (statewide) and targeted (watershed-based) monitoring. We appreciate the use of the probabilistic monitoring to help better address the many small streams' conditions throughout the state.

While we recognize the challenges of designating uses for those small streams, we also continue to encourage a high level (or "density") of sampling in the "targeted" or "local" watersheds, ranging from the long-established Scenic Rivers, such as the Little Miami to the newly named Scenic Rivers such as the Ashtabula. As Ohio EPA recognizes in its draft Integrated Report, a large percentage of Ohio headwater streams are rated "impaired" by nonpoint source pollution (e.g., see Figure G-5 on page G-12 of the draft 2020 IR), and these headwaters are critical to the health of the Little Miami River watershed and others. The best assessments include a large number of sites and extensive sampling of aquatic life. We believe that local leaders need the level of information – sampling density – no less than has been provided in the past. We are concerned that the establishment of these proposed "Project Areas," which combine watersheds and reduce the total number of sampling sites per watershed, will leave the public and local officials with too sparsely-scattered monitoring sites and resultant information. This reduction in site density could reduce the ability to determine and address local problems such as nonpoint sources, or the ability to define attaining streams and areas to protect. Scenic Rivers and other watersheds have greatly benefited from the Ohio EPA's past excellent effort to monitor these watersheds with relatively dense sampling. We believe this is beneficial to all and serves to more accurately characterize Ohio's stream problems and leads to more appropriate and effective remedies.

Mussels –

OSRA continues to encourage Ohio EPA to include mussels in assessments of Ohio's rivers and streams and in the Integrated Report. We continue to encourage that, and if not addressed in this Integrated Report, then we would like to see the issue covered in the next and in other publications such as TMDL reports. We ask that mussels be addressed because of their continuing problems with the survival of some species, and in some cases serious declines in species richness and diversity, such as Dr. Michael Hoggarth of Otterbein University has documented recently in the Little Miami River. Big Darby Creek, another state and national Scenic River, has seen multiple species decline to the point where they might no longer be present, or at least viable, in that watershed.

At the March 5 meeting at ODNR on the draft Integrated Report, Ohio EPA seemed to express that protection of mussels was not the Agency's responsibility, deferring to ODNR and the U.S. Fish & Wildlife Service. We recognize these agencies have responsibilities to protect mussel species, such as the U.S. Fish and Wildlife Service species recovery plans, in cooperation with the Ohio Department of Natural Resources. These plans have been in place for many years and have not been adequate to address declines. And while the federal Endangered Species Act is in place, we believe it also has not

been enough to significantly help prevent declines. We note that the 1994 recovery plan for the northern riffleshell mussel includes a call to “identify and participate in ongoing environmental planning and regulatory compliance processes within each ecosystem” and “develop and implement comprehensive watershed plans.”

Related to Ohio EPA responsibilities, like the fish community, the Clean Water Act also includes protection of mussels, such as addressed in “Technical Support Document for Conducting and Reviewing Freshwater Mussel Occurrence Surveys for the Development of Site-specific Water Quality Criteria for Ammonia” (U.S. EPA 2013). Ohio EPA has responsibility under Ohio Revised Code 6111.12 Antidegradation policy, and included mussels in the 2002 listings of Antidegradation Tier Justifications for State Resource Waters and Superior High Quality Waters. Mussels are part of the base for defining “exceptional recreational or ecological value” for many Ohio streams. We appreciate that Ohio EPA has included mussels in macroinvertebrate collections since the 1990s, as mussels are a significant component of Ohio streams and their benthic fauna.

We strongly encourage Ohio EPA to be proactive and participate in a cooperative effort with these and other agencies, academia, non-profits and others. The assessment and strategies will need to go beyond conventional approaches such as 401 certifications or NPDES permits. Ohio and Ohio EPA, with their strong database on water quality in streams, are in a good position to address this issue and contribute to scientifically-based analysis and potential solutions. No other institution can match Ohio EPA’s capabilities for water quality analysis, and we believe this is one of the contributions that could help make a cooperative effort work and address mussel problems and protection.

Economic Value of Ohio Rivers –

In 2019, economists at The Ohio State University estimated that there are 171 million outdoor recreational trips in Ohio each year, and that these trips are worth \$3.6 billion per year. “The contribution of this expenditure to Ohio’s overall economic activity is estimated to be \$8.1 billion per year, which amounts to 1.3% of Ohio’s economy” (Gioglio et al, 2019 “Economic Valuation of Natural Areas in Ohio”). Stream-based activities like fishing and kayaking are among the leading uses. Our water-based recreation activities make the protection of Scenic Rivers critical. OSRA emphasizes this aspect of our Scenic Rivers and we encourage that the Integrated Report include mention of this important factor supporting protection of Ohio’s Scenic Rivers and other streams.

Again, we encourage Ohio EPA to maintain a high density of monitoring in Ohio Scenic Rivers, their tributaries and other streams. Our concern is that the “Project Areas” approach will significantly reduce sampling density. Thank you for your attention to these comments. You may contact me at ohiohoper@yahoo.com or OSRA president Tom Butch at butchy5@gmail.com.

Sincerely,



Hope Taft

For the Ohio Scenic Rivers Association

cc: Tiffani Kavalec, Chief, DSW

From: [John Micklewright](#)
To: [EPA TMDL](#)
Cc: [Xumeng Ge](#)
Subject: Attn: 303(d) Comments
Date: Friday, March 13, 2020 10:44:57 AM

Hello,

Comments in response to page L-8 > Contaminant Source Discussion > Fertilizer Applications.

In previous iterations of the Integrated Water Quality Monitoring and Assessment Report the first sentence started with “Improper” and was removed in the 2014 version of the report. “Biosolids” was added in the same 2014 report.

Comments:

1. “Improper” should be added back to the first sentence. Anything can be either pollutant or harmless depending on their levels. People can limit their applications according to amount and concentrations to avoid pollution. That’s why people test nutrients, metals and Fecal levels of biosolids before land application. Land application of biosolids has environmental and economic benefits that chemical fertilizers do not and acts as a replacement for chemical fertilizers.
2. For future reports, such changes should be mentioned on EPA’s website with explanations to avoid confusion. It is important to provide a reason for the changes.
3. The conclusion was based on Ohio’s Source Water Assessment and Protection (SWAP) program and DDAGW’s ground water impacts database. These data should be published on EPA’s website or let readers know how to access them. It is important to show solid data that support the statements.

Thank you,

John Micklewright

Environmental Specialist

quasar energy group

8600 E. Pleasant Valley Rd.

Independence, OH 44131

Office: (216) 986-9999

Cell: (216) 633-6693

jmicklewright@quasareg.com

www.quasareg.com

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