Section

D

Framework for Reporting and Evaluation

Table of Contents

Figures

Tables

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 2022 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 methodology[1]. 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 in rivers and streams was the long-standing focus of reporting on water quality in Ohio and continues to provide a strong foundation. The 2022 methodology is unchanged from what was used in the 2018 IR. Additionally, as in the 2012 IR and subsequent reports, a methodology for assessing the aquatic life condition of inland lakes is previewed. New to the 2022 IR is a preview of an aquatic life use assessment methodology for the open waters of Lake Erie.
- **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 2022 methodology is unchanged from what was used in the 2020 IR. In addition, the 2022 methodology is also unchanged from what was used in the 2020 IR for recreation use based on algae blooms for Lake Erie.
- **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 2022 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 in the 2020 HAB Strategy for PWS (***epa.ohio.gov/divisions-and-offices/drinking-and-ground-waters/public-water-systems/harmful-algal-blooms***) for the 2022 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 2022 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. New to the 2022 IR is the inclusion of assessment units for the Ohio River. The four 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 (ORAUs)** – 10 segments for the entire portion of the Ohio River that borders Ohio, divided by the dam pools.

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/wps/portal/gov/epa/divisions-and-offices/surface-water/reports-data/biological-and-water-quality-reports***.

Total Maximum Daily Load (TMDL) reports, available at ***epa.ohio.gov/wps/portal/gov/epa/divisions-and-offices/surface-water/reports-data/total-maximum-daily-load-tmdl-program***, 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. Ohio River assessment units are shown in Figure D-4.

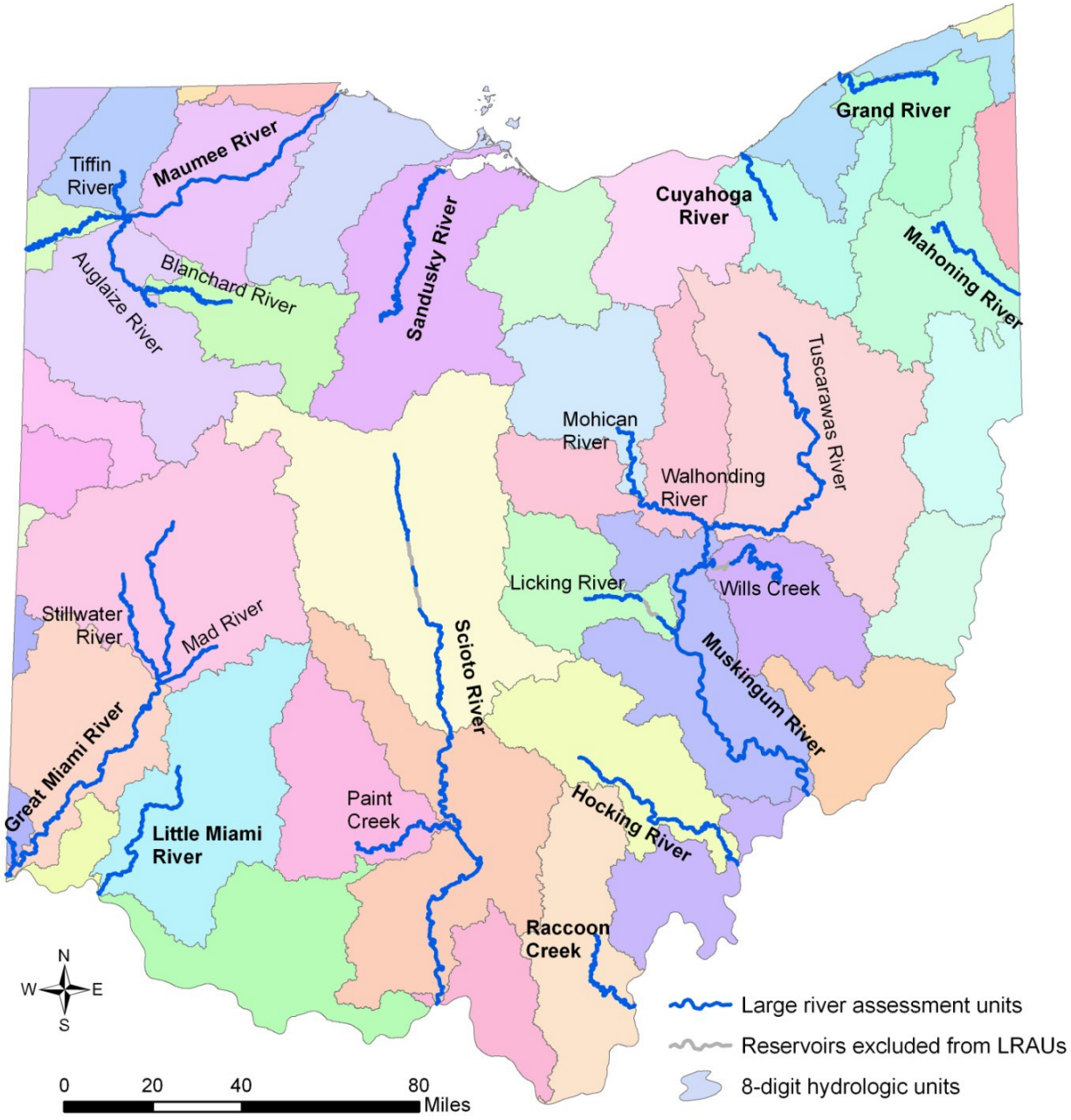

Figure D-1 — Ohio's large rivers (rivers with drainages greater than 500 mi^2) and their watersheds.

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

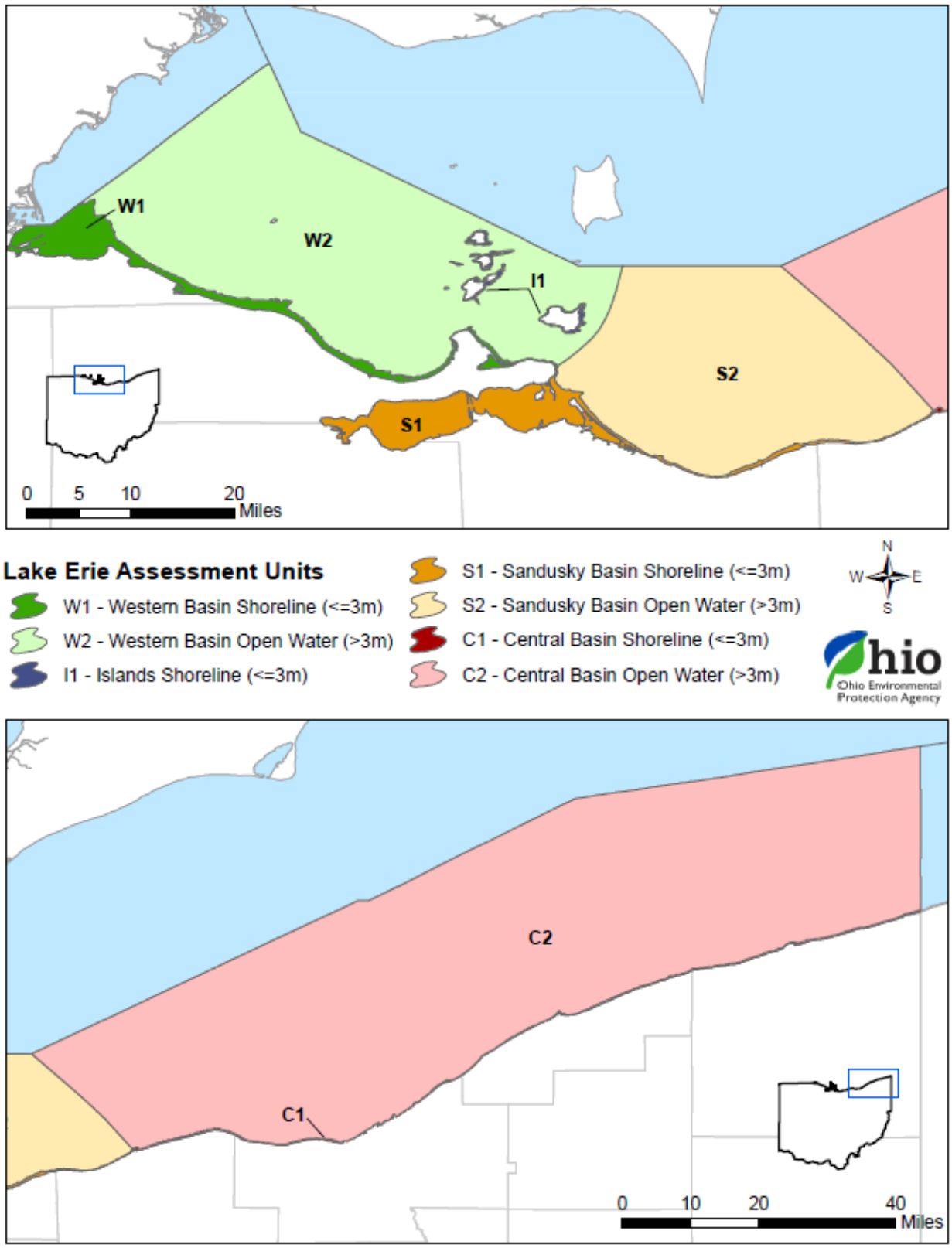

Figure D-3 — Ohio's Lake Erie assessment units – western basin, islands, Sandusky basin, and central basin shorelines and open water areas.

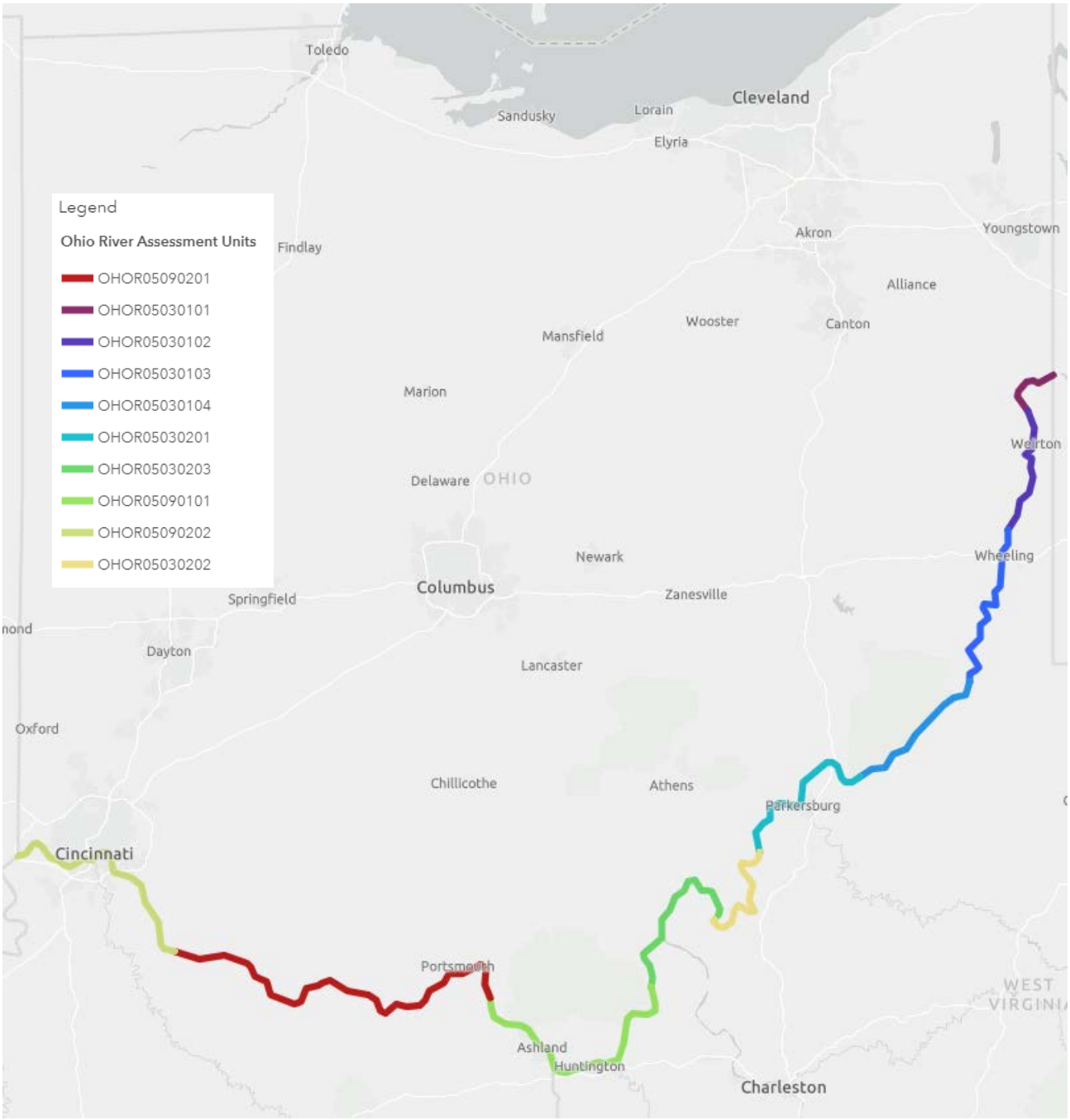

Figure D-4 – Ohio's Ohio River assessment units

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 utilizes in their Section 305(b) report for the Ohio River. In the 2022 IR, Ohio EPA is including 10 Ohio River assessment units and reporting on the attainment status for three beneficial uses: recreation, public water supply, and human health uses. Ohio EPA is using data collected by ORSANCO and reported to Ohio EPA for this assessment using Ohio EPA's methodologies. At this time, Ohio EPA is not assessing the aquatic life of the Ohio River assessment units since Ohio EPA's existing methodologies cannot be applied to such a large river. Ohio EPA is deferring to ORSANCO's analysis in the 2020 Biennial Assessment of Ohio River Water Quality Conditions (ORSANCO 2020). ORSANCO plans to complete a biennial assessment in 2022 that will be available at: ***orsanco.org/publications/biennial-assessment-305b-report/***.

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 methodologies for the Sandusky and central basin units.

As in the past three 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 2022 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 2022 IR.

Beneficial Use Category	Key Attributes[2]	Evaluation status in the 2022 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 macro-invertebrates; 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, all seven LEAUs, and all 10 ORAUs 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, all 10 ORAUs assessed
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 *E. coli* 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 *E. coli* 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 the nitrate indicator at 55 percent, pesticide indicator at 30 percent, and algae indicator at 37 percent of the 123 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, 2018, and 2021, 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 2022 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 2022 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 2022 IR. Ohio EPA's 2022 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 exempted 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
- Heidelberg University
- 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
- ORSANCO

Table D-2 — Data types used in the 2022 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 2011 to 2020	Fish Tissue Contaminant Database ORSANCO	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 2017 to 2021 (May through October only)	Ohio Dept of Health Cuyahoga County Health Department Northeast Ohio Regional Sewer District (NEORSD) ORSANCO	Five or more E. coli samples collected within a 90-day period; at least one site per AU; data period 2017-2021
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 NEORSD Midwest Biodiversity Institute Heidelberg University The 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 2015 to 2021	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 five 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 2022 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)	2017 – 2021 (May – Oct only)	Bacteria	State environmental agency
Cuyahoga County Health Department	2017 – 2021 (May – Oct only)	Bacteria	Level 3 qualified data collector (under ODH's study plan)
Northeast Ohio Regional Sewer District	2017 – 2021 (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	
Ohio Department of Natural Resources	Apr 2011 – Nov 2020	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 2015 – Oct 2021	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 University	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)(3). Included in table D-3 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 January 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 2022 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/wps/portal/gov/epa/divisions-and-offices/surface-water/reports-data/total-maximum-daily-load-tmdl-program*** and ***epa.ohio.gov/wps/portal/gov/epa/divisions-and-offices/surface-water/reports-data/ohio-integrated-water-quality-monitoring-and-assessment-report***.

The draft 2022 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, 2022 IR Project (March 4, 2021)

The following memorandum soliciting Level 3 qualified data was emailed to all Level 3 qualified data collectors on March 4, 2021.

Ohio Environmental Protection Agency

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

Date March 4, 2021

Re Solicitation of Water Quality Data, 2022 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 fish tissue data you may wish to submit for consideration as the Agency prepares its 2022 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 holders[1].

The 2022 Integrated Report fulfills the State's reporting obligations under Sections 305(b) and 303(d) of the Clean Water Act. Additional information about the report is available at epa.ohio.gov/dsw/tmdl/OhioIntegratedReport.

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.

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.

[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)

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 and have submitted a study plan to the Agency in the last two years. 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, chemical and fish tissue = April 30, 2021**
- **Bacteria = September 15, 2021**

More information about the specific types of data being requested by Ohio EPA, and **how** to submit such data, may be found at: epa.ohio.gov/dsw/tmdl/OhioIntegratedReport.

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 are to be submitted and how to do so is available on the IR webpage. The content is displayed below.

2022 | 2020 | 2018 | 2016 | 2014 | 2012 | 2010 | Archives

Preparation of 2022 Integrated Report is Underway

Ohio EPA is preparing the 2022 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.

Call for Level 3 Credible Data

Information regarding level 3 credible data submission can be found in the documents linked below:

- Call for Data Memo
- Call for Data Information and Submission Details

Bacteria data must be received by September 15, 2021, all other data must be received by April 30, 2021.

When will the report be completed?

Major project milestones and expected dates for completion are:	
External level 3 credible data are due to Ohio EPA	April 30, 2021 (bio/chem/fish tissue); Sept. 15, 2021 (bacteria)
Public notice draft 303(d) list	December 2021 - January 2022
Submit to U.S. EPA Region V for approval	Before April 1, 2022

Please continue to check this web page for updates.

For more information, contact:

Kate Hamilton

TMDL Coordinator

Web Page Announcing 2022 Integrated Report Preparation

As shown below, Ohio EPA announced the preparation and anticipated schedule of the 2022 Integrated Report on its website (***epa.ohio.gov/wps/portal/gov/epa/divisions-and-offices/surface-water/reports-data/ohio-integrated-water-quality-monitoring-and-assessment-report***).

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Please continue to check this web page for updates.

For more information, contact:

Kate Hamilton

TMDL Coordinator

Notice of Availability and Request for Comments CWA Section 303(d) TMDL Priority List for 2022

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 2022

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 *2022 Integrated Water Quality Monitoring and Assessment Report.* This report includes the Total Maximum Daily Load (TMDL) priority list for 2022 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 February 15, 2022, at 1:30 p.m. The webinar may be viewed by registering and joining online at: ***https://attendee.gotowebinar.com/register/4452068136911433997***.

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 5:00 p.m. on February 28, 2022. 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 ***https://epa.ohio.gov/divisions-and-offices/surface-water/reports-data/ohio-integrated-water-quality-monitoring-and-assessment-report***. To arrange to inspect Agency files or records pertaining to the document, please contact Richard Bouder at (614) 644-3037. To request notice of when Ohio EPA submits the document to U.S. EPA, please contact the email address above.

Response to Comments Received regarding the Request for Comments CWA Section 303(d) TMDL Priority List for 2022

The draft Ohio 2022 Integrated Water Quality Monitoring and Assessment Report (a.k.a., Integrated Report or IR) was available for public review from January 24, 2022, through February 28, 2022.

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

- Association of Ohio Metropolitan Wastewater Agencies
- Midwest Biodiversity Institute
- Ohio Coal Association
- Ohio Farm Bureau Federation

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: Historically, Ohio EPA had operated an exemplary monitoring and assessment (M&A) program that consisted of nearly 40 years of systematic pollution assessment for inland rivers and streams. This comprehensive approach allowed Ohio EPA to use M&A data and information to support ***all*** water quality management programs in addition to supporting the biennial Integrated Report. 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 rigor in terms of spatial detail, content, comprehensive-ness, and within a systematic and integrated framework for assigning causes if it is done at all. Ohio's program up until that time was also exemplary in that it fulfilled the definition of a complete monitoring and assessment or "TALU based" program *". . . that supports refined aquatic life uses based on numeric biocriteria and with a process for stressor identification."* As a result, it fulfilled all of the Program Implementation items described in Table 1-1 of the U.S. EPA (2013) *Biological Assessment Program Review: Assessing Level of Technical Rigor to Support Water Quality Management*. We believe that this approach was seriously weakened not only by the proposed Two-Pronged Approach, but actions that were taken shortly before that time.

There is no question that one of the essential components of the Ohio surface water program was the systematic implementation of M&A and the rigor of the spatial context and biological, chemical, and physical indicators upon which the assessments were based. However, the reduction in this rigor and scope made before and formalized by the implementation of the "Two-Pronged Approach" that was introduced in 2018 and implemented in 2020 is now becoming apparent in the content, or more importantly the lack of content, in the draft 2022 IR. This change started with an 80% reduction in the scope of monitoring in 2018-19 and the concerns it raised then are now evident in the Ohio EPA surface water program as a whole and as had been predicted. Our previously stated comments and concerns about the ***Ohio EPA Monitors Water Quality in Ohio and Reports its Findings*** discussion in Part A of the 2020 IR providing a potentially misleading message about the future of the program that many stakeholders have simply come to expect, has been validated by the lack of updated content in the draft 2022 IR. In the Executive Summary on p. 1 the statement *"No new data is available to update the aquatic life use in this cycle"* not only validates these concerns expressed in our

2020 IR comments but is a major break from and amounts to several steps backwards in a key area of CWA program support that Ohio stakeholders have come to expect. While we acknowledge that the agency assigns much of this reduction to COVID-19 restrictions on monitoring in 2019 and 2020, the decline in the program was evident well before the pandemic began. This and the recent loss of Ohio EPA key institutional knowledge in the WQS program does not bode well for the fulfillment of the first and foremost long-standing objective of the monitoring program: to ensure that designated uses are accurate, protective, and attainable. While this was foreseeable outcome of the Two-Pronged approach, it still represents a major shift in both policy and practice at Ohio EPA that bears further scrutiny.

The Ohio EPA program had long been 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) and the *Region V State Biological Assessment Programs Review: Critical Technical Elements Evaluation and Program Evaluation Update (2002-2010)* (MBI 2010). The most recent and now aged review conducted in 2007 resulted in the Ohio program attaining Level 4 (the highest level) and a score of 98.1%. At least part of that 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. The 2007 critical elements score has declined under the proposed Two-Pronged Approach to M&A and related roll backs in the bioassessment program. Our initial desktop review of which these elements are the most affected resulted in a reduced critical elements score of 92.3%, which is a reduction to a Level 3+ program. This reduction alone does not convey the full extent to which the program has and will be affected by the loss of institutional knowledge, the failure to adequately transfer that knowledge to new staff, and reductions in experienced personnel and funding all of which will combine to reduce the effectiveness of the CWA programs by extension. The remedy is to rebuild the program to its former levels of quality and support of the late 1990s and 2000s on an urgent basis.

While the 2007 program review emphasized the inland rivers and streams program, it is quite evident that what was accomplished over the first three decades of development and its implementation had "trickled down" to supporting similarly robust methods for assessing other waterbody types (wetlands, the Lake Erie Nearshore, the Ohio River, primary headwaters) and' very importantly, to support one of the most detailed, accurate, and long term accountings of stream and river use designations in the U.S. In our 2020 IR comments MBI requested the agency to reveal in detail how the fundamental changes made in 2018-19 and beyond would affect all aspects of future IRs, WQS, and water quality management programs that had been directly supported by the more "pollution focused" M&A upon which the program had been based from day one. While no response has been received, it is now apparent that all of these programs have been substantially lessened in terms of their quality and rigor. (Midwest Biodiversity Institute)

Response 1: Ohio EPA's 2022 IR does not include updates to the aquatic life use for watersheds and large rivers. There are several reasons for this. First, Ohio EPA is implementing the new TMDL development process for stakeholder review and comment. Results from the Agency's routine water quality monitoring surveys will not be included in the IR until the Biological and Water

Quality Report for the survey has been finalized (Step 2 of the new TMDL development process). Ohio EPA has conducted year two monitoring in several of the most recent watershed surveys to confirm causes and sources of impairment or beneficial use attainment upgrades, thus delaying completion of reports.

Second, the statewide Large Rivers survey scheduled to be completed in 2020 was delayed due to COVID-19 restrictions. However, Ohio EPA was able to quickly plan a field survey of about half of the large river sampling sites and completed the work despite not having the assistance of college interns and unfavorable weather conditions. The second portion of the large rivers survey was completed in 2021. The sampling in 2021 included follow-up sampling on the lower Great Miami River based upon results in 2020. The data is in the process of being analyzed. Since this work was completed to get a comprehensive overview of the large rivers, all the data will be reported at the same time and not released in bits and pieces. This is proposed for the 2024 Integrated Report. A summary report will be released to the public once it is complete.

In addition, Ohio EPA's water quality staff also completed water quality monitoring in support of the Section 319 program grant projects, Lake Erie monitoring, a beneficial use designation survey in the Salt Creek watershed and sampling for a public health nuisance in Lucas and Ottawa Counties. The results of these sampling efforts will also be incorporated into future integrated reports.

Executive Summary

Comment 2: While the 2007 program review emphasized the inland rivers and streams program, it is quite evident that what was accomplished over the first three decades of development and its implementation had "trickled down" to supporting similarly robust methods for assessing other waterbody types (wetlands, the Lake Erie Nearshore, the Ohio River, primary headwaters) and, very importantly, to support one of the most detailed, accurate, and long term accountings of stream and river use designations in the U.S. In our 2020 IR comments MBI requested the agency to reveal in detail how the fundamental changes made in 2018-19 and beyond would affect all aspects of future IRs, WQS, and water quality management programs that had been directly supported by the more "pollution focused" M&A upon which the program had been based from day one. While no response has been received, it is now apparent that all of these programs have been substantially lessened in terms of their quality and rigor.

"Of the 123 public drinking water supply assessment units, 45 are now listed as impaired by algae, with another 26 on the watch list for algae."

Also, noting the nitrate indicator in "H3. Results:"
"Impairments included five of the nine LRAUs (three Maumee River, one Sandusky River, and one Scioto River LRAUs remain impaired)."

We encourage Ohio EPA to take more action on nutrients, such as fully adopting and implementing the large rivers nutrient and SNAP approaches. For the Maumee and Sandusky Rivers, we suspect that the sources related to the lack of attainment in these rivers also contribute to the Western Lake Erie Basin nutrient problems. Also, since the nitrate indicator is failing to attain goals, Ohio EPA should very actively work with the Ohio

Department of Agriculture and others to increase attention on nitrogen as a pollutant. (Midwest Biodiversity Institute)

Response 2: The Agency is acting on nutrients not only for aquatic life use impairments but public water supply impairments as well. For example: Maumee Watershed Nutrient TMDL project addressing harmful algal blooms in the Western Basin of Lake Erie, East Fork Little Miami River TMDL project addressing nutrient impairments in the watershed and harmful algal blooms in Harsha Lake, and the Lower Auglaize River TMDL project addressing the nitrate public water supply impairments for the city of Delphos. Ohio EPA partners with other state and local agencies to address water quality impairments, including nitrogen.

Comment 3: Page 2: *"Major Changes since the 2020 Integrated Report: In the 2022 Integrated Report, Ohio River mainstem assessment units are included for the first time."*
We acknowledge the added focus on the Ohio River in the Executive Summary and Section D-3. Base levels of nutrient pollution resulted in extensive algal blooms in 2015 and 2019, so assessments added to this report based on data from ORSANCO is a welcome addition. More attention to this problem in the Ohio River and basin is needed, so further emphasis in these reports and other outlets (presentations, webinars, fact sheets, etc.) would be appreciated.

The lack of attainment for the fish tissue results on the ten Ohio River assessment units is concerning (Table E-10) and is apparently part of an ongoing issue with legacy pollutants. MBI witnessed this in a recent study of the Greater Cincinnati Water Works (GCWW) Richard Mitchell Treatment Plant (RMTP) sediment ponds and ambient sediment chemistry upstream and downstream from the RTMP discharge. We found numerous chemicals including dioxins, dibenzofurans, PAH compounds, and heavy metals some of which were close to or above action levels. We concluded that the results reflected legacy contaminants removed by the water treatment process, but the 2022 IR should provide expanded information about what is recently being done to address this contamination and who is working on a solution beyond issuing advisories to the public? The last effort to address PCBs that is mentioned was in 2002 (page J-8). While we appreciate that ORSANCO has this responsibility, our review of their most recent ORSANCO 305b report shows some of this to be years old data, thus new data is needed to make the assessment current and reliable. (Midwest Biodiversity Institute)

Response 3: Thank you for your comments. Table E-12 in Section E contains the Ohio River assessment units and the most recent data used for the human health assessment. The years of data used span from 2011-2018, with years of most recent data within all Ohio River assessment units ranging from 2013 to 2018. Ohio EPA has discussed this concern with ORSANCO. ORSANCO is conducting a trends analysis on fish tissue data that will be available later this summer with a report available by the end of the year.

Section A

Comment 4: Page A-4, Figure A-2
Colors in the pie chart in "Figure A-2 — overall summary of Ohio's combined assessment units. Output from ATTAINS" are difficult to distinguish. Please consider changing the colors to achieve a greater contrast between categories. (Midwest Biodiversity Institute)

Response 4: The color scheme has been revised in the final report.

Comment 5: In each of these tables in Section A (such as "Table A-1 — Summary of Human Health Fish Tissue Results"), would it be appropriate to provide totals for the rows and columns? Could percentages be added? These would help the reader in getting a quicker sense of the level of attainment among categories. (Midwest Biodiversity Institute)

Response 5: Totals have been added to the four tables displaying the results of the beneficial use assessments in the final report.

Comment 6: Page A-6, Table A-2 — Summary of Recreation (Bacteria) Use Results
These appear to be the same numbers as in the 2020 report. If so, please state this. In the table titles, please specify the time period that is covered in each of these tables. (Midwest Biodiversity Institute)

Response 6: Only the results for watersheds and large rivers are carried over from the 2020 Integrated Report. The results for Lake Erie, inland lakes and the Ohio River are updated for this cycle. This is explained in the report narrative associated with the table.

Comment 7: Page A-7
"Data evaluated for the aquatic life use is largely unchanged from the 2020 IR."
This section is where the inland streams summary was located in the 2020 report (Page A-5). Because a new data compilation seems not to exist, this is a good place to refer the readers to the 2020 report on inland stream assessment results, as is stated and also explain why no new data was collected for the 2022 IR. Because this is still the "latest" information available, the 2020 results should be repeated here so that the status is still recorded in this section and is available to readers. For the convenience of the public, and to inform them by briefly describing the latest data compilation, a brief summary of the 2020 IR results should be provided here or in some other appropriate section. Note that we do not find the lack of an updated assessment acceptable, but where the 2022 IR lacks new information, it is important to state that fact and provide the latest results here. Also see our related comments under **Monitoring to Support Impaired Waters Listings and TMDLs** and **Aquatic Life Use Attainment in Inland Rivers and Streams**.

There are no Figures A-3 to A-5 similar to those in the 2020 IR ("Percent attainment status and goal progress…"; "Average full attainment watershed score for monitored Ohio HUC11 …"; "Status and trend of aquatic life use 80 percent by 2020 goal …") in the draft 2022 IR. These comprised the attainment status graphics in the 2020 IR. As is recommended above, as long as the time period covered is specified, the 2020 IR results should be repeated in this section, as they do at least comprise the latest compilation available, and it would save readers from questioning their absence or needing to consult the 2020 IR.

The lack of any apparent new data to update the 2020 IR tracking statistics brings up the issue of the availability of non-Ohio EPA data and assessments, especially those conducted under Level 3 PSPs. Was there any consideration given to at least using this data to update the 2020 IR as it is statutorily qualified to affect impaired waters listings? (Midwest Biodiversity Institute)

Response 7: The 2020 IR was the final reporting of the 2010 water quality goals. Figures associated with this final goal reporting were not carried forward into the 2022 IR. The Agency plans to establish new goals for Ohio's waters as part of the probabilistic survey results reporting. For example, once the data on the large rivers has been processed and is available for

review, the Agency can analyze the data and determine what appropriate goals should be for the waters.

For the aquatic life use, non-Ohio EPA data is available for consideration in the Integrated Report once it has been reviewed and approved as acceptable for such use. Ohio EPA did not have any new approved Level 3 aquatic life credible data available to include in the report.

Comment 8: Page A-8
Figures A-3 and A-4 in the draft 2022 IR are the same as Figure A-6 and A-7 in the 2020 IR. The text should clarify this compilation is simply repeating that of 2020. (Midwest Biodiversity Institute)

Response 8: Revisions to the language proceeding the figures have been added in the final report to clarify this is carried over from the 2020 Integrated Report.

Section C

Comment 9: *Compliance Program*
Page C-5
"DSW staff provides technical assistance …"
The following statement was in the 2020 report "oversees land application of biosolids and manure from certain large concentrated animal feeding operations." It appears to have been removed in the 2022 report. Was there a change in ODA versus Ohio EPA responsibilities since the 2020 IR? Why was this oversight activity removed? Is it explained elsewhere? (Midwest Biodiversity Institute)

Response 9: The referenced sentence in the 2020 IR was revised, however no change in Ohio EPA responsibilities has occurred.

Comment 10: *Concentrated Animal Feeding Operations*
Page C-6
"Ohio EPA also retains authority for implementing the NPDES permit program for animal feeding operations until a delegation agreement with U.S. EPA that has been submitted by Ohio is approved by U.S. EPA."
This is slightly different language here compared to the 2020 IR, which refers to a "revised delegation agreement." Was there any legal or regulatory change that resulted in this change in the language here that should be noted? (Midwest Biodiversity Institute)

Response 10: The language was modified in the 2022 IR. Ohio EPA, Ohio Department of Agriculture, and U.S. EPA are still working through requirements for transfer of delegation from Ohio EPA to Ohio Department of Agriculture.

Comment 11: Credible Data – Citizen Monitoring Program
Page C-7
"As of May 2021, the Agency currently has 925 Level 1, 118 Level 2 and 60 Level 3 qualified data collectors and has approved 230 study plans since the program's inception in 2006. Ohio EPA has created a web-based portal for data entry and data access (Credible Data Online Application, epa.ohio.gov/wps/portal/gov/epa/divisions-and-offices/surface-water/reports-data/credible-data-references-submission-of-data), available through Ohio EPA's eBusiness Center."
We note that the number of Level 3 QDCs was 86 in the 2020 report, this is a reduction of almost one-third from previous levels. What Level 3 specialties were reduced in terms of

the number of QDCs? What are the reasons for this reduction? We agreed with the agency dropping the Level 3 for QHEI however if any of the remaining 60 are for that specialty alone then they should be reduced to Level 2. The problem with the statement in the IR is that in terms of sheer numbers it appears that there are 1,296 QDCs in Ohio at present, but only 4.6% are qualified to produce data that would qualify for use in the IR. We suspect that number is likely even smaller so adding a degree of clarity to this statement is needed. (Midwest Biodiversity Institute)

Response 11: For specific information regarding QDCs, the Agency provides a list of approved QDCs along with their specialty on its webpage at: ***https://epa.ohio.gov/static/Portals/35/credibledata/CurrentQDCs.pdf***. The statement in the IR is general in nature and intended to provide a factual statement about participation in the Credible Data program overall. The focus is not only on qualified QDCs that can submit data for the IR.

Comment 12: Page C-8
"Changes to Ohio EPA's Lake Erie monitoring are likely to occur in the next two years as a result of recommendations made during the effort to revise Lake Erie aquatic life use metrics…"
While Ohio EPA mentioned the Lake Erie ALUs in the draft 2022 IR webinar of February 15, 2022, we are not aware of any details about this activity since 2020. Slide 25 states *"Currently compiling subgroup information for presentation back to the larger workgroup."* As a member of that larger workgroup, MBI has yet to see any details or updates, so we there should be an update about subgroup and workgroup products and status. (Midwest Biodiversity Institute)

Response 12: Ohio Sea Grant has been coordinating the various work groups for the Lake Erie aquatic life use development. At the time the draft Integrated Report was issued, they had not yet reconvened the larger workgroup. This is anticipated to occur in 2022 and MBI remains on the list of participants.

Comment 13: Page C-15
"Ohio EPA strongly encourages applicants to engage in pre-application coordination early in the development phase to help identify high quality resources, discuss potential alternatives and identify mitigation obligations."
The following discussion from the 2020 IR page was moved to the fifth paragraph of the draft 2022 IR in a paragraph on the federal rule. It no longer states, "Ohio EPA encourages ..." Has Ohio's role in encouraging coordination changed since this policy was stated in the 2020 IR? If so, how? (Midwest Biodiversity Institute)

Response 13: Revisions to this section were made based upon a federal 401 rule that existed at the time the draft report was prepared, that has since been rescinded. Pre-application coordination was required by that rule at least 30 days prior to the submission of a 401 application. Since pre-application coordination was required, Ohio EPA's encouragement was moot.

Comment 14: Page C-22
"Examples of eligible activities include: …"
Please explain here why this list differs from that in the 2020 IR. The following are not included here:
o improvement or replacement of on-lot wastewater treatment systems;
o development of BMPs; and

o forestry BMPs.

Does the WPCLF no longer fund these efforts? Are they funded in other ways that did not exist before the 2022 IR draft? Either way, it is important to explain the difference in the text between the 2020 and 2022 IRs. (Midwest Biodiversity Institute)

Response 14: Ohio EPA Division of Environmental and Financial Assistance (DEFA) included this as example activities that can receive funding through their programs. Two of the cited items (development of BMPs and forestry BMPs) were removed because they significantly overlap and because they are no longer actively marketed through the WPCLF program, due to lack of customer interest over a long period of time, though they remain eligible for funding. The third deleted item (improvement or replacement of on-lot wastewater treatment systems) is essentially the same as another currently listed item (septic system improvements).

Comment 15: Page C-28
Have Ohio EPA and ODNR reviewed common interests in the H2Ohio program? For example, measurement of wetland quality? Or are there possible impacts on streams, e.g., is placement of the wetland features under H2Ohio having an impact, such as restricting meanders (or placement within the meander width) or not allowing an adequate riparian corridor? Are there restrictions, such as riparian habitat encroachment, created instream habitat by these H2Ohio projects? What wetlands conditions result from these projects (e.g., what is the floristic quality assessment results)? What scores or categories of wetlands result? Are rare plants being preserved at these sites and protecting Category 3 wetlands? The program has emphasized that wetlands harbor rare plants. The measures stated on Page C-29 are more activity-based and not environmental outcome-based. Other than stream gauges at or near watershed pour points, have Ohio EPA and partners considered and implemented more thorough and complete condition monitoring of some of these areas, such as wetlands or streams, in H2Ohio project areas, at a level that is sufficient to detect actual environmental outcomes of H2Ohio? (Midwest Biodiversity Institute)

Response 15: Ohio EPA works closely with all state agencies involved with H2Ohio. This includes participating as members of the technical and executive advisory panels for the robust H2Ohio Wetland Monitoring Program. This monitoring program has taken into consideration most of the questions posed in this comment. For more information about the program please see the following websites: ***https://h2.ohio.gov/natural-resources/*** and ***https://ohioseagrant.osu.edu/news/2020/0r10a/learn-network-h2ohio-wetlands***.

Section D

Comment 16: *D6. Sources of Existing and Readily Available Data*
Page D-11
Heidelberg College should be Heidelberg University.
Midwest Biodiversity Institute/Center for Applied Bioassessment – please delete the "Center for Applied Bioassessment." (Midwest Biodiversity Institute)

Response 16: The suggested revisions have been made to the final report.

Comment 17: *"Table D-3 — Description of data used in the 2022 IR from sources other than Ohio EPA."*
Page D-13
"Midwest Biodiversity Institute Jul 2010 – Oct 2016"

This is simply not accurate nor up to date. MBI has provided data to Ohio EPA from 10 different areas under a like number of Level 3 PSPs since 2016. We have closely coordinated submitting Level 3 data with the Credible Data Program and have attached a tracking spreadsheet that accounts for MBI data submittals and MBI surveys both for Level 3 PSP and non-PSP alike. (Midwest Biodiversity Institute)

Response 17: Ohio EPA is currently reviewing and approving biological data submitted by Level 3 QDCs. Until this data is reviewed and approved, it is not available for Ohio EPA's consideration and the use of this data is at our discretion. Ohio EPA is taking steps to improve the review and approval process of submitted biological data to improve efficiency.

Section E

Comment 18: Likewise, fish tissue impairments for PCBs or mercury are, in many cases, based on extremely outdated data. See, e.g., Table E-4. AOMWA requests that Ohio EPA re-evaluate the list of waters impaired due to fish tissue levels of PCBs or mercury using updated data. (Association of Ohio Metropolitan Wastewater Agencies)

Response 18: Ohio EPA annually collects fish tissue data as part of routine water quality monitoring surveys throughout the state and partners with Ohio Department of Natural Resources for fish tissue collection on Lake Erie and Inland Lakes. Additional sites outside the survey areas are also prioritized for fish tissue collection for both advisory and IR purposes. These data are used to update the fish tissue assessments in the IR every two years.

Section F

Comment 19: Additionally, AOMWA is concerned that the evaluation method for bacteria used in the recreation use evaluation is likely based on limited data or improper assumptions. For example, compliance was evaluated where there could be as few as five samples within a 90-day period, and five samples is too limited to evaluate compliance in a 90-day geomean. Pg. F-4. Moreover, in instances where there were not daily bacteria samples, a measured exceedance was assumed to continue until a subsequent sample documented that the beach action value was not exceeded. Pg. F-5. Depending on the length of time that could have lapsed between samples, this is a concerning assumption given the variability of bacteria. AOMWA believes the evaluation method for bacteria is inadequate where it was based on such assumptions or limited data. (Association of Ohio Metropolitan Wastewater Agencies)

Response 19: The collection of a minimum of five *E. coli* samples at a stream or river sampling location in a 90-day window has been the Agency's data collection practice and assessment methodology since the current recreation water quality standards were adopted in 2016.

Public beaches are generally sampled more often. The sampling data is used for beach advisory postings and recreation use attainment. The advisory posting threshold is 235 colony forming units (cfu)/100 ml. Advisories are posted until the value is below this threshold. For attainment purposes, there are two thresholds: a Statistical Threshold Value (410 cfu/100ml) and a Geomean Value (126 cfu/100 ml) calculated on a rolling 90-day average. The geomean calculation is iterative to find the highest exceedance. Values above and below the threshold are assumed until resample during the 90 days, so both affect the outcome. Impairment status is based on exceedances from both the geomean and the STV (i.e., if either is exceeded, the beach/LE shoreline section is considered impaired), while the beach advisory action level is based on 235 cfu/100 ml. The IR report discusses both; please refer to Table F-2 in Section F of the 2022 report for further clarification.

Comment 20: Ohio EPA has a long proud history of using sound science in the development of assessment tools to evaluate, determine and protect the chemical, physical and biological integrity of Ohio's water resources. Over the years, numerous technical reports and peer-reviewed articles form a solid science-based foundation that made Ohio EPA a national leader in water resource assessment. Sub Section F4 of the IR describes the method used to assess recreational use impairment due to algae in Lake Erie. The methodology clearly has a strong foundation based on the precautionary principal rather than Ohio EPA's history of developing assessment tools based on sound science.

As we have stated before in previous comments to Ohio EPA, OFBF appreciates the recognition that there is an ongoing need to obtain a better scientific understanding of the relationship between the presence and the toxicity of a harmful algal bloom (HAB). Research has shown that over the course of the recreational season, the ratio of cyanobacteria toxin in the water to the amount of cyanobacteria biomass present changes. The result is that the composition of the bloom shifts from one containing highly toxic over to one containing 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 the 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. OFBF understands the need for Ohio EPA to be conservative due to potential human health concerns but establishing an assessment methodology that embellishes the precautionary principle rather than sound science is not appropriate. The assessment tool needs to move beyond the reliance on the mere presence of cyanobacteria and include scientifically defensible metrics such as the measurable presence of cyanotoxins.

A key component missing from the draft document is the discussion of how Ohio EPA justifies the presence of a low density, non-toxic cyanobacteria event adversely affects the primary and secondary recreational uses of the open waters of the Western Lake Erie Basin. OFBF recommends that such a justification be incorporated into Section F of the IR and into the supporting documentation for the development of the Nutrient TMDL for the Maumee River Watershed. Inclusion of the justification will help the reader understand why Ohio EPA feels that the presence of cyanobacteria at low threshold detection levels causes recreational use impairment and warrants watershed-based actions. (Ohio Farm Bureau Federation)

Response 20: The following except 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 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 21: The Draft Integrated Report also acknowledges that, due to the COVID-19 pandemic, Ohio EPA has made limited progress in updating monitoring data for Ohio's streams and rivers. Pg. G-8. Consistent with AOMWA's previous comments on updating monitoring data, AOMWA supports frequently updating monitoring data for Ohio's streams and rivers so that regulatory decisions are based on the most current data. AOMWA requests that Ohio EPA update monitoring data more frequently, particularly since we believe that Ohio EPA has recently relied on outdated biological and water quality monitoring data in TMDL development. AOMWA certainly understands that some data cannot be incorporated into the Draft Integrated Report because it does not exist where sampling was delayed due to COVID-19. Nonetheless, AOMWA urges Ohio EPA to incorporate already-collected data into the Integrated Report where possible. (Association of Ohio Metropolitan Wastewater Agencies)

Response 21: Ohio EPA included all approved data with final assessment information that was available, in the report. The implementation of the new monitoring strategy should result in data being collected throughout the state in a faster timeframe than the previous sampling rotation. Also, please see the response to Comment 1 above.

Comment 22: *Aquatic Life Use Attainment in Inland Rivers and Streams*
As indicated earlier in our comments Ohio had long been one of the leading programs among states in the U.S. This program allowed 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 raised concerns about the expression of what are apparently the most recent results from 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. There is no update to these statistics in the 2022 IR which is a startling and unexplained break from 40 years of consistent reporting. This is yet another symptom of the program decline that we have mentioned previously. It really doesn't matter that the agency intends to report on the 2020-21 large rivers assessment in the 2024 IR, this change is a

fundamental change in the entire program and the CWA programs that it used to support. Again, this situation was avoidable.

Because it is still relevant, we repeat here our 2018 comments by restating that the IR needs to take a step back and report 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. Doing this would also better index historical improvements if the pre-CWA implementation baseline years prior to 1988 were included.

Again, to preclude the misreading of long-term trends we urge the agency to retain all of the historical biennial cycles and updating them to include the years in between 1980 and 2020. We recognize that that has been made more tenuous by the disconnection imposed by the Two-Pronged Approach, especially the cycle of doing this once every 10 years. This point also highlights the critical importance of reestablishing the former M&A level of effort to prevent the agency from losing the capacity 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 which will struggle to determine backsliding, especially at sub-watershed and river-reach scales that evade the comparative coarse design. Just in Central Ohio alone the population is projected to increase by 500,000 and development in and near high quality rivers, streams, and wetlands is already taking place. Even the former and more spatially robust approach to M&A would have been challenged to keep up, but now the program is going to be less able to respond to incremental degradation and backsliding in terms of use attainment and making sure that impacted streams are properly designated in time to support the inevitable onslaught of permitting issues this will foment. (Midwest Biodiversity Institute)

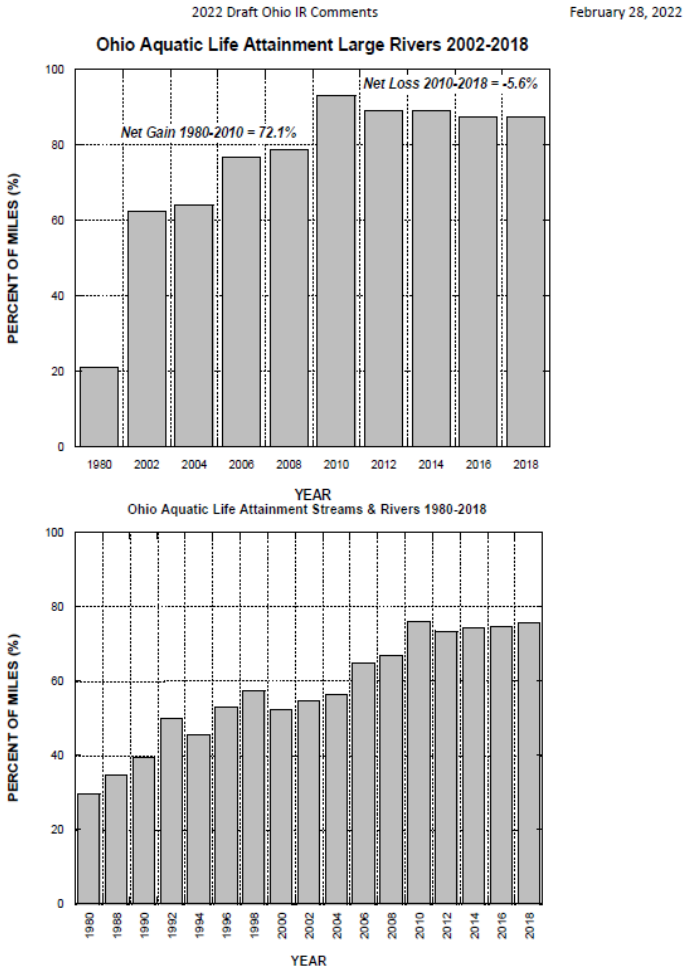

Figure 1. *Trends in attainment of aquatic life uses in Ohio large river assessment units between 1980 and the 2002-18 reporting periods by Ohio EPA (upper) and for all stream and river units combined between 1980 and the 1988-2018 reporting periods (lower).*

12

Response 22: Comment acknowledged. As stated in the response to comments on the 2018 IR, the 2012 IR explains the aquatic life statistic for large rivers decreased slightly from 2010 "largely because of new assessments in four large rivers, three of which flow through highly urbanized areas and receive large quantities of flow from wastewater treatment facilities." These four rivers were the Sandusky River, Cuyahoga River, Scioto River (middle) and Great Miami River (lower). Please note, the statistics are based upon the large rivers that were sampled during a specified window of time and therefore do not include all large rivers.

The 2020 IR was the close out of the 2010 water quality goals and an end to reporting of large river statics in this manner. The Agency intended to set new goals for large rivers based upon the statewide large river survey in the 2022 IR. Since the survey was conducted over two years, the Agency plans to report trends for Large Rivers in the 2024 IR along with the new data from the 2020 and 2021 assessments.

Comment 23: Page G-5
This section leaves out the 2020 IR "Table G-1 — Watershed Assessment Unit Score Determination" and associated discussion. As is mentioned above, the 2020 results could still be included and noted as the latest information available.

This discussion leaves out the 2020 IR language on "Determining the wading stream and principal stream scores" and "intermediate WAU scores." Please explain this again here. (Midwest Biodiversity Institute)

Response 23: The Agency has moved away from the calculation of watershed assessment unit scores as part of the switch to using U.S. EPA's ATTAINS database for Integrated Report data management and reporting and the close out of the 2020 goals. The Agency plans to establish new goals and methods of reporting as part of the reporting on probabilistic sampling efforts for various water types.

Comment 24: Page G-11
We note that the statistics in Table G-1 are the same as in the 2020 IR, Table G-2. Repeating these data is preferable to referring readers to the 2020 IR, but this IR should state that the data are the same as in the 2020 IR. (Midwest Biodiversity Institute)

Response 24: A statement has been added to this subsection of Section G clarifying the carrying forward of reporting information from the 2020 IR in the final report.

Comment 25: LEAUs
Pages G-15 and G-16, Figures G-7 and G-8
The figure captions should clarify the green versus blue dots and what each color represents (hard- versus soft-bottom sites). (Midwest Biodiversity Institute)

Response 25: A clarifying statement has been added to the figure caption in the final report.

Comment 26: In reviewing the most common causes of aquatic life impairment in the DRAFT 2022 *Integrated Water Quality Monitoring and Assessment Report* in Section A (pp. A-7 to A-12), 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, highly unstable or have some intermediate degree of instability). In other words, geomorphic condition is a *primary factor*, if not the dominate factor in most all cases, in determining whether the highest degree of water quality improvement functions (processes) and quality of aquatic life habitat exists within our streams.

Additionally, the unstable geomorphic conditions broadly observed in Ohio's streams are significantly linked to the historic loss of watershed storage. The loss of watershed storage has led to increased runoff volumes and peak flows, which creates excessive *stream powers* that cause stream channel erosion. This channel erosion deepens and widens channels releasing enormous volumes of sediment into our stream systems. Further, channel erosion reduces water quality improvement processes and diminishes the quality of aquatic life habitat. The concomitant relationship between hydrologic condition of the watershed and geomorphic condition of its stream systems must be understood to properly evaluate and manage stream systems. This relationship is explained in more detail in Exhibit 1.

In the time of Daniel Boone and Simon Kenton, and the centuries before, Ohio's landscape was covered with dense forests and prairie grasslands, and streams were filled with beaver ponds. This combination of features provided tremendous storage of stormwater within Ohio's watersheds. The dense land cover, deep porous soils and close-knit tree and grass root systems provided significant resistance to stormwater runoff that slowed runoff and allowed it time to infiltrate and be stored in deep porous soils. An extensive in-stream

network of beaver ponds captured and stored much of the remaining stormwater runoff. These beaver ponds recharged groundwater systems and released water slowly through their leaky dams. Thus, in these earlier days most of Ohio's streams were perennial with considerably fewer intermittent streams due to the continual slow release of water from leaky beaver dams located far into the headwaters and from water draining out of fully recharged groundwater systems, which significantly reduced runoff volumes and peak flows (i.e., minimal stream power).

Moving forward in time, beavers were trapped-out of Ohio and Ohio's landscape changed significantly by a vast array of land development activities. These changes have resulted in the loss of watershed storage that has increased stormwater runoff, simultaneously decreased runoff resistance and increased the velocity of runoff, which has resulted in increased runoff volumes and peak flows (i.e., excessive stream power). This foundational change in the hydrologic condition to Ohio's watersheds still exists to this day and continues to adversely impact stream stability and processes. The restoration of watershed storage (e.g., in-stream basins that function similar to beaver ponds) must be made a priority over stream restoration projects especially in the headwaters of our watersheds where storage features have a greater effect on reducing peak flows (i.e., reducing stream power). Otherwise, excess stream powers over time will simply degrade stream restoration projects. Additionally, these types of in-stream storage features provide diversity of habitat that supports insects, amphibians, reptiles, birds, bats, mammals as well as aquatic life by providing local water sources, wetlands, nutrient assimilation, groundwater recharge that cools stream temperatures, reduces flooding, and extends base flows that can convert ephemeral streams into intermittent streams and intermittent streams into perennial streams.

An example of how not understanding the relationship between hydrologic condition of the watershed and the geomorphic condition of the associated stream systems lead to incorrect priorities to solve pollution problems is provided in this DRAFT 2022 Integrated Report. In the case of Siltation/Sedimentation, the discussion next to the stream photograph states (p. A-9) 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 erosion of streambanks within geomorphically unstable streams (e.g., upwards of 80% in many cases) and not from the land as suggested in this report. If problems are to be solved, they must be correctly defined. This report does not properly define the primary problem when it comes to siltation/sedimentation, that is, it must first assess and evaluate the hydrologic condition of the watershed and geomorphic conditions of the associated stream systems.

Geomorphically unstable streams provide a lower degree of stream processes to assimilate pollutants, such as, nutrient enrichment, and have degraded aquatic life habitat. For example, as streams become geomorphically unstable, channels incise and stream bank heights increase leading to bank failure and large quantities of silt/sediment entering stream systems, subsequently riffles are eroded and pools are filled with sediment, and silts can no longer be expelled onto the floodplain because flows rarely go out-of-bank (e.g., once every 10 years). In comparison, geomorphically stable streams will process silt/sediment from stream channels onto floodplains during frequent out-of-bank flows (e.g., annually or more often). Nutrients, such as, nitrogen and phosphorus are typically attached to silts and clays. If silts and clays are frequently deposited on floodplains, then enormous amounts of nutrients are removed from stream systems (i.e., significant water quality improvements

occur). Additionally, with silts and clays removed from streams, the water becomes clearer, and sunlight (UV) can kill more pathogens within the water. Further, riffles are steeper, and pools are deeper providing improved aquatic life habitat.

Therefore, a primary mitigation tactic in the overall strategy to reduce silt/sediment in streams is to first understand the hydrologic condition of the watershed and geomorphic condition of the associated stream systems. If the stream systems are in an unstable geomorphic condition and have high siltation/sedimentation issues, then a primary mitigation tactic, in most all cases, would be to first increase watershed storage, which would then be followed by stream restoration. However, the DRAFT 2022 Integrated Report does not identify hydrologic condition of the watershed or geomorphic condition of the associated stream systems as a primary siltation/sedimentation source or solution. This major error is most likely the result of Ohio EPA not understanding or not properly assessing and evaluating the hydrologic condition of watersheds and geomorphic conditions of stream systems, which are foundational to understanding the quality of stream processes and aquatic life habitat. The Clean Water Act's objective is to maintain and restore the chemical, physical and biological integrity of the Nation's waters. A hydrologic and geomorphic condition assessment is required to evaluate and understand the physical integrity of streams, which biological and chemical integrity is dependent upon.
The lack of proper assessment and evaluation of the hydrologic condition of watersheds and the associated geomorphic condition of stream systems leads to incorrect mitigation priorities that cause confusion, misunderstanding and wasteful spending of Ohio's public, business, industry, and government resources.

Restored geomorphically stable streams that have sufficient watershed storage are effectively selfmaintaining over time and will provide the highest degree of water quality improvement processes and the best quality aquatic life habitat at no additional cost to the public. For example, one of the processes associated with geomorphically stable streams, over time, is to expel all or most of the *residual* silt and clays from off-stream erosion sources, such as, development sites (i.e., a 'free' cleaning service). See the comment letter below for Exhibit 1. (Ohio Coal Association)

Response 26: 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. Again, those reports once draft are Step 2 of our TMDL development process and go out for public comment before finalizing.

Section H

Comment 27: Moreover, the public drinking water assessment methodology has been aligned with adult drinking water threshold values for cyanotoxin indicators, and the Draft Integrated Report indicates that Ohio EPA is determining impairment based on impairment status of the public drinking water supply. See Section H2. It appears that Ohio EPA is applying the drinking water threshold to source waters. To the extent that this is true, Ohio EPA should

not use drinking water thresholds to determine surface water quality impairments. (Association of Ohio Metropolitan Wastewater Agencies)

Response 27: Drinking water thresholds are appropriate for assessing public drinking water supply (PDWS) beneficial use. The PDWS use designation is defined in paragraph (B)(3) of Ohio Administrative Code (OAC) rule 3745-1-07. It applies to public waters that, with conventional treatment, will be suitable for human intake and meet federal regulations for drinking water. Water quality standards are designed to protect source water quality to the extent that public water systems can meet the finished water standards utilizing only conventional treatment.

Comment 28: Lastly, Ohio EPA has also indicated that, for assessment units with multiple public drinking water supply zones, attainment statuses of all zones are combined, and the lowest attainment status is applied to determine the PDWS attainment status for the entire assessment unit. H-5. However, particularly for large assessment units such as the central basin of Lake Erie, this approach does not necessarily provide an accurate determination where the assessment unit covers a huge area with a considerable variety of microcystins. Consequently, AOMWA has concerns with Ohio EPA's attainment determinations for assessment units with multiple zones. AOMWA would also appreciate the opportunity to review the data supporting Ohio EPA's assessment in the Central Basin, if it is possible for Ohio EPA to provide that data for review. (Association of Ohio Metropolitan Wastewater Agencies)

Response 28: While the Lake Erie Central Basin Open Water assessment unit is large, multiple water supply zones had exceedances of the microcystins threshold. Table H-2 provides a summary of water quality data associated with the cause of impairment listed by assessment unit. Algal toxin results are available at ***https://epa.ohio.gov/divisions-and-offices/drinking-and-ground-waters/public-water-systems/harmful-algal-blooms***.

Comment 29: *Section H: Evaluating Beneficial Use: Public Drinking Water Supply*

This section lacks pagination, although the Table of Contents includes page numbers. The other sections include pagination. (Midwest Biodiversity Institute)

Response 29: The section page numbers have been re-inserted in the final report.

Comment 30: *H3. Results*
While we are already well aware of Lake Erie's nutrient problems, the frequency of LRAUs and AUs that are impaired documents a nutrient problem that extends well beyond the Lake. We support further emphasis and outreach on the problem throughout Ohio, including appropriate, targeted levels of monitoring and solution implementation. This includes not just noting the existence of H2Ohio, but more emphasis on the wider scope of nutrient problems, which will need to be featured much more often to compete with the extensive publicity, both accurate and inaccurate, on Lake Erie. The Lake's nutrient issue notoriety is deserved, but it can easily overshadow other nutrient problem areas to the point that they are not well known to the public. Ohio needs to proceed with the nutrient assessment procedure adoption in the WQS. This will help address these more widespread nutrient issues.

One of the goals of programs like H2Ohio should work toward resolving these problems, resulting in measurable environmental outcomes. It should be clarified and explained how

much and in what ways is Ohio EPA working with ODNR and ODA to focus resources on these, i.e., in a geographically focused manner that addresses specific public water supply impairments? How can Ohio EPA ensure the use of TMDL findings and content and the implementation of geographically extensive projects in approaches like Nine Element Plans? This should be a highly coordinated common interest of Ohio EPA, ODNR and ODA, and these agencies should track the level of implementation, for both activities and environmental outcomes, in a coordinated manner.

We will also once again emphasize the role that stream habitat must play in solutions to nutrient problems, especially in the upper sub-watershed networks where the problems originate. Ohio EPA, as the custodian of habitat assessment, has provided innovative and badly needed habitat TMDLs, yet much of the agricultural focused research seems to deliberately avoid addressing or including habitat as an important factor in addressing the effect of nutrients. This is likely driven by a bias towards maintaining past practices concerning drainage affiliated with row cropping, but it doesn't change the fact that habitat plays a vital role and ignoring it risks covering the true environmental outcomes of programs like H2Ohio. (Midwest Biodiversity Institute)

Response 30: Ohio EPA addresses nutrient impairments throughout the state, not just in Lake Erie. Ohio EPA's TMDL Vision Priority Projects were specifically selected to address public water supply impairments due to HABs in inland lakes. Ohio EPA also continues to develop TMDLs to address nutrient and habitat related impairments in waters throughout the state and fund nonpoint source projects aimed at addressing nutrient impairment.

Ohio EPA works closely with the other state agencies involved in H2Ohio. Reporting on H2Ohio project results is currently being developed for distribution to the public. This work includes various reporting metrics.

Ohio EPA is aware of research on stream channel nutrient dynamics. This work will be reviewed in the Maumee Watershed Nutrient TMDL's Draft Preliminary Modeling Results Report. This research has the potential to guide nutrient reduction implementation actions that take place in stream channels.

Section I

Comment 31: *Stream and Wetland Mitigation*
Page I-4
"Ohio EPA created a mapping application that includes the following"
Ohio has several sources that have funded stream restoration. Ohio EPA is aware of them because of tracking tools such as those for Section 401 Water Quality Certifications and WRRSP funding. These stream restorations should be tracked and scored as to their ecological lift and differences between pre- and post-restoration scores. To help advise project managers and the public on the success of stream restoration approaches, an analysis report should be prepared for public comment. This would allow the State to evaluate the actual success of stream restoration, and how related improvements in QHEI/HHEI scores might lead to attainment. This should lead to better understanding of the need for stream restoration, more awareness of which attributes are most correlated with stream degradation and nonattainment, and how to create better results.
The mapping application list includes dams. While dam removal is one good method for stream restorations, many more miles of Ohio stream are impaired due to habitat quality related to stream channelization (See Page A-9: "Habitat modification is the straightening, widening or deepening of a stream's natural channel"), one of the major causes and sources of water quality problems as described in this report. Attention to this condition would point out many other areas needing stream restoration, and stream channelization

segments should be added to this list. Ohio EPA's extensive QHEI database should be used to focus on attributes related to channelization that are degrading stream channels and habitat and aquatic life use attainment by extension. These data could be listed by HUC-12 and mapped and could serve as a screening tool and encouragement for many more steam restoration sites.

MBI has participated in several stream mitigation monitoring efforts over the past 5 years most of which are presumably required to demonstrate ecological lift as it is envisioned by the Inter-agency Restoration Team (IRT) to meet mitigation requirements. However, there is seemingly not enough standardization in what parameters are monitored and for what purpose. For example, in some places we are asked to assess only macroinvertebrates, yet Ohio EPA clearly bases use attainment on both fish and macroinvertebrates. In other cases, we are requested to only collect HHEI and without the macroinvertebrate and salamander counterparts of the PHWH methodology. Also, many of these projects are in unnamed streams that are currently undesignated in the WQS, yet the essential data to resolve that issue is only inconsistently collected and sometimes only at our insistence. Not addressing the aquatic life use designation status brings up two critical deficiencies; 1) how is use attainment legally assessed if there is no verified use designation, and 2) how do we know if WQS have been met without the right data? There is also the WWH suite of uses and PHWH transition that we have raised numerous times before. To sum it up, the agency needs to commission a thorough technical audit of the monitoring that is done for these types of projects and across all of the state agencies that manage them.

Assessment of Riparian Areas
While "Assessment of Riparian Areas" (Page I-4) is necessary for stream restoration sites, the channel condition changes mentioned above are possibly more influential on QHEI scores than is riparian vegetation, thus the assessment of riparian areas should not be done independently from channel analysis. An assessment of restored stream segments should evaluate all attributes and habitat changes that the QHEI measures, with a focus on those attributes that are modified and could be improved (see Rankin 1989, 1995). Then Ohio EPA could analyze these data to see which attributes are most influential or important for ecological lift in stream restorations. While good quality riparian vegetation is necessary for stream shading and moderating temperatures, especially in an era of rising ambient temperatures, only looking at riparian areas would not necessarily "maximize water quality improvement" as referred to in this section. Other factors, such as landscape setting (e.g., urban, agricultural, forest), also need to be evaluated to determine if they influence the biological index scores at a steam restoration site provided that the data is properly included and collected (see above comments on mitigation monitoring). (Midwest Biodiversity Institute)

Response 31: Ohio EPA does review baseline information on streams prior to the funding or permitting of restoration projects. Issued 401 water quality certifications require applicants to achieve measurable habitat changes to demonstrate a successfully completed project. It is a good observation that stream channelization is a big cause and source of impairment for water quality across Ohio. Ohio EPA will consider adding a stream channelization layer the next time the mapping application is updated to help identify streams in need of restoration. Ohio EPA's TMDL Program is also developing a Multi-Watershed Habitat Restoration Plan to address habitat impairments throughout the state.

Ohio EPA sets monitoring requirements based on the goals and requirements of each restoration project that is approved. It may not always be necessary to collect all the types of data on restoration projects to demonstrate success.

The grant that funded the riparian study is complete and further collection of riparian data is not planned at this time. As part of mitigation projects, information on channel condition is typically collected and evaluated to determine performance of the project.

Comment 32: In its Response to Comments on the 2020 IR, Response 22, Page D-34, Ohio EPA states: *"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."*

We support and encourage this approach in all Ohio nutrient-impacted watersheds. An emphasis on habitat improvement metrics would be a step in the right direction. The attributes of habitat that support and deter aquatic life use attainment have already been detailed by Rankin (1989, 1995) and at one time a QHEI matrix of good and modified QHEI attributes was routinely produced in basin assessments. We encourage such efforts that include attention to attributes and metrics for comprehensively analyzing riparian and other stream habitat alteration to be fully integrated in the comprehensive analysis that the QHEI attributes matrix offers. We encourage the Agency to make an extensive effort to reach out to stakeholders on the results of such analyses so that they may better recognize the influence of steam habitat. In the Response to comments in the final 2020 IR (Page D-34), Ohio EPA states "In addition, habitat restoration is included in Nine-Element Non-Point Source Implementation Strategies plans in the Lake Erie watershed." We appreciate this, and encourage the agencies involved (Ohio EPA, ODNR, ODA, and all Nine-Element Plan implementers) to focus on and significantly bolster this, emphasizing habitat restoration and protection at the highest level, recognizing it is a very effective means of improving stream quality. As we stated in our comments on the 2020 IR, it is essential that the agency exert leadership in assuring that improving stream habitat is included as a primary factor in the management practices for reducing the adverse effects of nutrients in Lake Erie and throughout Ohio. (Midwest Biodiversity Institute)

Response 32: Comment acknowledged. Ohio EPA's development of a Multi-Watershed Habitat Restoration Plan continues. Stakeholder outreach will be included in this effort, like the new TMDL development process.

Comment 33: The Draft Integrated Report also states that Ohio EPA is evaluating U.S. EPA's recently finalized guidance on Lakes and Reservoirs Nutrient Criteria. Pg. I-17. AOMWA requests that Ohio EPA hold stakeholder meetings and provide opportunity for public participation during this evaluation. (Association of Ohio Metropolitan Wastewater Agencies)

Response 33: Ohio EPA will provide for stakeholder input and participation when applicable. Any incorporation of U.S. EPA's criteria will be vetted through the rulemaking process.

Comment 34: According to the Draft Integrated Report, Ohio EPA is developing a new aquatic life use assessment methodology for the open waters of Lake Erie. Pg. I-21. Consistent with AOMWA's prior comments on this issue in the context of the Maumee Watershed Nutrient TMDL process, this new assessment is a de facto water quality standard. As Ohio EPA has acknowledged, water quality standards must be promulgated as rules pursuant to R.C. 119.03. Fairfield Cty. Bd. of Comm'rs v. Nally, 2015-Ohio-991, ¶ 37, 143 Ohio St. 3d 93, 102, 34 N.E.3d 873, 882. The Agency had appropriately indicated that this assessment methodology will be incorporated into Ohio's water quality standards through a separate notice and comment process. See Maumee TMDL LAP Resp. Cmt. 74, pg. 39 (Jan. 14, 2022)

("Ohio EPA intends to incorporate changes to the [Lake Erie] aquatic life use and criteria into Ohio's water quality standards in the future."). Thus, the new aquatic life use assessment should be promulgated as a rule before it is incorporated into an integrated report, to provide the public with a meaningful and adequate opportunity to comment. (Association of Ohio Metropolitan Wastewater Agencies)

Response 34: The Agency intends to update Lake Erie's Aquatic Life Use currently assigned in Ohio Administrative Code (OAC) 3745-1-31 based upon the results of the Lake Erie Aquatic Life Use Workgroup.

Comment 35: Similarly, the Draft Integrated Report states that Ohio EPA has convened an external advisory panel in connection with the new aquatic life use assessment methodology for the open waters of Lake Erie. Pg. I-21. AOMWA appreciates Ohio EPA's recent efforts to improve stakeholder involvement in other actions and requests that Ohio EPA also provide opportunities for stakeholder engagement in the development of this methodology and in discussion regarding the findings of the external advisory panel. (Association of Ohio Metropolitan Wastewater Agencies)

Response 35: Ohio EPA will make available a draft Lake Erie Aquatic Life Use assessment methodology for stakeholder review and comment through both the IR and rulemaking public comment processes.

Comment 36: Page I-21
These comments (#19, and Ohio EPA's response) are taken from the final 2020 IR, page D-32, (Response to Comments Received regarding the Request for Comments CWA Section 303(d) TMDL Priority List for 2020). We are repeating it here as a reminder of the need for follow-up, such as in the proposed Lake Erie Aquatic Life Use Components:
"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 Microcystin 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."
We appreciate any efforts that would meaningfully address the above process and ALU designations and encourage their furtherance. Please include MBI in future updates. (Midwest Biodiversity Institute)

Response 36: Ohio EPA is currently compiling the results for individual subgroups into a document that will be shared with the larger group working on the Lake Erie Aquatic Life Use development for the open waters. Since MBI is part of that larger workgroup, they will be notified when the information is ready for review and comment. We intend to prompt the researchers to get this draft finalized in 2022.

Comment 37: Page I-22, Table I-4 — Lake Erie Aquatic Life Use Components Under Consideration
Benthic Invertebrates
We appreciate the effort that has gone into this effort to date. We strongly recommend that native mussels be considered in measures of benthic invertebrates. While non-native Dreissenids are listed in this table and appear to be under consideration, native Lake Erie mussel species have been reduced in richness and population numbers and would be an appropriate component of the Lake's ecosystem and measure of ecological integrity. Dr. Dave Zanatta of Central Michigan University (people.cst.cmich.edu/zanat1d) has done related work on mussels and might be a good expert to include in this sub-committee and analysis. Dr. Zanatta was the lead author of a recent lake wide assessment of mussel populations (Zanatta et al 20152). Janice Metcalfe-Smith (formerly Environment Canada) included native mussels in the State of the Great Lakes (or State of Lake Erie) assessment a number of years ago (~2003-2005?). Perhaps a measure could look at Lake Erie Assessment Units (and maybe nearshore versus offshore) by species richness and densities?). This methodology could include an index for species counts with higher scores assigned for the presence of species listed as state/provincial/federal (state, US or Canada), T/E/SC species versus tolerant/opportunistic species (i.e., species with opportunistic/ periodic/equilibrium life history strategies as described by Haag3 (2012). (Midwest Biodiversity Institute)

Response 37: The advisory panel Ohio EPA is collaborating with included authors on the Zanatta study (Burlakova and Karatayev). Unionids were discussed and dismissed as a useful immediate metric because no agency or organization is surveying them as a matter of routine. Also, the benthic experts on the advisory panel indicated that native unionids were so sadly reduced as to yield little practical information, especially given the effort required to survey the population. That said, Ohio EPA would certainly entertain inclusion of a native unionid metric in future refinements of the assessment measures if a highly detailed and workable proposal for conducting periodic unionid surveys is put forth and includes methodology for assessment based on a record of observed data.

Section J

Comment 38: Sub Section J3 Addressing Nutrients in Lake Erie of the IR describes in detail the planning and management efforts underway at the state, federal and binational levels to reduce nutrient delivery to Lake Erie. Missing from the discussion however are the numerous efforts underway by both Ohio's agricultural community and by local or regional governments and non-governmental organizations to reduce the nutrient load to Lake Erie. Appendix I: Actions by Partner Organizations of the State of Ohio 2020 Domestic Action Plan documents these efforts. OFBF recommends that at a minimum, a reference to Appendix I of the 2020 State of Ohio Domestic Action Plan be added to this section of the 2022 IR. (Ohio Farm Bureau Federation)

Response 38: A reference to the supporting document has been included in the final report.

Comment 39: *J6. Schedule for TMDL Work*
2022 and 2023 Proposed Monitoring
Page J-24
We greatly appreciate and support Ohio EPA in proposing water quality monitoring in the listed new project areas for 2022 (e.g., upper Great Miami River) and 2023 (e.g., middle Scioto River). We look forward to seeing updated data and the verification of more use designations. We encourage the Agency to reach out extensively to local stakeholders,

including, and ensuring the participation of, those such as SWCDs, the Ohio Department of Agriculture watershed coordinators, academics, the general public, and NGOs, for efforts such as early engagement in Study Plans for these watersheds. Clearly, Ohio EPA's recently adopted Two-Pronged Approach will result in significantly fewer monitoring sites for these basins, and as we have stated before, we strongly encourage Ohio EPA to maintain a high density of monitoring sites and not reduce the level of effort in the surveys compared to previous surveys in the same watersheds. Reducing monitoring at sites, such as those on smaller tributaries, could mean that the opportunity to gain information and focus implementation projects is missing, less accurate and possibly incapable of determining progress.

We would also ask the agency to maintain an awareness about where equally comprehensive watershed and mainstem river assessments are already being planned or which recently have been completed especially those performed under a Level 3 PSP. Again, we are providing an updated list of MBI completed Level 3 surveys and the status of data submittals. If these surveys occur with the 2023 planned basin monitoring, then the agency should be prepared to accept these surveys and not duplicate the monitoring in those places. This will allow them to focus resources on ensuring that other areas receive the needed spatial intensity of assessment. We have pointed out previously our concern about such data and assessments not being effectively shared across the agency and being overlooked for WQS use revisions and in future IRs. (Midwest Biodiversity Institute)

Response 39: Ohio EPA's Quality Assurance Project Plan (QAPP) for a watershed survey receives at least 30 days of outreach as part of the new TMDL development process (Step 1). Ohio EPA notifies and consults with stakeholders during the survey planning process, including groups that are actively sampling in these watersheds. Comments received are reviewed and incorporated into the final QAPP. Ohio EPA is reviewing the use and approval of Level 3 surveys and associated data and how to consider these activities in our watershed survey planning process.

Copies of comment letters follow.

Comments Received during the Request for Comments CWA Section 303(d) TMDL Priority List for 2022

John G. Newsome, P.E.,
President, AOMWA
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(614) 645-8276

February 28, 2022

VIA EMAIL ONLY

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

Re: Comments on Draft Ohio 2022 Integrated Water Quality Monitoring and Assessment Report

Dear TMDL Coordinator:

The Association of Ohio Metropolitan Wastewater Agencies ("AOMWA") appreciates the opportunity to comment on the Draft Ohio 2022 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 320 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 therein.

Accordingly, AOMWA writes to provide the following comments concerning the Draft Integrated Report:

- According to the Draft Integrated Report, Ohio EPA is developing a new aquatic life use assessment methodology for the open waters of Lake Erie. Pg. I-21. Consistent with AOMWA's prior comments on this issue in the context of the Maumee Watershed Nutrient TMDL process, this new assessment is a *de facto* water quality standard. As Ohio EPA has acknowledged, water quality standards must be promulgated as rules pursuant to R.C. 119.03. *Fairfield Cty. Bd. of Comm'rs v. Nally*, 2015-Ohio-991, ¶ 37, 143 Ohio St. 3d 93, 102, 34 N.E.3d 873, 882. The Agency had appropriately indicated that this assessment methodology will be incorporated into Ohio's water quality standards through a separate notice

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

and comment process. *See* Maumee TMDL LAP Resp. Cmt. 74, pg. 39 (Jan. 14, 2022) ("Ohio EPA intends to incorporate changes to the [Lake Erie] aquatic life use and criteria into Ohio's water quality standards in the future."). Thus, the new aquatic life use assessment should be promulgated as a rule before it is incorporated into an integrated report, to provide the public with a meaningful and adequate opportunity to comment.

- Similarly, the Draft Integrated Report states that Ohio EPA has convened an external advisory panel in connection with the new aquatic life use assessment methodology for the open waters of Lake Erie. Pg. I-21. AOMWA appreciates Ohio EPA's recent efforts to improve stakeholder involvement in other actions and requests that Ohio EPA also provide opportunities for stakeholder engagement in the development of this methodology and in discussion regarding the findings of the external advisory panel.

- The Draft Integrated Report also acknowledges that, due to the COVID-19 pandemic, Ohio EPA has made limited progress in updating monitoring data for Ohio's streams and rivers. Pg. G-8. Consistent with AOMWA's previous comments on updating monitoring data, AOMWA supports frequently updating monitoring data for Ohio's streams and rivers so that regulatory decisions are based on the most current data. AOMWA requests that Ohio EPA update monitoring data more frequently, particularly since we believe that Ohio EPA has recently relied on outdated biological and water quality monitoring data in TMDL development. AOMWA certainly understands that some data cannot be incorporated into the Draft Integrated Report because it does not exist where sampling was delayed due to COVID-19. Nonetheless, AOMWA urges Ohio EPA to incorporate already-collected data into the Integrated Report where possible.

- Likewise, fish tissue impairments for PCBs or mercury are, in many cases, based on extremely outdated data. *See, e.g.*, Table E-4. AOMWA requests that Ohio EPA re-evaluate the list of waters impaired due to fish tissue levels of PCBs or mercury using updated data.

- Additionally, AOMWA is concerned that the evaluation method for bacteria used in the recreation use evaluation is likely based on limited data or improper assumptions. For example, compliance was evaluated where there could be as few as five samples within a 90-day period, and five samples is too limited to evaluate compliance in a 90-day geomean. Pg. F-4. Moreover, in instances where there were not daily bacteria samples, a measured exceedance was assumed to continue until a subsequent sample documented that the beach action value was not exceeded. Pg. F-5. Depending on the length of time that could have lapsed between samples, this is a concerning assumption given the variability of bacteria. AOMWA believes the evaluation method for bacteria is inadequate where it was based on such assumptions or limited data.

- The Draft Integrated Report also states that Ohio EPA is evaluating U.S. EPA's recently finalized guidance on Lakes and Reservoirs Nutrient Criteria. Pg. I-17. AOMWA requests that Ohio EPA hold stakeholder meetings and provide opportunity for public participation during this evaluation.

- Moreover, the public drinking water assessment methodology has been aligned with adult drinking water threshold values for cyanotoxin indicators, and the Draft Integrated Report indicates that Ohio EPA is determining impairment based on impairment status of the public drinking water supply. *See* Section H2. It appears that Ohio EPA is applying the drinking water threshold to source waters. To the extent that this is true, Ohio EPA should not use drinking water thresholds to determine surface water quality impairments.

- Lastly, Ohio EPA has also indicated that, for assessment units with multiple public drinking water supply zones, attainment statuses of all zones are combined and the lowest attainment status is applied to determine the PDWS attainment status for the entire assessment unit. H-5. However, particularly for large assessment units such as the central basin of Lake Erie, this approach does not necessarily provide an accurate determination where the assessment unit covers a huge area with a considerable variety of microcystins. Consequently, AOMWA has concerns with Ohio EPA's attainment determinations for assessment units with multiple zones. AOMWA would also appreciate the opportunity to review the data supporting Ohio EPA's assessment in the Central Basin, if it is possible for Ohio EPA to provide that data for review.

AOMWA appreciates Ohio EPA's consideration of these comments and Ohio EPA's willingness to engage AOMWA and other stakeholders on this issue. Should you have any questions, please contact Rees Alexander at rees.alexander@squirepb.com or (614) 365-2798. Thank you again for your attention to and consideration of these comments.

Sincerely,

John G. Newsome, P.E.
President, AOMWA

cc: (via email)
Rees Alexander, Esq., Squire Patton Boggs (US) LLP
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February 28, 2022

To Whom It May Concern:

The Midwest Biodiversity Institute (MBI) has reviewed the draft Ohio "2022 Integrated Water Quality Monitoring and Assessment Report" released on January 24, 2022. 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 27 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 had been reflected by IRs and basin assessments prior to 2018-19. It is from this base of experience that we offer the attached comments and suggestions for improving the draft report and detailing how the changes to monitoring and assessment have affected the IR and CWA programs in general.

Historically, Ohio EPA had 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 be fully informed about how the changes in the monitoring and assessment program have affected the reliability of the IR reporting and the support for all CWA programs. Unfortunately, the fundamental changes to the monitoring and assessment program made in 2020 make the delivery of previously expected outputs doubtful. We remain committed to advising the agency and others in a positive, yet frank manner.

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

Very truly yours,

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Detailed Comments on Draft 2022 Ohio Integrated Report
Submitted by the Midwest Biodiversity Institute

Monitoring to Support Impaired Waters Listings and TMDLs

Historically, Ohio EPA had operated an exemplary monitoring and assessment (M&A) program that consisted of nearly 40 years of systematic pollution assessment for inland rivers and streams. This comprehensive approach allowed Ohio EPA to use M&A data and information to support ***all*** water quality management programs in addition to supporting the biennial Integrated Report. 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 rigor in terms of spatial detail, content, comprehensive-ness, and within a systematic and integrated framework for assigning causes if it is done at all. Ohio's program up until that time was also exemplary in that it fulfilled the definition of a complete monitoring and assessment or "TALU based" program *". . . that supports refined aquatic life uses based on numeric biocriteria and with a process for stressor identification."* As a result it fulfilled all of the Program Implementation items described in Table 1-1 of the U.S. EPA (2013) *Biological Assessment Program Review: Assessing Level of Technical Rigor to Support Water Quality Management*. We believe that this approach was seriously weakened not only by the proposed Two-Pronged Approach, but actions that were taken shortly before that time.

There is no question that one of the essential components of the Ohio surface water program was the systematic implementation of M&A and the rigor of the spatial context and biological, chemical, and physical indicators upon which the assessments were based. However, the reduction in this rigor and scope made before and formalized by the implementation of the "Two-Pronged Approach" that was introduced in 2018 and implemented in 2020 is now becoming apparent in the content, or more importantly the lack of content, in the draft 2022 IR. This change started with an 80% reduction in the scope of monitoring in 2018-19 and the concerns it raised then are now evident in the Ohio EPA surface water program as a whole and as had been predicted. Our previously stated comments and concerns about the ***Ohio EPA Monitors Water Quality in Ohio and Reports its Findings*** discussion in Part A of the 2020 IR providing a potentially misleading message about the future of the program that many stakeholders have simply come to expect, has been validated by the lack of updated content in the draft 2022 IR. In the Executive Summary on p. 1 the statement *"No new data is available to update the aquatic life use in this cycle"* not only validates these concerns expressed in our 2020 IR comments, but is a major break from and amounts to several steps backwards in a key area of CWA program support that Ohio stakeholders have come to expect. While we acknowledge that the agency assigns much of this reduction to COVID-19 restrictions on monitoring in 2019 and 2020, the decline in the program was evident well before the pandemic

began. This and the recent loss of Ohio EPA key institutional knowledge in the WQS program does not bode well for the fulfillment of the first and foremost long standing objective of the monitoring program: to ensure that designated uses are accurate, protective, and attainable. While this was foreseeable outcome of the Two-Pronged approach, it still represents a major shift in both policy and practice at Ohio EPA that bears further scrutiny.

The Ohio EPA program had long been 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) and the *Region V State Biological Assessment Programs Review: Critical Technical Elements Evaluation and Program Evaluation Update (2002-2010)*(MBI 2010). The most recent and now aged review conducted in 2007 resulted in the Ohio program attaining Level 4 (the highest level) and a score of 98.1%. At least part of that 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. The 2007 critical elements score has declined under the proposed Two-Pronged Approach to M&A and related roll backs in the bioassessment program. Our initial desktop review of which these elements are the most affected resulted in a reduced critical elements score of 92.3%, which is a reduction to a Level 3+ program. This reduction alone does not convey the full extent to which the program has and will be affected by the loss of institutional knowledge, the failure to adequately transfer that knowledge to new staff, and reductions in experienced personnel and funding all of which will combine to reduce the effectiveness of the CWA programs by extension. The remedy is to rebuild the program to its former levels of quality and support of the late 1990s and 2000s on an urgent basis.

While the 2007 program review emphasized the inland rivers and streams program, it is quite evident that what was accomplished over the first three decades of development and its implementation had "trickled down" to supporting similarly robust methods for assessing other waterbody types (wetlands, the Lake Erie Nearshore, the Ohio River, primary headwaters) and' very importantly, to support one of the most detailed, accurate, and long term accountings of stream and river use designations in the U.S. In our 2020 IR comments MBI requested the agency to reveal in detail how the fundamental changes made in 2018-19 and beyond would affect all aspects of future IRs, WQS, and water quality management programs that had been directly supported by the more "pollution focused" M&A upon which the program had been based from day one. While no response has been received, it is now apparent that all of these programs have been substantially lessened in terms of their quality and rigor.

References:

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.

Midwest Biodiversity Institute (MBI). 2010. Region V State Biological Assessment Programs Review: Critical Technical Elements Evaluation and Program Evaluation Update (2002-2010). MBI Technical Report MBI/2010-12-4. Submitted to U.S. EPA, Region V under Assistance Agreement X7-96576501.

Executive Summary

Page 1:

> *"Analysis and listing changes are based on data collected during 2019 and 2020 for human health (fish tissue) use and 2020 and 2021 for drinking water supply and recreation uses. No new data is available to update the aquatic life use this cycle. In 2020 and 2021, Ohio EPA conducted a survey of all large rivers across the state. The results of this survey will be available in the 2024 IR."*

The lack of new data for an update to an IR is not only unusual, it is unprecedented, breaking a consistent chain of reporting that goes back to 1980. It is unfortunate that the report could not provide an update on Ohio river and stream assessment status over the past two years. While much of this was attributed to COVID-limited sampling as is stated later in the report, the decline in the program had started well before the pandemic. What is the plan for how work and assessment between now and the next IR will catch up on this analysis and reporting? Will Ohio EPA produce a separate report on the large river results that would be finished before spring of 2024? This is significant because previous IRs showed results suggesting that large river attainment had not improved since 2010 and in fact it had declined. Any changes in assessment approaches and how it affects the ability to compare attainment throughout the years since 1980 must be considered and discussed.

> *"Of the 123 public drinking water supply assessment units, 45 are now listed as impaired by algae, with another 26 on the watch list for algae."*

Also, noting the nitrate indicator in "H3. Results:"

> *"Impairments included five of the nine LRAUs (three Maumee River, one Sandusky River, and one Scioto River LRAUs remain impaired)."*

We encourage Ohio EPA to take more action on nutrients, such as fully adopting and implementing the large rivers nutrient and SNAP approaches. For the Maumee and Sandusky Rivers, we suspect that the sources related to the lack of attainment in these rivers also contribute to the Western Lake Erie Basin nutrient problems. Also, since the nitrate indicator is failing to attain goals, Ohio EPA should very actively work with the Ohio Department of Agriculture and others to increase attention on nitrogen as a pollutant.

Page 2:

> *"Major Changes since the 2020 Integrated Report: In the 2022 Integrated Report, Ohio River mainstem assessment units are included for the first time."*

We acknowledge the added focus on the Ohio River in the Executive Summary and Section D-3. Base levels of nutrient pollution resulted in extensive algal blooms in 2015 and 2019, so assessments added to this report based on data from ORSANCO is a welcome addition. More attention to this problem in the Ohio River and basin is needed, so further emphasis in these reports and other outlets (presentations, webinars, fact sheets, etc.) would be appreciated.

The lack of attainment for the fish tissue results on the ten Ohio River assessment units is concerning (Table E-10) and is apparently part of an ongoing issue with legacy pollutants. MBI witnessed this in a recent study of the Greater Cincinnati Water Works (GCWW) Richard Mitchell Treatment Plant (RMTP) sediment ponds and ambient sediment chemistry upstream and downstream from the RTMP discharge. We found numerous chemicals including dioxins, dibenzofurans, PAH compounds, and heavy metals some of which were close to or above action levels. We concluded that the results reflected legacy contaminants removed by the water treatment process, but the 2022 IR should provide expanded information about what is recently being done to address this contamination and who is working on a solution beyond issuing advisories to the public? The last effort to address PCBs that is mentioned was in 2002 (page J-8). While we appreciate that ORSANCO has this responsibility, our review of their most recent ORSANCO 305b report shows some of this to be years old data, thus new data is needed to make the assessment current and reliable.

Section A: An Overview of Water Quality in Ohio

Page A-4, Figure A-2
Colors in the pie chart in "Figure A-2 — overall summary of Ohio's combined assessment units. Output from ATTAINS" are difficult to distinguish. Please consider changing the colors to achieve a greater contrast between categories.

In each of these tables in Section A (such as "Table A-1 — Summary of Human Health Fish Tissue Results"), would it be appropriate to provide totals for the rows and columns? Could percentages be added? These would help the reader in getting a quicker sense of the level of attainment among categories.

Overall Water Quality

Page A-6, Table A-2 — Summary of Recreation (Bacteria) Use Results
These appear to be the same numbers as in the 2020 report. If so, please state this. In the table titles, please specify the time period that is covered in each of these tables.

Page A-7

"Data evaluated for the aquatic life use is largely unchanged from the 2020 IR."

This section is where the inland streams summary was located in the 2020 report (Page A-5). Because a new data compilation seems not to exist, this is a good place to refer the readers to the 2020 report on inland stream assessment results, as is stated and also explain why no new data was collected for the 2022 IR. Because this is still the "latest" information available, the 2020 results should be repeated here so that the status is still recorded in this section and is available to readers. For the convenience of the public, and to inform them by briefly describing the latest data compilation, a brief summary of the 2020 IR results should be provided here or in some other appropriate section. Note that we do not find the lack of an updated assessment acceptable, but where the 2022 IR lacks new information, it is important to state that fact and provide the latest results here. Also see our related comments under **Monitoring to Support Impaired Waters Listings and TMDLs** and **Aquatic Life Use Attainment in Inland Rivers and Streams**.

There are no Figures A-3 to A-5 similar to those in the 2020 IR ("Percent attainment status and goal progress…"; "Average full attainment watershed score for monitored Ohio HUC11 …"; "Status and trend of aquatic life use 80 percent by 2020 goal …") in the draft 2022 IR. These comprised the attainment status graphics in the 2020 IR. As is recommended above, as long as the time period covered is specified, the 2020 IR results should be repeated in this section, as they do at least comprise the latest compilation available and it would save readers from questioning their absence or needing to consult the 2020 IR.

The lack of any apparent new data to update the 2020 IR tracking statistics brings up the issue of the availability of non-Ohio EPA data and assessments, especially those conducted under Level 3 PSPs. Was there any consideration given to at least using this data to update the 2020 IR as it is statutorily qualified to affect impaired waters listings?

Most Common Causes of Aquatic Life Impairment

Page A-8
Figures A-3 and A-4 in the draft 2022 IR are the same as Figure A-6 and A-7 in the 2020 IR. The text should clarify this compilation is simply repeating that of 2020.

Section C: Managing Water Quality

Compliance Program
Page C-5

> *"DSW staff provides technical assistance …"*

The following statement was in the 2020 report "oversees land application of biosolids and manure from certain large concentrated animal feeding operations." It appears to have been removed in the 2022 report. Was there a change in ODA versus Ohio EPA responsibilities since the 2020 IR? Why was this oversight activity removed? Is it explained elsewhere?

Concentrated Animal Feeding Operations
Page C-6

> *"Ohio EPA also retains authority for implementing the NPDES permit program for animal feeding operations until a delegation agreement with U.S. EPA that has been submitted by Ohio is approved by U.S. EPA."*

This is slightly different language here compared to the 2020 IR, which refers to a "revised delegation agreement." Was there any legal or regulatory change that resulted in this change in the language here that should be noted?

Credible Data – Citizen Monitoring Program

Page C-7

> *"As of May 2021, the Agency currently has 925 Level 1, 118 Level 2 and 60 Level 3 qualified data collectors and has approved 230 study plans since the program's inception in 2006. Ohio EPA has created a web-based portal for data entry and data access (Credible Data Online Application, epa.ohio.gov/wps/portal/gov/epa/divisions-and-*

offices/surface-water/reports-data/credible-data-references-submission-of-data), available through Ohio EPA's eBusiness Center."

We note that the number of Level 3 QDCs was 86 in the 2020 report, this is a reduction of almost one-third from previous levels. What Level 3 specialties were reduced in terms of the number of QDCs? What are the reasons for this reduction? We agreed with the agency dropping the Level 3 for QHEI however if any of the remaining 60 are for that specialty alone then they should be reduced to Level 2. The problem with the statement in the IR is that in terms of sheer numbers it appears that there are 1,296 QDCs in Ohio at present, but only 4.6% are qualified to produce data that would qualify for use in the IR. We suspect that number is likely even smaller so adding a degree of clarity to this statement is needed.

Page C-8

"Changes to Ohio EPA's Lake Erie monitoring are likely to occur in the next two years as a result of recommendations made during the effort to revise Lake Erie aquatic life use metrics…"

While Ohio EPA mentioned the Lake Erie ALUs in the draft 2022 IR webinar of February 15, 2022, we are not aware of any details about this activity since 2020. Slide 25 states *"Currently compiling subgroup information for presentation back to the larger workgroup."* As a member of that larger workgroup, MBI has yet to see any details or updates, so we there should be an update about subgroup and workgroup products and status.

Section 401 Water Quality Certifications

Page C-15

"Ohio EPA strongly encourages applicants to engage in pre-application coordination early in the development phase to help identify high quality resources, discuss potential alternatives and identify mitigation obligations."

The following discussion from the 2020 IR page was moved to the fifth paragraph of the draft 2022 IR in a paragraph on the federal rule. It no longer states "Ohio EPA encourages ..." Has Ohio's role in encouraging coordination changed since this policy was stated in the 2020 IR? If so, how?

Water Pollution Control Loan Fund

Page C-22

"Examples of eligible activities include: …"

Please explain here why this list differs from that in the 2020 IR. The following are not included here:

- improvement or replacement of on-lot wastewater treatment systems;
- development of BMPs; and
- forestry BMPs.

Does the WPCLF no longer fund these efforts? Are they funded in other ways that did not exist before the 2022 IR draft? Either way, it is important to explain the difference in the text between the 2020 and 2022 IRs.

H2Ohio Plan

Page C-28
Have Ohio EPA and ODNR reviewed common interests in the H2Ohio program? For example, measurement of wetland quality? Or are there possible impacts on streams, e.g., is placement of the wetland features under H2Ohio having an impact, such as restricting meanders (or placement within the meander width) or not allowing an adequate riparian corridor? Are there restrictions, such as riparian habitat encroachment, created instream habitat by these H2Ohio projects? What wetlands conditions result from these projects (e.g., what is the floristic quality assessment results)? What scores or categories of wetlands result? Are rare plants being preserved at these sites and protecting Category 3 wetlands? The program has emphasized that wetlands harbor rare plants. The measures stated on Page C-29 are more activity-based and not environmental outcome-based. Other than stream gauges at or near watershed pour points, have Ohio EPA and partners considered and implemented more thorough and complete condition monitoring of some of these areas, such as wetlands or streams, in H2Ohio project areas, at a level that is sufficient to detect actual environmental outcomes of H2Ohio?

Section D: Framework for Reporting and Evaluation

D6. Sources of Existing and Readily Available Data

Page D-11
Heidelberg College should be Heidelberg University.

Midwest Biodiversity Institute/Center for Applied Bioassessment – please delete the "Center for Applied Bioassessment."

"Table D-3 — Description of data used in the 2022 IR from sources other than Ohio EPA."
Page D-13

"Midwest Biodiversity Institute
Jul 2010 – Oct 2016"
This is simply not accurate nor up to date. MBI has provided data to Ohio EPA from 10 different areas under a like number of Level 3 PSPs since 2016. We have closely coordinated submitting Level 3 data with the Credible Data Program and have attached a tracking spreadsheet that accounts for MBI data submittals and MBI surveys both for Level 3 PSP and non-PSP alike.

Section G: Evaluating Beneficial Use: Aquatic Life

Aquatic Life Use Attainment in Inland Rivers and Streams
As indicated earlier in our comments Ohio had long been one of the leading programs among states in the U.S. This program allowed 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 raised concerns about the expression of what are apparently the most recent results from 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. There is no update to these statistics in the 2022 IR which is a startling and unexplained break from 40 years of consistent reporting. This is yet another symptom of the program decline that we have mentioned previously. It really doesn't matter that the agency intends to report on the 2020-21 large rivers assessment in the 2024 IR, this change is a fundamental change in the entire program and the CWA programs that it used to support. Again, this situation was avoidable.

Because it is still relevant, we repeat here our 2018 comments by restating that the IR needs to take a step back and report 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[1] (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. Doing this would also better index historical improvements if the pre-CWA implementation baseline years prior to 1988 were included.

Again, to preclude the misreading of long-term trends we urge the agency to retain all of the historical biennial cycles and updating them to include the years in between 1980 and 2020. We recognize that that has been made more tenuous by the disconnection imposed by the Two-Pronged Approach, especially the cycle of doing this once every 10 years. This point also highlights the critical importance of reestablishing the former M&A level of effort to prevent the agency from losing the capacity 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 which will struggle to determine backsliding, especially at sub-watershed and river-reach scales that evade the comparative coarse design. Just in Central Ohio alone the population is projected to increase by 500,000 and development in and near high quality rivers, streams, and wetlands is already taking place. Even the former and more spatially robust approach to M&A would have been challenged to keep up, but now the program is going to be less able to respond to incremental degradation and backsliding in terms of use attainment and making sure that impacted streams are properly designated in time to support the inevitable onslaught of permitting issues this will foment.

Rivers and Streams: Watershed Assessment Units (WAUs)

Page G-5
This section leaves out the 2020 IR "Table G-1 — Watershed Assessment Unit Score Determination" and associated discussion. As is mentioned above, the 2020 results could still be included and noted as the latest information available.

This discussion leaves out the 2020 IR language on "Determining the wading stream and principal stream scores" and "intermediate WAU scores." Please explain this again here.

WAUs

[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.

Page G-11
We note that the statistics in Table G-1 are the same as in the 2020 IR, Table G-2. Repeating these data is preferable to referring readers to the 2020 IR, but this IR should state that the data are the same as in the 2020 IR.

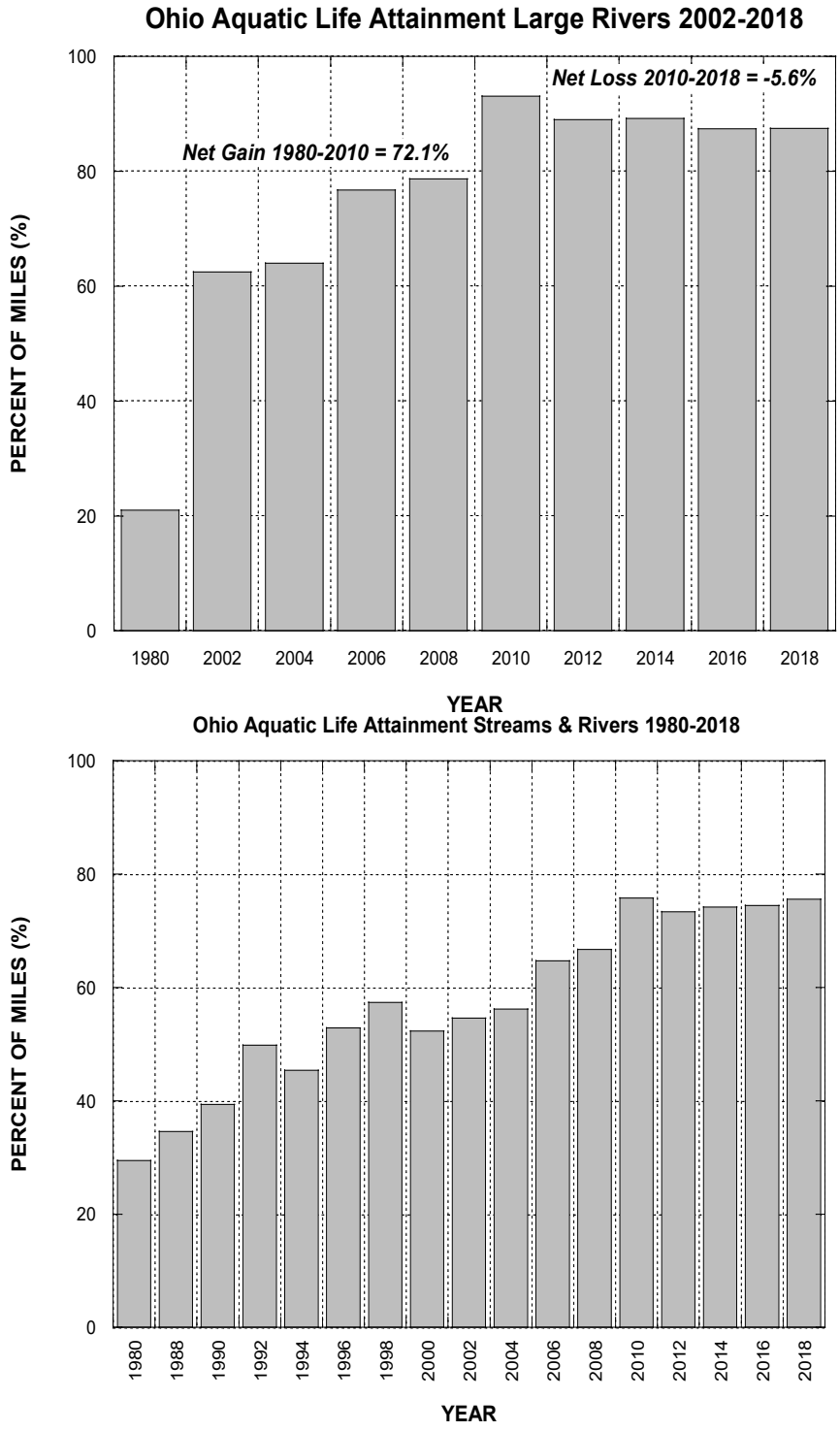

Figure 1. *Trends in attainment of aquatic life uses in Ohio large river assessment units between 1980 and the 2002-18 reporting periods by Ohio EPA (upper) and for all stream and river units combined between 1980 and the 1988-2018 reporting periods (lower).*

LEAUs
Pages G-15 and G-16, Figures G-7 and G-8
The figure captions should clarify the green versus blue dots and what each color represents (hard- versus soft-bottom sites).

Section H: Evaluating Beneficial Use: Public Drinking Water Supply
This section lacks pagination, although the Table of Contents includes page numbers. The other sections include pagination.

H3. Results
While we are already well aware of Lake Erie's nutrient problems, the frequency of LRAUs and AUs that are impaired documents a nutrient problem that extends well beyond the Lake. We support further emphasis and outreach on the problem throughout Ohio, including appropriate, targeted levels of monitoring and solution implementation. This includes not just noting the existence of H2Ohio, but more emphasis on the wider scope of nutrient problems, which will need to be featured much more often to compete with the extensive publicity, both accurate and inaccurate, on Lake Erie. The Lake's nutrient issue notoriety is deserved, but it can easily overshadow other nutrient problem areas to the point that they are not well known to the public. Ohio needs to proceed with the nutrient assessment procedure adoption in the WQS. This will help address these more widespread nutrient issues.

One of the goals of programs like H2Ohio should work toward resolving these problems, resulting in measurable environmental outcomes. It should be clarified and explained how much and in what ways is Ohio EPA working with ODNR and ODA to focus resources on these, i.e., in a geographically focused manner that addresses specific public water supply impairments? How can Ohio EPA ensure the use of TMDL findings and content and the implementation of geographically extensive projects in approaches like Nine Element Plans? This should be a highly coordinated common interest of Ohio EPA, ODNR and ODA, and these agencies should track the level of implementation, for both activities and environmental outcomes, in a coordinated manner.

We will also once again emphasize the role that stream habitat must play in solutions to nutrient problems, especially in the upper sub-watershed networks where the problems originate. Ohio EPA, as the custodian of habitat assessment, has provided innovative and badly needed habitat TMDLs, yet much of the agricultural focused research seems to deliberately avoid addressing or including habitat as an important factor in addressing the effect of nutrients. This is likely driven by a bias towards maintaining past practices concerning drainage affiliated with row cropping, but it doesn't change the fact that habitat plays a vital role and ignoring it risks covering the true environmental outcomes of programs like H2Ohio.

Section I: Considerations for Future Lists

Stream and Wetland Mitigation
Page I-4

"Ohio EPA created a mapping application that includes the following"

Ohio has several sources that have funded stream restoration. Ohio EPA is aware of them because of tracking tools such as those for Section 401 Water Quality Certifications and WRRSP funding. These stream restorations should be tracked and scored as to their ecological lift and differences between pre- and post-restoration scores. To help advise project managers and the public on the success of stream restoration approaches, an analysis report should be prepared for public comment. This would allow the State to evaluate the actual success of stream restoration, and how related improvements in QHEI/HHEI scores might lead to attainment. This should lead to better understanding of the need for stream restoration, more awareness of which attributes are most correlated with stream degradation and nonattainment, and how to create better results.

The mapping application list includes dams. While dam removal is one good method for stream restorations, many more miles of Ohio stream are impaired due to habitat quality related to stream channelization (See Page A-9: "Habitat modification is the straightening, widening or deepening of a stream's natural channel"), one of the major causes and sources of water quality problems as described in this report. Attention to this condition would point out many other areas needing stream restoration, and stream channelization segments should be added to this list. Ohio EPA's extensive QHEI database should be used to focus on attributes related to channelization that are degrading stream channels and habitat and aquatic life use attainment by extension. These data could be listed by HUC-12 and mapped, and could serve as a screening tool and encouragement for many more steam restoration sites.

MBI has participated in several stream mitigation monitoring efforts over the past 5 years most of which are presumably required to demonstrate ecological lift as it is envisioned by the Inter-agency Restoration Team (IRT) to meet mitigation requirements. However, there is seemingly not enough standardization in what parameters are monitored and for what purpose. For example, in some places we are asked to assess only macroinvertebrates, yet Ohio EPA clearly bases use attainment on both fish and macroinvertebrates. In other cases we are requested to only collect HHEI and without the macroinvertebrate and salamander counterparts of the PHWH methodology. Also, many of these projects are in unnamed streams that are currently undesignated in the WQS, yet the essential data to resolve that issue is only inconsistently

collected and sometimes only at our insistence. Not addressing the aquatic life use designation status brings up two critical deficiencies; 1) how is use attainment legally assessed if there is no verified use designation, and 2) how do we know if WQS have been met without the right data? There is also the WWH suite of uses and PHWH transition that we have raised numerous times before. To sum it up, the agency needs to commission a thorough technical audit of the monitoring that is done for these types of projects and across all of the state agencies that manage them.

Assessment of Riparian Areas

While "Assessment of Riparian Areas" (Page I-4) is necessary for stream restoration sites, the channel condition changes mentioned above are possibly more influential on QHEI scores than is riparian vegetation, thus the assessment of riparian areas should not be done independently from channel analysis. An assessment of restored stream segments should evaluate all attributes and habitat changes that the QHEI measures, with a focus on those attributes that are modified and could be improved (see Rankin 1989, 1995). Then Ohio EPA could analyze these data to see which attributes are most influential or important for ecological lift in stream restorations. While good quality riparian vegetation is necessary for stream shading and moderating temperatures, especially in an era of rising ambient temperatures, only looking at riparian areas would not necessarily "maximize water quality improvement" as referred to in this section. Other factors, such as landscape setting (e.g., urban, agricultural, forest), also need to be evaluated to determine if they influence the biological index scores at a steam restoration site provided that the data is properly included and collected (see above comments on mitigation monitoring).

In its Response to Comments on the 2020 IR, Response 22, Page D-34, Ohio EPA states:

> *"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."*

We support and encourage this approach in all Ohio nutrient-impacted watersheds. An emphasis on habitat improvement metrics would be a step in the right direction. The attributes of habitat that support and deter aquatic life use attainment have already been detailed by Rankin (1989, 1995) and at one time a QHEI matrix of good and modified QHEI attributes was routinely produced in basin assessments. We encourage such efforts that include attention to attributes and metrics for comprehensively analyzing riparian and other stream habitat alteration to be fully integrated in the comprehensive analysis that the QHEI attributes matrix

offers. We encourage the Agency to make an extensive effort to reach out to stakeholders on the results of such analyses so that they may better recognize the influence of steam habitat. In the Response to comments in the final 2020 IR (Page D-34), Ohio EPA states "In addition, habitat restoration is included in Nine-Element Non-Point Source Implementation Strategies plans in the Lake Erie watershed." We appreciate this, and encourage the agencies involved (Ohio EPA, ODNR, ODA, and all Nine-Element Plan implementers) to focus on and significantly bolster this, emphasizing habitat restoration and protection at the highest level, recognizing it is a very effective means of improving stream quality. As we stated in our comments on the 2020 IR, it is essential that the agency exert leadership in assuring that improving stream habitat is included as a primary factor in the management practices for reducing the adverse effects of nutrients in Lake Erie and throughout Ohio.

References:

Rankin, E. T. 1995. The use of habitat assessments in water resource management programs, pages 181-208. in W. Davis and T. Simon (eds.). Biological Assessment and Criteria: Tools for Water Resource Planning and Decision Making. Lewis Publishers, Boca Raton, FL.

Rankin, E.T. 1989. The Qualitative Habitat Evaluation Index (QHEI): Rationale, Methods, and Application. Ohio EPA, Division of Water Quality Planning and Assessment, Ecological Analysis Section, Columbus, Ohio.

Methodology Preview: Lake Erie Aquatic Life Use Assessment Methodology Developments

Page I-21

These comments (#19, and Ohio EPA's response) are taken from the final 2020 IR, page D-32, (Response to Comments Received regarding the Request for Comments CWA Section 303(d) TMDL Priority List for 2020). We are repeating it here as a reminder of the need for follow-up, such as in the proposed Lake Erie Aquatic Life Use Components:

> *"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*

Microcystin 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."

We appreciate any efforts that would meaningfully address the above process and ALU designations and encourage their furtherance. Please include MBI in future updates.

Lake Erie Aquatic Life Use: Prospectus on a New Definition

Page I-22, Table I-4 — Lake Erie Aquatic Life Use Components Under Consideration
Benthic Invertebrates

We appreciate the effort that has gone into this effort to date. We strongly recommend that native mussels be considered in measures of benthic invertebrates. While non-native Dreissenids are listed in this table and appear to be under consideration, native Lake Erie mussel species have been reduced in richness and population numbers and would be an appropriate component of the Lake's ecosystem and measure of ecological integrity. Dr. Dave Zanatta of Central Michigan University (people.cst.cmich.edu/zanat1d) has done related work on mussels and might be a good expert to include in this sub-committee and analysis. Dr. Zanatta was the lead author of a recent lake wide assessment of mussel populations (Zanatta et al 2015[2]). Janice Metcalfe-Smith (formerly Environment Canada) included native mussels in the State of the Great Lakes (or State of Lake Erie) assessment a number of years ago (~2003-2005?). Perhaps a measure could look at Lake Erie Assessment Units (and maybe nearshore versus offshore) by species richness and densities?). This methodology could include an index for species counts with higher scores assigned for the presence of species listed as state/provincial/federal (state, US or Canada), T/E/SC species versus tolerant/opportunistic species (i.e., species with opportunistic/ periodic/equilibrium life history strategies as described by Haag[3] (2012).

[2] Zanatta, D.T. et al. 2015. Distribution of Native Mussel (Unionidae) Assemblages in Coastal Areas of Lake Erie, Lake St. Clair, and Connecting Channels, Twenty-five Years After a Dreissenid Invasion. Northeastern Naturalist 22(1): 223-235.
Also, see Nalepa et al. 1991 Long-term decline in freshwater mussels (Bivalvia: Unionidae) of the western basin of Lake Erie. Journal of Great Lakes Research 17:214–219.

[3] Haag, Wendell R. 2012. North American freshwater mussels: natural history, ecology, and conservation. Cambridge University Press. 505p.

Section J: Addressing Waters Not Meeting Water Quality Goals

J6. Schedule for TMDL Work

2022 and 2023 Proposed Monitoring

Page J-24

We greatly appreciate and support Ohio EPA in proposing water quality monitoring in the listed new project areas for 2022 (e.g., upper Great Miami River) and 2023 (e.g., middle Scioto River). We look forward to seeing updated data and the verification of more use designations. We encourage the Agency to reach out extensively to local stakeholders, including, and ensuring the participation of, those such as SWCDs, the Ohio Department of Agriculture watershed coordinators, academics, the general public, and NGOs, for efforts such as early engagement in Study Plans for these watersheds. Clearly, Ohio EPA's recently adopted Two-Pronged Approach will result in significantly fewer monitoring sites for these basins, and as we have stated before, we strongly encourage Ohio EPA to maintain a high density of monitoring sites and not reduce the level of effort in the surveys compared to previous surveys in the same watersheds. Reducing monitoring at sites, such as those on smaller tributaries, could mean that the opportunity to gain information and focus implementation projects is missing, less accurate and possibly incapable of determining progress.

We would also ask the agency to maintain an awareness about where equally comprehensive watershed and mainstem river assessments are already being planned or which recently have been completed especially those performed under a Level 3 PSP. Again, we are providing an updated list of MBI completed Level 3 surveys and the status of data submittals. If these surveys occur with the 2023 planned basin monitoring then the agency should be prepared to accept these surveys and not duplicate the monitoring in those places. This will allow them to focus resources on ensuring that other areas receive the needed spatial intensity of assessment. We have pointed out previously our concern about such data and assessments not being effectively shared across the agency and being overlooked for WQS use revisions and in future IRs.

February 25, 2022

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

Re: The Ohio Coal Association Response to Request for Comment on the Federal Water Pollution Control Act Section 303 (d) TMDL PRIORITY LIST FOR 2022

To Whom It May Concern:

The Ohio Coal Association (OCA) appreciates the opportunity to submit the "*OCA Comments for the Ohio EPA's DRAFT 2022 Integrated Water Quality Monitoring and Assessment Report.*" Our hope is that these comments will provide you with some relative feedback to the existing TMDL program and its regulations.

The Ohio Coal Association is a trade organization that adheres to the best interests of the coal mining companies who operate in the State of Ohio. Our coal companies all utilize the 401 and 402 Programs to obtain permission for activities that impact aquatic life habitat and waters of the state. It is through the years of application of these rules and working with the various OEPA district offices, both directly or through our respective coal operators and their consultants, that we respond to your requests. Through our day-to-day use of these regulations in the coal mining industry we have been able to apply our sustained experience in the hopes of providing constructive insight to the actual implementation of these rules from an industry perspective. It is with this persevered experience that we share our honest comments and recommendations.

Again, thank you for the opportunity and your sincere consideration of OCA's comments. Feel free to contact me with any questions you may have.

Sincerely,

Michael Cope
President

Encl. (1)

17 South High Street, Suite 310, Columbus, Ohio 43215
Phone: 614-228-6336 Fax: 614-228-6349
www.ohiocoal.com

OCA Comments for the Ohio EPA's DRAFT *2022 Integrated Water Quality Monitoring and Assessment Report*.

In reviewing the most common causes of aquatic life impairment in the DRAFT 2022 *Integrated Water Quality Monitoring and Assessment Report* in Section A (pp. A-7 to A-12), 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, highly unstable or have some intermediate degree of instability). In other words, geomorphic condition is a *primary factor*, if not the dominate factor in most all cases, in determining whether the highest degree of water quality improvement functions (processes) and quality of aquatic life habitat exists within our streams. Additionally, the unstable geomorphic conditions broadly observed in Ohio's streams are significantly linked to the historic loss of watershed storage. The loss of watershed storage has led to increased runoff volumes and peak flows, which creates excessive *stream powers* that cause stream channel erosion. This channel erosion deepens and widens channels releasing enormous volumes of sediment into our stream systems. Further, channel erosion reduces water quality improvement processes and diminishes the quality of aquatic life habitat. The concomitant relationship between hydrologic condition of the watershed and geomorphic condition of its stream systems must be understood to properly evaluate and manage stream systems. This relationship is explained in more detail in Exhibit 1.

In the time of Daniel Boone and Simon Kenton, and the centuries before, Ohio's landscape was covered with dense forests and prairie grasslands, and streams were filled with beaver ponds. This combination of features provided tremendous storage of stormwater within Ohio's watersheds. The dense land cover, deep porous soils and close-knit tree and grass root systems provided significant resistance to stormwater runoff that slowed runoff and allowed it time to infiltrate and be stored in deep porous soils. An extensive in-stream network of beaver ponds captured and stored much of the remaining stormwater runoff. These beaver ponds recharged groundwater systems and released water slowly through their leaky dams. Thus, in these earlier days most of Ohio's streams were perennial with considerably fewer intermittent streams due to the continual slow-release of water from leaky beaver dams located far into the headwaters and from water draining out of fully recharged groundwater systems, which significantly reduced runoff volumes and peak flows (i.e., minimal stream power).

Moving forward in time, beavers were trapped-out of Ohio and Ohio's landscape changed significantly by a vast array of land development activities. These changes have resulted in the loss of watershed storage that has increased stormwater runoff, simultaneously decreased runoff resistance and increased the velocity of runoff, which has resulted in increased runoff volumes and peak flows (i.e., excessive stream power). This foundational change in the hydrologic condition to Ohio's watersheds still exists to this day and continues to adversely impact stream stability and processes. The restoration of watershed storage (e.g., in-stream basins that function similar to beaver ponds) must be made a priority over stream restoration projects especially in the headwaters of our watersheds where storage features have a greater effect on reducing peak flows (i.e., reducing stream power). Otherwise, excess stream powers over time will simply degrade stream restoration projects. Additionally, these types of in-stream storage features provide diversity of habitat that supports insects, amphibians, reptiles, birds, bats, mammals, as well as, aquatic life by providing local water sources, wetlands, nutrient assimilation, groundwater recharge that cools stream temperatures, reduces flooding, and extends base flows that can convert ephemeral streams into intermittent streams and intermittent streams into perennial streams.

An example of how not understanding the relationship between hydrologic condition of the watershed and the geomorphic condition of the associated stream systems lead to incorrect priorities to solve pollution problems is provided in this DRAFT 2022 Integrated Report. In the case of Siltation/Sedimentation, the discussion next to the stream photograph states (p. A-9) 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 erosion of streambanks within geomorphically unstable streams (e.g., upwards of 80% in many cases) and not from the land as suggested in this report. If problems are to be solved, they must be correctly defined. This report does not properly define the primary problem when it comes to siltation/sedimentation, that is, it must first assess and evaluate the hydrologic condition of the watershed and geomorphic conditions of the associated stream systems.

Geomorphically unstable streams provide a lower degree of stream processes to assimilate pollutants, such as, nutrient enrichment, and have degraded aquatic life habitat. For example, as streams become geomorphically unstable, channels incise and stream bank heights increase leading to bank failure and large quantities of silt/sediment entering stream systems, subsequently riffles are eroded and pools are filled with sediment, and silts can no longer be expelled onto the floodplain because flows rarely go out-of-bank (e.g., once every 10 years). In comparison, geomorphically stable streams will process silt/sediment from stream channels onto floodplains during frequent out-of-bank flows (e.g., annually or more often). Nutrients, such as, nitrogen and phosphorus are typically attached to silts and clays. If silts and clays are frequently deposited on floodplains, then enormous amounts of nutrients are removed from stream systems (i.e., significant water quality improvements occur). Additionally, with silts and clays removed from streams, the water becomes clearer and sunlight (UV) can kill more pathogens within the water. Further, riffles are steeper and pools are deeper providing improved aquatic life habitat.

Therefore, a primary mitigation tactic in the overall strategy to reduce silt/sediment in streams is to first understand the hydrologic condition of the watershed and geomorphic condition of the associated stream systems. If the stream systems are in an unstable geomorphic condition and have high siltation/sedimentation issues, then a primary mitigation tactic, in most all cases, would be to first increase watershed storage, which would then be followed by stream restoration. However, the DRAFT 2022 Integrated Report does not identify hydrologic condition of the watershed or geomorphic condition of the associated stream systems as a primary siltation/sedimentation source or solution. This major error is most likely the result of the OEPA not understanding or not properly assessing and evaluating the hydrologic condition of watersheds and geomorphic conditions of stream systems, which are foundational to understanding the quality of stream processes and aquatic life habitat. The Clean Water Act's objective is to maintain and restore the chemical, physical and biological integrity of the Nation's waters. A hydrologic and geomorphic condition assessment is required to evaluate and understand the physical integrity of streams, which biological and chemical integrity is dependent upon.

The lack of proper assessment and evaluation of the hydrologic condition of watersheds and the associated geomorphic condition of stream systems leads to incorrect mitigation priorities that cause confusion, misunderstanding and wasteful spending of Ohio's public, business, industry and government resources.

Restored geomorphically stable streams that have sufficient watershed storage are effectively self-maintaining over time and will provide the highest degree of water quality improvement processes and the best quality aquatic life habitat at no additional cost to the public. For example, one of the processes associated with geomorphically stable streams, over time, is to expel all or most of the *residual* silt and clays from off-stream erosion sources, such as, development sites (i.e., a 'free' cleaning service).

Exhibit 1

Stream Physical Integrity Processes and Assessment

The *objective* of the Clean Water Act (CWA) is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters.

As the objective indicates, an assessment of stream physical integrity must be performed in addition to a chemical and biological integrity assessment in order to maintain and restore the Nation's waters.

As described by Asmus, B., et al. (2009), physical integrity is the result of the interaction of surface water hydrologic and stream geomorphic processes. The surface water hydrologic condition is most often represented by a flow-duration curve as shown in Figure 1 below. However, increases in the surface water runoff volumes and peak flows due to land use changes will shift the flow-duration curve up and to the right. This shift up and to the right in the flow-duration curve (i.e., more stream power) will concomitantly change the stream geomorphic condition or physical integrity (i.e., channel cross-section dimensions, profile and pattern) by creating an *imbalance* in sediment transport processes. This imbalance directly leads to degradation of a stream's geomorphic condition or physical integrity (Hey, R., 2003).

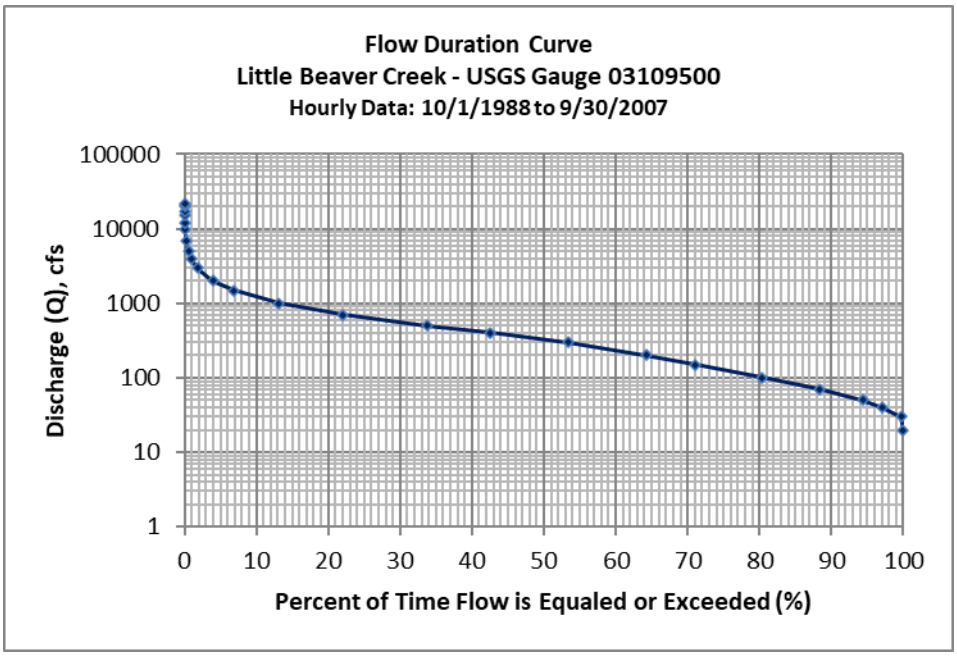

Figure 1 – Example flow duration curve for Little Beaver Creek, Columbiana County, Ohio.

Stream power is the power available for stream flow to transport a sediment load, and it may be defined as γQS, where γ is the specific weight of water, Q is the stream discharge, and S is channel slope (Bull, W., 1979). Stream discharge (Q) over time is represented by the flow-duration curve (e.g., Figure 1).

Increases in surface water runoff due to land use changes that shift the flow-duration curve up and to the right may be more easily understood in Figure 2 below, which compares surface water runoff volumes and peak flows from an 'undisturbed' or pre-development condition to a 'disturbed' or post-development condition. The area underneath the pre- and post-development curves (stream flow x time) represents the total volume of runoff for the time period. A certain flow rate or discharge will fill a channel to a flow depth that initiates sediment transport. This flow depth is roughly about 50% of the

bankfull channel depth, and this sediment transport threshold is referred to as the critical discharge (Q_*) as shown in Figure 2. The subsequent increase in runoff volume and peak flows will create an imbalance in the stream sediment transport rates, which leads to channel degradation (i.e., degradation of the physical integrity of the stream channel), unless mitigated. Mitigation involves capturing and storing stormwater runoff in basins and releasing the captured portion of the runoff slowly below the critical discharge (Q_*) threshold. This reduces stream power or shifts the flow duration curve down and to the left (refer to Figure 1).

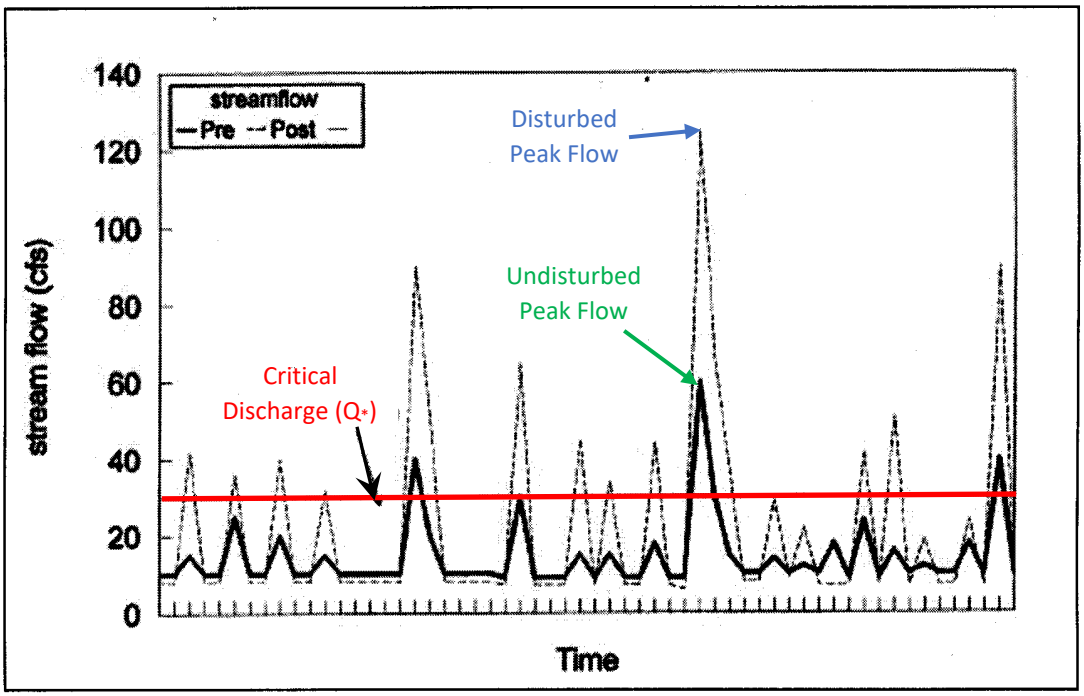

Figure 2 – Pre- and post-development flow-duration curves shown in a manner that represents the relative increase in peak flow for an 'undisturbed' as compared to the 'disturbed' condition, and shows the relative increase in flows greater than the critical discharge (Q_*) or increase in stream power.

As described by D. Rosgen (1996), natural channel stability is achieved by allowing the stream to develop a stable cross-section, profile and pattern, such that, over time, channel features are maintained and the stream neither aggrades (fills up) nor degrades (incision).

A stream that has natural geomorphic stability will just fill the channel to the bankfull stage and this discharge is referred to as the bankfull discharge (Q_{bkf}). The bankfull discharge corresponds to the discharge at which channel maintenance is the most effective. Thus, the bankfull channel discharge (Q_{bkf}) is considered to be the *effective discharge* (Q_{eff}) (Rosgen, 1996).

An effective discharge analysis is shown graphically in Figure 3 and is performed by integrating the flow duration curve (B) and sediment transport curve (A) at a specific stream location to produce the effective discharge curve (C). The effective discharge (Q_{eff}) occurs at the peak of the effective discharge curve (C), which, as discussed, is the bankfull channel flow (Q_{bkf}) for streams with a stable geomorphic condition (Rosgen, 1996).

Exhibit 1

If land use changes occur and the stormwater runoff is not controlled properly by stormwater best management practices (BMPs), then the flow-duration curve will increase or shift up and to the right as described by curve B' in Figure 4. This change in the flow-duration curve increases and shifts the effective discharge curve C to the right to position C', which results in the effective discharge increasing (i.e., it increases from Q_{eff1} to Q_{eff2} as shown in Figure 4) (Beyerlein, D., 2005). This change in effective discharge will also result in the stream channel cross-sectional area concomitantly increasing through erosion to accommodate the larger effective discharge (Q_{eff2}) and simultaneously changing the stream pattern and profile. However, the erosional transition to a larger channel cross-sectional area results in an imbalance in the sediment transport rate that leads to unstable geomorphic conditions (e.g., channel bed incision). Thus, it is critical for stormwater BMPs to be properly designed to maintain the flow-duration curve at its current position or shift it down and to the left (i.e., decrease stream power) (Beyerlein, D., 2005). Therefore, a primary goal of stormwater management through the use of stormwater BMPs is to maintain or reduce the stream power so that post-development runoff conditions produce the same or less stream power than the pre-development runoff conditions in order to maintain the physical integrity of the Nation's waters as required by the CWA (Beyerlein, D., 2005 and Hawley, B., 2015).

When a geomorphically stable stream is impacted by a change in surface water hydrology (i.e., the flow-duration curve shifts up and to the right), channels with gradients greater than 2% will most always degrade by channel bed erosion (incision), because the increased flows from the watershed provide excess stream power or sediment transport capacity to erode the stream bed and banks (Bull, W., 1979). The incision creates a knickpoint that advances the channel erosion in the upstream direction (headwards), which further increases the sediment supply to the downstream channels. As the channel bed continues to incise headwards through erosional processes, the streambanks become more unstable and sediment supply is increased even more. Eventually, the downstream channel capacity is over-whelmed by the imbalance created by the upstream excess sediment supply and the downstream channels aggrade, which results in pools filled and riffles smothered by the excess sediment load (i.e., stream habitat for aquatic life is significantly degraded).

Exhibit 1

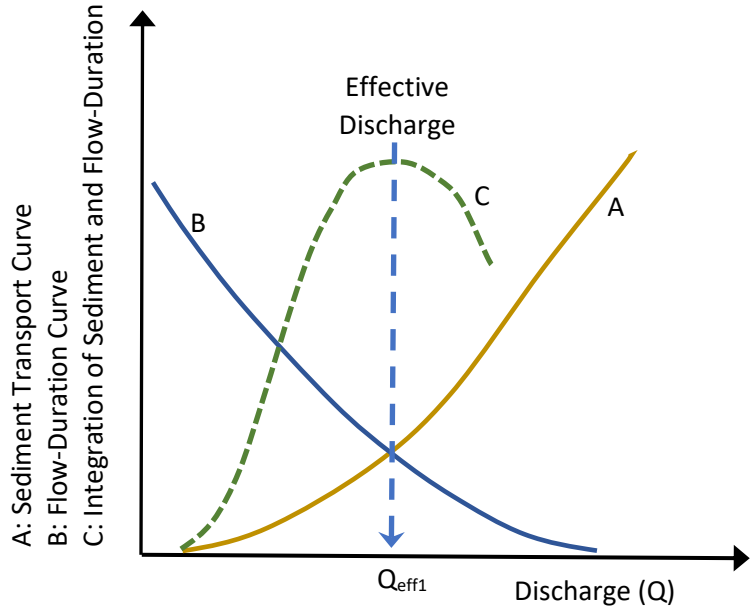

Figure 3 – Integration of flow-duration curve B and sediment transport curve A produces the effective discharge curve C and the peak of this curve is the effective discharge (Q_{eff}), which is the bankfull discharge associated with the stable geomorphic condition (Rosgen, 1996).

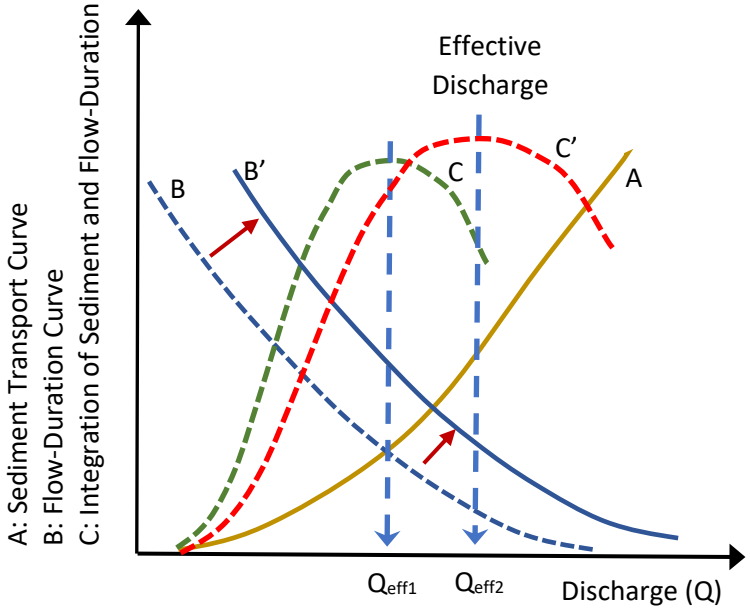

Figure 4 – If land use change is not controlled with proper stormwater BMPs, then the flow-duration curve will shift to the right (B to B'), which results in a larger effective discharge (Q_{eff2}) due to the effective discharge curve moving from C to C'. The channel adjusts to this change in effective discharge through erosional processes creating unstable geomorphic conditions (Rosgen, 1996).

Exhibit 1

The channel structure or geomorphic condition of the stream channel provides the habitat or 'homes' for aquatic life. When a stream channel is geomorphically stable, the stream structure provides the best potential habitat for aquatic life. As stream channel structure is degraded and the channel becomes geomorphically unstable through either incision or aggradation, the channel habitat is simultaneously degraded making the 'homes' for aquatic life less hospitable and more difficult to remain or survive within. Therefore, the quality of stream channel habitat for aquatic life is a direct by-product or result of the interaction between surface water hydrologic (hydrology) and stream geomorphic processes (geomorphology) as described in the diagram in Figure 5 below (Asmus, et al., 2009). If the stream structure is not maintained in a stable geomorphic condition, then aquatic life will be directly and adversely impacted (Sullivan, et al., 2009).

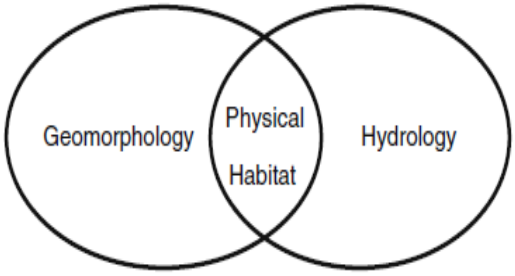

Figure 5 – Stream physical habitat is determined by the interaction between surface water hydrologic (Hydrology) and stream geomorphic processes (Geomorphology) and the quality of this habitat is dependent on the resultant stream geomorphic condition (Asmus, B., et al., 2009).

In conclusion, the physical integrity of streams requires an assessment of the surface water hydrologic (hydrology) and stream geomorphic processes (geomorphology) by evaluating the stream geomorphic condition or physical integrity to determine the quality of the channel structure and stream geomorphic processes that produce the habitat for aquatic life in the stream channel. The stream channel structure and the resultant habitat is the by-product of the interaction between the surface water hydrologic and stream morphologic processes.

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

February 22, 2022

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

Re: Ohio Farm Bureau Federation's comments on the draft 2022 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 must have a foundation based on quality scientific analysis not the precautionary principal. 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 work together to address Ohio's water quality challenges.

Attached to this letter you will find the Ohio Farm Bureau Federation's comments on the draft 2022 Integrated Water Quality Monitoring and Assessment Report. Our comments focus on two areas:

- The assessment method for recreational use attainment for algae in Lake Erie described in Section F of the report, and
- Actions taken by partner organizations missing from Section J of the report.

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

AJS/lma

Ohio Farm Bureau Federation – Comments related to the Draft Ohio 2022 Integrated Water Quality Monitoring and Assessment Report (IR)

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 two areas:

- The assessment method for recreational use attainment for algae in Lake Erie described in Section F of the IR.
- Actions taken by partner organizations missing from Section J of the IR.

Comments regarding the method to assess recreational use attainment for algae in Lake Erie found in Section F of the 2022 IR.

Ohio EPA has a long proud history of using sound science in the development of assessment tools to evaluate, determine and protect the chemical, physical and biological integrity of Ohio's water resources. Over the years, numerous technical reports and peer-reviewed articles form a solid science-based foundation that made Ohio EPA a national leader in water resource assessment. Sub Section F4 of the IR describes the method used to assess recreational use impairment due to algae in Lake Erie. The methodology clearly has a strong foundation based on the precautionary principal rather than Ohio EPA's history of developing assessment tools based on sound science.

As we have stated before in previous comments to Ohio EPA, OFBF appreciates the recognition that there is an ongoing need to obtain a better scientific understanding of the relationship between the presence and the toxicity of a harmful algal bloom (HAB). Research has shown that over the course of the recreational season, the ratio of cyanobacteria toxin in the water to the amount of cyanobacteria biomass present changes. The result is that the composition of the bloom shifts from one containing highly toxic over to one containing 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 the 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. OFBF understands the need for Ohio EPA to be conservative due to potential human health concerns but establishing an assessment methodology that embellishes the precautionary principle rather than sound science is not appropriate. The assessment tool needs to move beyond the reliance on the mere presence of cyanobacteria and include scientifically defensible metrics such as the measurable presence of cyanotoxins.

A key component missing from the draft document is the discussion of how Ohio EPA justifies the presence of a low density, non-toxic cyanobacteria event adversely affects the primary and secondary recreational uses of the open waters of the Western Lake Erie Basin. OFBF recommends that such a justification be incorporated into Section F of the IR and into the

supporting documentation for the development of the Nutrient TMDL for the Maumee River Watershed. Inclusion of the justification will help the reader understand why Ohio EPA feels that the presence of cyanobacteria at low threshold detection levels causes recreational use impairment and warrants watershed based actions.

Comments regarding actions to address nutrient delivery to Lake Erie found in Section J of the 2022 IR.

Sub Section J3 Addressing Nutrients in Lake Erie of the IR describes in detail the planning and management efforts underway at the state, federal and binational levels to reduce nutrient delivery to Lake Erie. Missing from the discussion however are the numerous efforts underway by both Ohio's agricultural community and by local or regional governments and non-governmental organizations to reduce the nutrient load to Lake Erie.

Appendix I: Actions by Partner Organizations of the State of Ohio 2020 Domestic Action Plan documents these efforts. OFBF recommends that at a minimum, a reference to Appendix I of the 2020 State of Ohio Domestic Action Plan be added to this section of the 2022 IR.