

**Framework for Reporting and Evaluation**



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

The 2014 Integrated Report (IR) continues Ohio's evolution to a fully-formed watershed basis for reporting on water quality conditions. For the past 20 years Ohio has maintained strong linkages between Section 305(b) reporting and Section 303(d) listing. Under the title *Water Resource Inventories*, Ohio prepared Section 305(b) reports every two years since 1988 using a biologically based assessment methodology<sup>1</sup>. Subsequently, Section 303(d) lists were compiled using the output of 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, as follows:

- Aquatic Life. Analysis of the condition of aquatic life was the long-standing focus of reporting on water quality in Ohio and continues to provide a strong foundation. The 2014 methodology contains mostly minor changes. One significant change involves situations where a WAU score, based a preponderance of principal stream sites, is unduly affected by the results from one headwater or one wading site. In these rare instances, a manual adjustment to the headwater/wading/principal stream scoring process can be made to more rationally reflect aquatic life condition. Also in this report, as in the 2012 IR, a methodology for assessing the aquatic life condition of lakes is previewed for possible inclusion in the 2016 report.
- Recreation. A methodology for using bacteria data to assess recreation suitability was developed for the 2002 report and refined in 2004, remaining essentially the same for 2006 and 2008. In 2010, the recreation use analysis changed significantly to a new indicator, a new water quality standard, and a data grouping procedure similar to that used for aquatic life. The methodology has not changed for the 2014 report.
- 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 2014 methodology did not change.
- Public Drinking Water. The assessment methodology for the public drinking water supply (PDWS) beneficial use was revised to include a new core indicator based on algae and associated cyanotoxins. The original 2006 PDWS assessment methodology identified algae as a possible supplemental indicator, but assessment units were not listed as impaired due to algae until 2014.

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

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<sup>1</sup> 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).

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## D1. Assessment Units

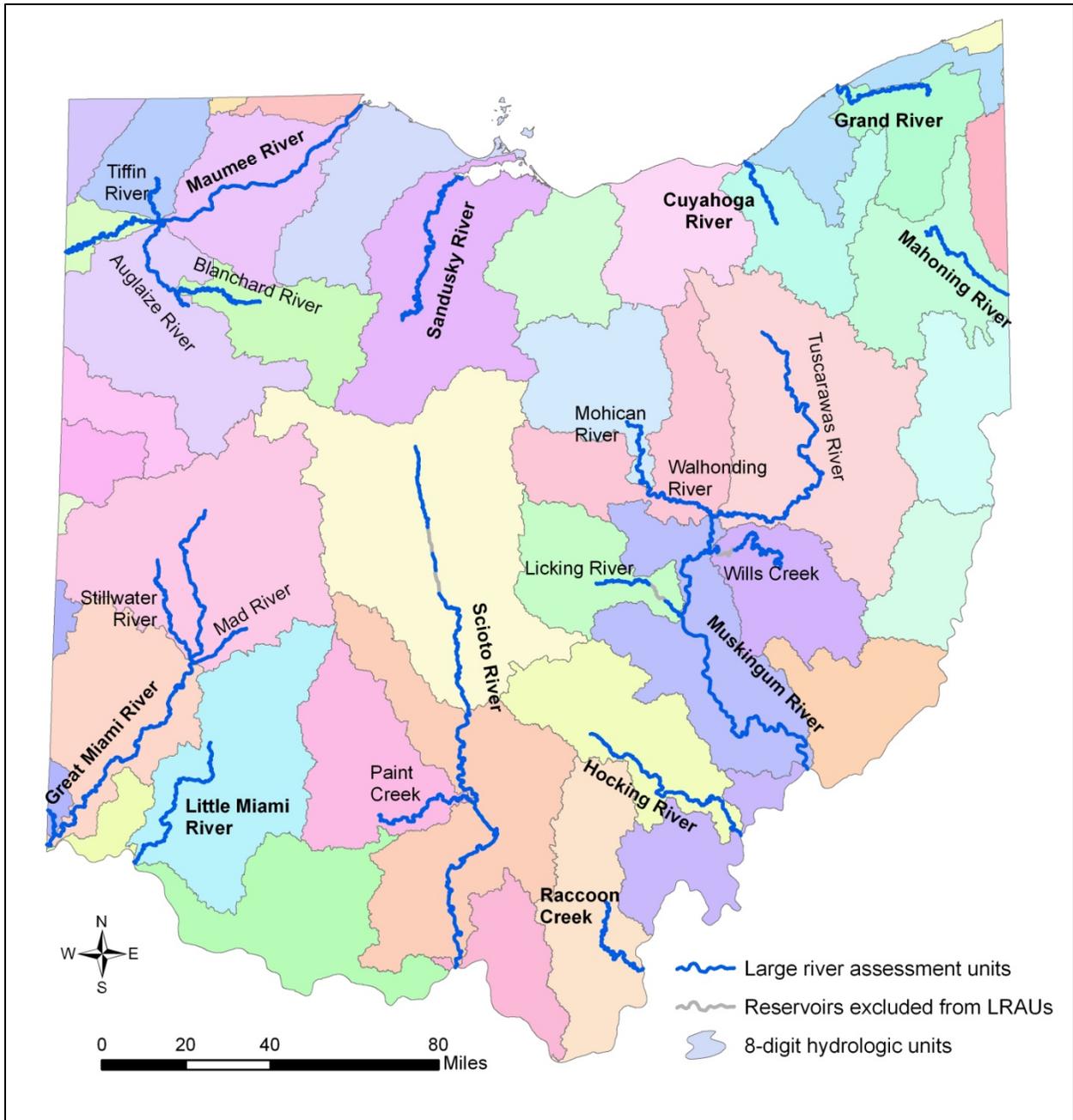
The 2014 IR continues the watershed orientation outlined in previous reports; the assessment units have not changed significantly from the 2010 report. Throughout this report, references are made to large rivers and watersheds as assessment units defined for 303(d) listing purposes. Data from individual sampling locations in an assessment unit are accumulated and analyzed; summary information and statewide statistics are provided in this report. The three types of assessment units (AUs) are:

- Watershed Assessment Units (WAUs) – 1,538 watersheds that align with the 12-digit hydrologic unit code (HUC) system. Ohio HUC numbers are lowest in the northwest corner of the state, proceeding approximately clockwise around the state. The first two digits of Ohio numbers are either 04 (draining to Lake Erie) or 05 (draining to the Ohio River).
- Large River Assessment Units (LRAUs) – 38 segments in the 23 rivers that drain more than 500 square miles; the length of each river included is from the mouth of each river upstream to the point where the drainage area reaches approximately 500 square miles.
- Lake Erie Assessment Units – for 3 nearshore areas of the lake: western (Ohio/Michigan state line to eastern terminus of Sandusky Bay opening to Lake Erie), central (eastern terminus of Sandusky Bay opening to Lake Erie to Ohio/Pennsylvania state line), and Lake Erie islands (including South Bass Island, Middle Bass Island, North Bass Island, Kelleys Island, West Sister Island and other small islands).

Ohio River assessment units have been defined by the Ohio River Valley Water Sanitation Commission (ORSANCO). See Section D4 for additional discussion of ORSANCO's work. Ohio EPA is proposing changes to Lake Erie assessment units for use in future reporting; see Section I5.2.1.

It is important to remember that the information presented here is a summary. All of 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 [http://www.epa.ohio.gov/dsw/document\\_index/psdindx.aspx](http://www.epa.ohio.gov/dsw/document_index/psdindx.aspx). TMDL reports are another source of more in-depth analyses, available at <http://www.epa.ohio.gov/dsw/tmdl/index.aspx>. Ohio EPA displays stream data it collects on interactive maps (see <http://wwwapp.epa.ohio.gov/dsw/gis/bio/index.php>). Currently, biological data from selected projects in watersheds monitored by the Ohio EPA since 2005 are available. New data and historical data (prior to 2005) will be added as resources allow.

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. Some reporting also mentions principal streams, defined as draining 50 to 500 square miles. Principal streams are not assessment units, but information is included here to provide a more complete picture of water quality conditions. Principal streams and their condition are discussed in more detail in Section B2.



**Figure D-1. Ohio's large rivers (rivers with drainages greater than 500 mi<sup>2</sup>) and their watersheds.**  
*Note: Bolded river names indicate the primary mainstem of that drainage basin.*



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

## D2. 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 uses. Table D-1 lists all of Ohio's water quality standards (WQS) designated uses and outlines how the use was evaluated for the Ohio 2014 IR.

**Table D-1. Ohio water quality standards in the 2012 Integrated Report.**

Beneficial Use Category	Key Attributes (why a water would be designated in the category)	Evaluation status in 2014 Integrated Report
<i>Categories for the protection of aquatic life</i>		
Coldwater Habitat	native cold water or cool water species; put-and-take trout stocking	Assessed on case by case basis
Seasonal Salmonid Habitat	supports lake run steelhead trout fisheries	No direct assessment, streams assessed as EWH or WWH
Exceptional Warmwater Habitat	unique and diverse assemblage of fish and invertebrates	61% of the WAUs and 92% of the LRAUs fully assessed using direct comparisons of fish and macroinvertebrate community index scores to the biocriteria in Ohio's WQS; sources and causes of impairment were assessed using biological indicators and water chemistry data
Warmwater Habitat (WWH)	typical assemblages of fish and invertebrates	
Modified Warmwater Habitat	tolerant assemblages of fish and macroinvertebrates; irretrievable condition precludes WWH	
Limited Resource Waters	fish and macroinvertebrates severely limited by physical habitat or other irretrievable condition	Assessed on case by case basis
<i>Categories for the protection of recreational activities</i>		
Bathing Waters	Lake Erie (entire lake); for inland waters, bathing beach with lifeguard or bathhouse facility	Lake Erie public beaches fully evaluated; nine inland lakes evaluated
Primary Contact Recreation	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	43% of the WAUs, 42% of the LRAUs, and 100% of beaches in LEAUs assessed using applicable PCR geometric mean <i>E. coli</i> criteria
Secondary Contact Recreation	waters rarely used for recreation because of limited access; typically located in remote areas and of very shallow depth	Assessed as part AU using applicable SCR geometric mean <i>E. coli</i> criteria
<i>Categories for the protection of water supplies</i>		
Public Water Supply	waters within 500 yards of all public water supply surface water intakes, publically owned lakes, waters used as emergency supplies	Sufficient data were available to assess 37% of the 129 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

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### D3. 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 them to the Director.

The Ohio EPA adopted rules in 2006, revised in 2011, 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 total maximum daily load (TMDL) calculations.

Ohio EPA solicited data from all Level 3 QDCs for the 2014 IR. The letter requesting data and the web site containing information about how to submit data are included in Section D5.1. Table D-2 summarizes the WQS uses evaluated in the 2014 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 2014 IR. Ohio EPA's 2014 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 Qualified Data Collectors were evaluated. The following Qualified Data Collectors submitted data or the data were available from readily obtained reports:

- Ohio Department of Natural Resources
- U.S. Geological Survey

- Northeast Ohio Regional Sewer District
- Midwest Biodiversity Institute / Center for Applied Bioassessment and Biocriteria
- Heidelberg College
- The Ohio State University
- Ohio Department of Health
- Cuyahoga County Board of Health
- EnviroScience, Inc.

**Table D-2. Data types used in the 2014 Integrated Report.**

WQS Uses & Criteria Evaluated (basic rationale <sup>1</sup> )	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  2003 to 2012	Fish Tissue Contaminant Database	Data collected within past 10 years. Two samples, each from trophic levels 3 and 4 in each watershed assessment unit or inland lake.
Recreation uses and subclasses - evaluation based on a comparison of <i>E. coli</i> levels to applicable geometric mean <i>E. coli</i> criteria in the WQS. Lake Erie shoreline evaluated on the basis of frequency of advisories posted at beaches	<i>E. coli</i> counts  2008 to 2012 (May through October only)	Ohio Dept of Health Cuyahoga County Health Department Northeast Ohio Regional Sewer District (NEORS D)	Bathing Waters – One or more geometric mean <i>E. coli</i> values (inland lakes; <i>E. coli</i> data from one or more beaches (Lake Erie shoreline AUs); minimum of one geometric mean <i>E. coli</i> concentration per WAU or one site every ~5-7 river miles for LRAUs
Aquatic life (specific sub-categories), fish and macroinvertebrate community index scores compared to biocriteria in WQS <sup>2</sup>	Watershed scale biological and water quality surveys & other more targeted monitoring  2003 to 2012	Ohio DNR U.S. Geological Survey NEORS D Midwest Biodiversity Institute Heidelberg College Ohio State University EnviroScience, Inc.	Fish and/or macroinvertebrate samples collected using methods cited in WQS <sup>3</sup> . Generally, 2 to 3 locations sampled per watershed assessment unit (12-digit HUC).
Public drinking water supply (criteria apply within 500 yards of active drinking water intakes, all publically owned lakes, and all emergency water supplies)	Chemical water quality data  2008 to 2012	SDWIS (PWS compliance database) Syngenta Crop Protection, Inc. (Atrazine Monitoring Program) <sup>4</sup>	Data collected within past five years. Minimum of 10 samples with a few exceptions (noted in Section H).

<sup>1</sup> Additional explanation is provided in the text of Section D2.

<sup>2</sup> OAC 3745-1-07(A)(6) and Table 7-15.

<sup>3</sup> OAC 3745-1-03(A)(5)

<sup>4</sup> 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 2014 Integrated Report from sources other than Ohio EPA.**

Entity	Dates Data Were Collected	Data Description	Basis of Qualification <sup>1</sup>
<i>Data Collected Before Credible Data Law (March 24, 2006)</i>			
Ohio Department of Natural Resources	1997 – 2005	Fish tissue	
	2003 – 2005	Biology (fish only)	
		Physical habitat	
U.S. Geological Survey	2003	Biology (macroinvertebrates only)	
Northeast Ohio Regional Sewer District	2005	Fish Tissue	
Midwest Biodiversity Inst./ Ctr for Applied Bio-assessment & Biocriteria	2003 – 2004	Biology	
		Physical habitat	
		Chemistry	
Heidelberg College	2004	Biology (macroinvertebrates only)	
	Jan 2002 – Feb 2006	Chemistry	
PWS compliance database (permittees)	Jan 2002 – Feb 2006	Chemistry	
Syngenta Crop Protection, Inc.	Jan 2002 – Feb 2006	Chemistry	
<i>Data Collected After Credible Data Law (March 24, 2006)</i>			
NPDES permittees	2008 – 2012 (May - Oct only)	Bacteria	Data credible - submittal pursuant to permit
Ohio Department of Health (ODH)	2008 – 2012 (May - Oct only)	Bacteria	State Agency
Cuyahoga County Health Department	2008 – 2012 (May – Oct only)	Bacteria	Level 3 qualified data collectors (under ODH's study plan)
Northeast Ohio Regional Sewer District	2008 – 2012 (May – Oct only)	Bacteria	Level 3 qualified data collectors
	July 2006 – Oct 2012	Biology	
		Physical habitat	
Ohio Department of Natural Resources	April 2006 – Nov 2012	Fish Tissue	State Agency/Level 3 qualified data collectors
	Sept 2006 – Sept 2012	Biology (fish only)	
PWS compliance database (permittees)	Jan 2008 – Dec 2012	Chemistry	Data credible - submittal pursuant to permit
Syngenta Crop Protection, Inc. <sup>2</sup>	Jan 2008 – Dec 2012	Chemistry	See footnote
The Ohio State University	May – Oct 2006	Biology (macroinvertebrates only)	Level 3 qualified data collector
Midwest Biodiversity Inst./ Ctr for Applied Bio-assessment & Biocriteria	July 2010 – Oct 2012	Biology	Level 3 qualified data collectors
		Physical habitat	
EnviroScience, Inc.	Sept – Nov 2009	Biology	Level 3 qualified data

Entity	Dates Data Were Collected	Data Description	Basis of Qualification <sup>1</sup>
		Physical habitat	collectors
Ohio Department of Transportation	June 2007 – Oct 2010	Biology (fish only)	State Agency/Level 3 qualified data collectors
		Physical habitat	
Clermont County Office of Environmental Quality	May – July 2009	Chemistry (drinking water)	Level 3 qualified data collectors

<sup>1</sup> Level 3 Qualified Data Collector requirements are described in OAC Rule 3745-4-03(A)(4). Included above are Qualified Data Collectors Ohio EPA has approved for stream habitat assessment, fish community biology, benthic macroinvertebrate biology and/or chemical water quality assessment.

<sup>2</sup> These data were collected as part of an intensive monitoring program at community water systems required by the Jan 2003 Atrazine Interim Reregistration Eligibility Decision and subsequent Memorandum of Agreement between U.S. EPA and the atrazine registrants (including Syngenta Crop Protection, Inc.).

#### D4. Evaluation of the Ohio River

Since 1948, the Ohio River Valley Water Sanitation Commission (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. ORSANCO was established on June 30, 1948, to control and abate pollution in the Ohio River Basin. ORSANCO is an interstate commission representing 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 waste water 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, RiverWatchers Volunteer Monitoring Program and Friends of the Ohio.

As a member of the Commission, the State of Ohio and the Ohio EPA support 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. ORSANCO has developed a detailed monitoring strategy for the Ohio River that has been endorsed by member states and the federal government (ORSANCO 2005). The document was developed under the guidance and oversight of several committees and subcommittees of ORSANCO that are composed of scientists and technical staff from state environmental and natural resource agencies and various federal agencies. The document is available at <http://www.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 Sportfish Consumption Advisories. ORSANCO prepares the Section 305(b) report for the Ohio River and has indicated the impaired beneficial uses and segments of the Ohio River. Ohio EPA defers to the

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ORSANCO analysis and the list of impaired Ohio River segments found in *2012 Biennial Assessment of Ohio River Water Quality Conditions* (ORSANCO 2012). ORSANCO plans to complete a biennial assessment in 2014, but the document is not expected to be available by the time Ohio's 2014 Integrated Report will be available for public review.

## **D5. 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 2014 Integrated Report. Several means of public communication are discussed below.

Ohio EPA convened an advisory group that included representatives from the regulated community (e.g., industries, municipalities), environmental groups, consultants, citizens, state and federal agencies, farm organizations, and development interests. The group, which included about eighty active participants, met from late 1998 to June 2000. One subgroup addressed listing issues. Their conclusions were as follows:

- monitoring and data quality are essential
- use outside data of highest quality
- endorse priorities of 1998 list
- increase attention to human health issues
- quantify "cost of inaction"
- more monitoring is needed
- data should be accessible and geographically referenced
- increased public involvement is needed
- current funding and resources are inadequate.

The cost associated with implementing the advisory group's listing recommendations was \$3.2 million annually; the cost for implementing all advisory group recommendations was \$9.7 million annually. Ohio EPA used these estimates to seek additional state funding but ultimately was unsuccessful in competing with other state funding priorities. We have incorporated the "low cost" recommendations (the first four listed above), and we continue to seek ways to address all of the group's recommendations.

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 integrated reports. All of this information can be accessed from the following Internet web site: <http://www.epa.ohio.gov/dsw/formspubs.aspx>.

The draft 2014 303(d) list, contained in the draft 2014 Integrated Report, will be available for public review beginning in January 29, 2014 through February 28, 2014. Comments received, and responses to those comments, will be summarized in Section D6 of the final report.

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## D5.1 Solicitation for External Water Quality Data, 2014 Integrated Report Project (May 23, 2013)

A memorandum soliciting level 3 qualified data was mailed in May 2013 to all level 3 qualified data collectors. The memorandum is displayed below.

<b>Date</b>	May 23, 2013
<b>Re</b>	Solicitation of Water Quality Data, 2014 Integrated Report <i>(No action is required on your part - submission of data is voluntary)</i>
<b>To</b>	Interested Parties: Stream Monitoring Personnel
<b>From</b>	George Elmaraghy, Chief Division of Surface Water

Ohio EPA is asking for chemical, biological and/or physical data you may wish to submit for consideration as the Agency prepares its 2014 Integrated Report. Both the state and federal governments have an interest in utilizing all available data to make informed decisions about managing Ohio's aquatic resources. Ohio EPA is only able to use data from a limited number of external sources, including Level 3 certified data collectors and NPDES discharge permit holders<sup>2</sup>.

At this time, the Ohio EPA Division of Surface Water (DSW) is soliciting readily available data for use in the 2014 Integrated Report. The report, due to U.S. EPA on April 1, 2014, fulfills the State's reporting obligations under Sections 305(b) and 303(d) of the Clean Water Act. Information is available at <http://www.epa.ohio.gov/dsw/tmdl/OhioIntegratedReport.aspx>.

### Credible Data Law

In 2003 a new law was enacted in Ohio dealing with sources of data external to Ohio EPA. The "credible data law," as it is known (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 them to the Director.

The Director has adopted rules (OAC 3745-4-01 through 06), effective March 2006, that delineate these requirements.

In addition, the law explicitly established that external data found 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.

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<sup>2</sup> It is unnecessary to resubmit data that have already been submitted to the Division of Surface Water.

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According to the Ohio EPA administrative rules, you may meet the qualifications of a “level 3 qualified data collector” in one or more areas of water quality data. Therefore, in pursuit of all readily available data for use in the state’s reporting documents, the Agency is requesting your voluntary participation by submitting any recent water quality data that you have on Ohio’s waters (e.g., lakes, rivers, streams and wetlands) that you are qualified to collect by July 15, 2013.

More information about the specific types of data being requested by Ohio EPA, and how to submit such data, can be found at: <http://www.epa.ohio.gov/dsw/tmdl/2014IntReport/2014CallForData.aspx>.

#### **D5.1.1 Web Page with Instructions for Submitting Level 3 Credible Data**

For those who received the memorandum and who were interested in submitting data to the Ohio EPA, a web page was established with instructions on what qualified data to be submitted and how to do so. The web site content is displayed below.

### **2014 Integrated Water Quality Monitoring and Assessment Report - Call for Level 3 Credible Data**

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

- What kind of data does Ohio EPA want?
  - Microbiological Data
  - Biological and Physical Data
  - Chemical Water Quality Data
- Do I have Level 3 data?
- Have I already given Ohio EPA my data?
- What will be needed in addition to data?
  - Microbiological Data Requirements
  - Biological, Chemical and Physical Data Requirements
- How do I send the data?
- To whom do I send the data?

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

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#### **What kind of data does Ohio EPA want?**

Ohio EPA is asking for chemical, biological and/or physical data you may wish to submit for consideration as the Agency prepares its 2014 Integrated Report. Both the state and federal governments have an interest in utilizing all available data to make informed decisions about managing Ohio’s aquatic resources. Ohio EPA is soliciting data primarily from NPDES major permit holders, Level 3 Qualified Data Collectors and others that may be in possession of Level 3 Credible Data that were collected in 2011 and 2012. The data can be of various types (bacteria, biological, physical, and chemical water quality data).

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## Microbiological Data

- Ohio EPA measures recreation use attainment by comparing the level of indicator bacteria present in ambient water samples against the bacteria criteria contained in [rule 3745-1-07 of Ohio's water quality standards](#). These indicator bacteria serve as predictors for the presence of enteric pathogens in the water that can cause a variety of illnesses. The type of indicator bacteria that Ohio EPA is utilizing in the 2014 Integrated Report is *E. coli*.

Data collected by NPDES discharge permit holders at ambient stream sites upstream and downstream of discharge locations and reported in discharge monitoring reports (DMRs) will be extracted from the SWIMS database. **It is unnecessary to resubmit data already submitted into SWIMS.** However, if bacteria data were collected at additional ambient stations and not reported through SWIMS, permit holders may voluntarily submit this data to the Agency. Data must have been collected between May 1, 2011 and October 31, 2012 and must meet the basic terms of acceptability found in the requirements listed below.

## Biological and Physical Data

- Ohio EPA measures aquatic life use attainment in Ohio streams and rivers by comparing indices generated from fish and aquatic macroinvertebrate data against the biological criteria contained in Ohio's water quality standards, [OAC 3745-1-07, Table 7-15](#). Field collection and data analysis methodologies for fish and macroinvertebrate community assessments are strictly adhered to and must follow procedures as outlined in the [Ohio EPA biological criteria manuals](#).
- Chemical water quality data collected in conjunction with biological data is of interest to Ohio EPA. Data should follow the parameters discussed below.

## Chemical Water Quality Data

- Ohio EPA primarily uses sampling methods described in the ["Manual of Ohio EPA Surveillance Methods and Quality Assurance Practices, 2009 Revision"](#). Sample collection and analysis method references are listed in [paragraph \(C\) of OAC 3745-4-06](#). Ohio EPA is interested in other chemical water quality data collected and analyzed by these methods or others of similar quality control/quality assurance rigor.

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## Do I have Level 3 data?

In 2003, a new law was enacted in Ohio dealing with external sources of data. The "credible data law," as it is known ([ORC 6111.50 to 6111.56](#)), requires the Director of Ohio EPA to adopt rules that would, among other things:

- 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 them to the Director.

The Director has adopted rules ([OAC 3745-4-01 to 06](#)), effective March 2006, to accomplish these requirements.

In addition, the law explicitly established that external data found 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.

**Have I already given Ohio EPA my data?**

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

Entity	Dates Data Were Collected	Data Description	Basis of Qualification <sup>1</sup>
<i>Data Collected Before Credible Data Law (March 24, 2006)</i>			
NPDES permittees	2002 – 2005 (May – Oct only)	Bacteria	
Ohio Department of Health (ODH)	2002 – 2005 (May – Oct only)	Bacteria	
Cuyahoga County Health Department	2002 – 2005 (May – Oct only)	Bacteria	
Northeast Ohio Regional Sewer District	2002 – 2005 (May – Oct only)	Bacteria	
Lake County General Health District	2002 – 2005 (May – Oct only)	Bacteria	
Ohio Department of Natural Resources	1997 – 2005	Fish tissue	
	2001 – 2005	Biology (fish only)	
		Physical habitat	
Ohio Northern University	1997	Biology	
Ohio University (Athens)	1995	Biology	
U.S. Geological Survey	2003	Biology (macroinvertebrates only)	
Northeast Ohio Regional Sewer District	2001	Biology (macroinvertebrates only)	
	2005	Fish Tissue	
Midwest Biodiversity Inst./ Ctr for Applied Bio-assessment & Biocriteria	2001 – 2004	Biology	
		Physical habitat	
		Chemistry	
Heidelberg College	2004	Biology (macroinvertebrates only)	
	Jan 2002 – Feb 2006	Chemistry	
PWS compliance database (permittees)	Jan 2002 – Feb 2006	Chemistry	
Syngenta Crop Protection, Inc.	Jan 2002 – Feb 2006	Chemistry	
<i>Data Collected After Credible Data Law (March 24, 2006)</i>			

Entity	Dates Data Were Collected	Data Description	Basis of Qualification <sup>1</sup>
NPDES permittees	2009 – 2010 (May - Oct only)	Bacteria	Data credible - submittal pursuant to permit
Ohio Department of Health (ODH)	2006 – 2010 (May - Oct only)	Bacteria	State Agency
Cuyahoga County Health Department	2006 – 2010 (May – Oct only)	Bacteria	Level 3 qualified data collectors (under ODH's study plan)
Northeast Ohio Regional Sewer District	2006 – 2010 (May – Oct only)	Bacteria	Level 3 qualified data collectors
	July 2006 – Oct 2012	Biology Physical habitat	
	2007	Fish tissue	
Ohio Department of Natural Resources	April 2006 – Nov 2010	Fish Tissue	State Agency
	Sept 2006 – Oct 2012	Biology (fish only) Physical habitat	
PWS compliance database (permittees)	March 2006 – Dec 2010	Chemistry	Data credible - submittal pursuant to permit
Syngenta Crop Protection, Inc. <sup>2</sup>	March 2006 – Dec 2010	Chemistry	See footnote
The Ohio State University	2006 (May – Oct only)	Biology (macroinvertebrates only)	Level 3 qualified data collector
Midwest Biodiversity Inst./ Ctr for Applied Bio-assessment & Biocriteria	July 2010 – Oct 2012	Biology	Level 3 qualified data collectors
		Physical habitat	
EnviroScience, Inc.	September – November 2009	Biology	Level 3 qualified data collectors
		Physical habitat	

<sup>1</sup> Level 3 Qualified Data Collector requirements are described in OAC Rule 3745-4-03(A)(4). Included above are Qualified Data Collectors Ohio EPA has approved for stream habitat assessment, fish community biology, benthic macroinvertebrate biology and/or chemical water quality assessment.

<sup>2</sup> These data were collected as part of an intensive monitoring program at community water systems required by the Jan 2003 Atrazine Interim Reregistration Eligibility Decision and subsequent Memorandum of Agreement between U.S. EPA and the atrazine registrants (including Syngenta Crop Protection, Inc.).

### What will be needed in addition to data?

Specific guidelines for submission of data are listed below. While these guidelines correspond to the regulations regarding credible data, they are not verbatim. To see the regulations, please go to [OAC 3745-4-06](#).

### Microbiological Data Requirements

An individual or organization who submits bacteria data to Ohio EPA for consideration in the 2014 Integrated Report shall attest to the validity of the data and adhere to the data quality specification listed here. The submission of data must cover the following:

- Sampling and Test Methods, QA/QC Specifications: Sampling must be conducted in a manner consistent with procedures contained in *Standard Methods for the Examination of Water and Wastewater* or the [“Manual of Ohio EPA Surveillance Methods and Quality Assurance Practices, 2009”](#).

Analytical testing must be conducted in accordance with U.S. EPA approved methods under [40 CFR 136.3](#). Acceptable references for methods for QDCs are given in [paragraph \(C\) of OAC 3745-4-06](#) and include Ohio EPA references, U.S. EPA references, and Standard Methods. Data submissions must include a description of the Quality Assurance/Quality Control (QA/QC) plans under which the bacteria sample analysis occurred. This should address topics such as sample handling and preservation, sample holding time, chain of custody, precision, accuracy, etc.

- Description of Sampling Program: A brief description of the purpose of data collection and the sampling design considerations should be provided. Were specific sources of potential contamination under investigation? Were samples collected at fixed station locations? How often and under what kinds of environmental conditions were samples collected? Have the results been published in a report or the scientific literature?
- Minimum Data Submission: Ohio EPA is requesting only bacteria data (*E. coli*) collected during the recreational season (May 1<sup>st</sup> to October 31<sup>st</sup>) from 2011-2012. The following information must be included in the data submission in an electronic spreadsheet or database format:
  - Sample collection date
  - Sample collection method (with reference)
  - Sample site location including water body name, county, river mile (if known), latitude/longitude (decimal degrees or degrees, minutes, and seconds)
  - *E. coli* count
  - Identification of units associated with bacteria counts
  - Any applicable data qualifiers (as received from the lab, if applicable)
  - Contact name, address, telephone number, and e-mail address of the person submitting the data set
  - Identification of the laboratory performing the sample analysis

### **Biological, Chemical and Physical Data Requirements**

An individual or organization who submits biological, chemical and/or physical data to Ohio EPA for consideration in the 2014 Integrated Report shall attest to the validity of the data and adhere to the data quality specification listed here. The submission of data must cover the following:

- Analytical and sampling procedures (examples):
  - [Manual of Ohio EPA Surveillance Methods and Quality Assurance Practices, 2009](#)
  - [Habitat and biology sampling manuals](#)
  - Only data that are consistent with these guidelines can be considered Level 3 data.
- Description of Sampling Program: A brief description of the purpose of data collection and the sampling design considerations should be provided. Were specific sources of potential contamination under investigation? Were samples collected at fixed station locations? How

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often and under what kinds of environmental conditions were samples collected? Have the results been published in a report or the scientific literature?

- If the data have been or will be submitted as part of the Credible data Program and there is an approved project study plan, this requirement is potentially waived, pending a successful data review that confirms study plan was adhered to as written.
- Minimum Data Submission: Ohio EPA is requesting biological, chemical and physical data collected from 2011-2012. The following information must be included in the data submission in an electronic spreadsheet or database format:
  - Sample collection date
  - Sample collection method (with reference)
  - Sample site location including waterbody name, county, river mile (if known), latitude/longitude (decimal degrees or degrees, minutes and seconds)
  - Type of data collected (fish, macroinvertebrate, chemical and physical parameters)
  - Analytical and collection methodologies used (include references)
  - Any applicable data qualifiers (as received from the lab, if applicable)
  - Contact name, address, telephone number, and e-mail address of the person submitting the data set
  - Identification of the laboratory performing the sample analysis (if applicable)
  - Weather conditions, flow, and precipitation (all optional)

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#### **How do I send the data?**

If you have bacteria data collected from surface waters in Ohio, then Ohio EPA would be interested in discussing its possible use in the Integrated Report. Contact Chris Skalski at (614) 644-2144 or [chris.skalski@epa.ohio.gov](mailto:chris.skalski@epa.ohio.gov) before preparing and submitting any information. The Agency's capacity to accept and utilize the data in preparation of the Integrated Report is dependent upon a variety of factors and the use of all data brought to our attention may not be possible. Data must have been collected after May 1, 2006 and must meet the basic acceptability specifications listed above. Data must be provided in electronic format such as STORET, Excel or Access.

Ohio EPA already has data from some credible data collectors, as listed in the table above. Additional data may be available and Ohio EPA is soliciting these data. If you have biological, chemical or physical data collected from surface waters in Ohio, then Ohio EPA would be interested in discussing its possible use in the Integrated Report. Contact Jeff DeShon at (614) 836-8780 or [jeff.deshon@epa.ohio.gov](mailto:jeff.deshon@epa.ohio.gov) or Dennis Mishne at (614) 836-8775 or [dennis.mishne@epa.ohio.gov](mailto:dennis.mishne@epa.ohio.gov) before preparing and submitting any information. The Agency's capacity to accept and utilize the data in preparation of the Integrated Report is dependent upon a variety of factors and the use of all data brought to our attention may not be possible. Data must have been collected after January 1, 2011 and must meet the basic acceptability specifications listed above. Data must be provided in an electronic format such as STORET, Excel or Access.

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#### **To whom do I send the data?**

Submit microbiological data and supporting information listed above by July 15, 2013 to Chris Skalski, [chris.skalski@epa.ohio.gov](mailto:chris.skalski@epa.ohio.gov), Ohio EPA/DSW, P.O. Box 1049, Columbus, Ohio 43216-1049.

Submit biological, physical, and chemical water quality data and supporting information listed above by July 15, 2013, to Jeff DeShon, [jeff.deshon@epa.ohio.gov](mailto:jeff.deshon@epa.ohio.gov), or Dennis Mishne, [dennis.mishne@epa.ohio.gov](mailto:dennis.mishne@epa.ohio.gov), Ohio EPA/Groveport Field Office, 4675 Homer-Ohio Lane, Groveport, Ohio 43125.

## D5.2 Web Page Announcing 2014 Integrated Report Preparation

By mid- 2013, Ohio EPA announced that preparation of the 2014 Integrated Report had begun. The web page is displayed below.

### Preparation of 2014 Integrated Report is Underway

Ohio EPA is preparing the 2014 Integrated Report, which fulfills the State's reporting obligations under [Section 305\(b\) \(33 U.S.C. 1315\)](#) and [Section 303\(d\) \(33 U.S.C. 1313\)](#) of the Federal Clean Water Act. The report will indicate the general condition of Ohio's waters and list those waters that are currently impaired and may require [Total Maximum Daily Load \(TMDL\)](#) development in order to meet water quality standards.



The most recent Ohio Integrated Report was completed on March 20, 2012 (see 2012 tab on this Web site).

### When will the report be completed?

Major project milestones and expected dates for completion are:

Refine methodologies / compile data	June - October 2013
External level 3 credible data are due to Ohio EPA	July 1, 2013
Prepare list / internal review	October - December 2013
Public notice draft 303(d) list	December 2013 – January 2014
Respond to comments / prepare final list	February - March 2014
Submit to U.S. EPA Region V for approval	April 1, 2014

Please continue to check this Web site for updates.

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**D5.3 Notice of Availability and Request for Comments FWPCA Section 303(d) TMDL Priority List for 2014**

The following notice was posted on the Division of Surface Water web page, included in the Ohio EPA Weekly Review, and published in major newspapers statewide.

Public Notice Date: January 29, 2014

OHIO ENVIRONMENTAL PROTECTION AGENCY  
PUBLIC NOTICE

**NOTICE OF AVAILABILITY and REQUEST FOR COMMENTS  
FWPCA Section 303(d) TMDL PRIORITY LIST FOR 2014**

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 Total Maximum Daily Load (TMDL) priority list for 2014 as required by Section 303(d) of the Federal Water Pollution Control 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 waters are ranked according to level of impairment to help indicate which have the greatest need for TMDL development. The list is contained within the *2014 Integrated Water Quality Monitoring and Assessment Report*, which in accordance with federal guidance, satisfies the Clean Water Act requirements for both Section 305(b) water quality reports and Section 303(d) lists. The report describes the procedure that Ohio EPA used to develop the list and indicates which areas have been selected for TMDL development during FFY 2014 through 2016.

Ohio EPA will hold a public information session on February 12, 2014, at 3:00 p.m. The meeting will be held at the Ohio EPA, Conference Room A, 50 West Town Street, Suite 700, Columbus, OH 43215.

All interested persons wishing to submit comments for Ohio EPA's consideration may do so by email to [dsw.webmail@epa.ohio.gov](mailto:dsw.webmail@epa.ohio.gov), or in writing to Ohio EPA, Division of Surface Water, P.O. Box 1049, Columbus, Ohio 43216-1049 Attn: 303(d) Comments, by the close of business, February 28, 2014. Comments received after this date may be considered as time and circumstances permit. After consideration of comments, Ohio EPA will submit a final document to the United States Environmental Protection Agency (U.S. EPA) for approval. The final report must be submitted to U.S. EPA by April 1, 2012.

The report will be available on the Ohio EPA Division of Surface Water Web site at <http://www.epa.ohio.gov/dsw/Home.aspx> no later than January 29, 2014. To receive a printed copy, contact the Ohio EPA - DSW reception desk by telephone at (614) 644-2001 and request the report by name. To arrange to inspect Agency files or records pertaining to the document, to ask technical questions regarding the list or report, or to request notice of when Ohio EPA submits the document to U.S. EPA, please contact the e-mail address above or call Trinka Mount at (614) 644-2146.

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## D6. Public Comments and Responses to Comments on Draft Report

The draft 2014 Ohio Integrated Report was available for public review from January 29, 2014 through February 28, 2014. This section contains the comments received through March 21, 2014, and responses to those comments.

Six sets of public comments were received on the draft report. The initials in parentheses following each comment denote the specific commenter, as follows:

Initials	Name	Organization	Date Received
PWK	Philip W. Kiefer	Citizen	February 24, 2014
TNC	Bill Stanley	The Nature Conservancy	February 28, 2014
AGL	Lyman C. Welch	Alliance for the Great Lakes	February 28, 2014
LEW	Sandy Bihn	Lake Erie Waterkeeper	March 3, 2014
MULT	Multiple	Comment received via web form emailed to dsw.webmail@epa.ohio.gov from 1,524 individuals	March 4, 2014
OUG	Cheri A. Budzynski	Ohio Utility Group	March 6, 2014

The comments are grouped by general topic: the four beneficial uses evaluated for listing (human health, recreation, aquatic life and public drinking water), then new topics or areas of high interest (wetlands, harmful algal blooms and Lake Erie proposed reporting) and miscellaneous comments. 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 as received are included at the end of this section.

### *Human Health Use (Fish Contaminants) Comments*

#### **Comment (OUG):**

Section E. Evaluating Beneficial Use: Human Health (Fish Contaminants)

The Water Task Force recommends that Ohio EPA reassess the risk assessment input variables for determining whether a watershed is impaired for the PCB human health criteria. Under the methodology used in the 2014 Integrated Report, a high number of the state's stream miles and inland lake and reservoir acres are impaired primarily due to Ohio EPA's assessment of PCBs in fish tissue. While a high percentage of streams have, historically, been listed as impaired due to measured PCB levels that exceed the fish consumption nonattainment use threshold, the Water Task Force is concerned with the practical implications of continued and pervasive "nonattainment" of the PCB criterion. Listing a water body as impaired consequently results in a *de facto* "no discharge" requirement for point sources located near that water body. The Water Task Force is concerned that if U.S. EPA were ever to adopt Method 1668C for detecting PCBs, point sources may find that they are discharging PCBs at levels higher than the water quality standards.<sup>2</sup> While Method 1668C has not been officially adopted<sup>3</sup> by U.S. EPA pursuant to 40 CFR Part 136, Method 1668C has an extremely sensitive Method Detection Level and a discharger would likely report detectable levels of the pollutant even though the ultimate source of PCBs could be intake water or atmospheric deposition. Thus, the Water Task Force recommends that Ohio EPA reevaluate the values used to determine if a water body is impaired for PCBs so that it is prepared to address this issue if, or when, U.S. EPA elects to adopt the new analytic method. Moreover, it may be appropriate to list those water bodies impaired by PCBs under a separate category, such as the 5m category that is discussed below.

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On page E-4--"Step 1: Determine available data," Ohio EPA describes the procedures used to evaluate fish tissue contaminant data for possible waterbody impairment. The second sentence reads: "The most recent 10 years of data collection, 2003 - 2012, were used for making category 1 and category 5 determinations." The Water Task Force believes that while the use of fish tissue data as old as ten years is generally acceptable, the Agency should first assess the data for any temporal trends in contaminant concentration. While the Water Task Force understands that the long-term database for a particular species at a particular location may be limited, there are probably some locations where levels of a pollutant have been declining. There are many statistical procedures that can test whether a true trend is occurring. By calculating an average concentration of a contaminant in fish tissue over a 10-year period, the Agency may find a risk of waterbody impairment that would not be identified if data from more recent years were used when there is evidence of a temporal trend.

Contaminant levels in fish tissue often co-vary with fish length, weight, or age. Does Ohio EPA evaluate fish tissue data using a size standardization? Levels of mercury in fish tissue are often standardized to a selected length so that comparisons of tissue levels over time are not confounded by size differences in fish collected throughout the assessment period.

Under Section "Step 2: Determine fish tissue contaminant concentrations," the Agency indicates that one year of fish tissue data is adequate to categorize a waterbody as impaired or not impaired. The Water Task Force believes that such a decision should be based on the magnitude of variation in the fish tissue contaminant. While the Water Task Force agrees that a geometric mean concentration for each species at a particular location is appropriate, the variability of the pollutant concentrations should not be ignored. A trophic level-weighted average fish tissue concentration of mercury that has a cumulative coefficient of variation (CV) of 90% is different than a trophic level weighted fish tissue concentration that has a cumulative CV of 25%. The difference between these CV is the certainty (confidence) in what is the true fish community average mercury concentration. The Water Task Force believes that Ohio EPA should consider the variability in levels of fish tissue contaminants before deciding that impairment decisions can be made with one year's data.

<sup>2</sup> It is the Utilities' understanding that U.S. EPA is not going to propose Method 1668 as part of the 2014 Methods Update Rule.

<sup>3</sup> Adoption of this analytical method was proposed on September 23, 2010. 75 Fed. Reg. 58024-58076.

**Response:**

Ohio EPA can certainly review the risk assessment variables that have gone into creating the fish tissue PCB thresholds prior to the 2016 IR. We don't expect this would result in any changes, but we will review and confirm that the existing thresholds remain current.

The commenter has suggested several techniques to potentially reduce occurrences of incorrectly classifying an assessment unit as impaired. Each of these procedures would require substantial investigation and review prior to adoption into the fish tissue monitoring program. Ohio EPA would welcome any change that could improve the precision of our evaluation and can investigate these suggestions prior to the 2016 IR. Currently, all decision-making is based on a simple weighted average of the geometric means of all data collected over the preceding ten-year period.

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## Recreation Use Comments

### Comment (MULT):

The following comment was received via web form that was emailed to [dsw.webmail@epa.ohio.gov](mailto:dsw.webmail@epa.ohio.gov) from 1,524 individuals.

Please fulfill your agency's commitment to improving Ohio's water quality by sufficiently addressing bacterial pollution in Ohio's rivers and streams.

The US EPA clearly identifies bacteria as a leading cause of water quality pollution and a leading cause to why our waterways are listed as impaired. Raw sewage from combined sewer overflows (CSOs) and animal manure from unsustainable farming practices cause harmful pollution to flood our rivers, lakes, and streams. *Escherichia coli* (E. Coli) identified in our waters indicates the potential presence of pathogenic bacteria, viruses, and protozoans that threaten human and animal health.

The Ohio EPA acknowledges these facts but, in your draft 2014 Integrated Water Quality Report, you admit that you failed to collect adequate E. Coli data to determine the recreational health for 60% of Ohio's inland streams and 60% of Ohio's large rivers. These are the same percentages as the 2012 report which indicates that you have made no progress in the past four years to better understand bacterial pollution in Ohio's streams and rivers.

Under Table F-11, you also indicate that you sampled less frequently in 2011 and 2012 than in 2010. This downward trend is alarming considering Ohio operates 1,233 permitted CSOs and allows unregulated manure applications across the state.

If the Ohio EPA does not increase E. Coli sampling in Ohio's streams and rivers, I fear that you will not know how to accurately address and reduce bacterial pollution. Do not allow raw sewage in our waterways to threaten the livelihoods of the general public.

### Response:

Ohio EPA takes seriously its responsibility to assess the status of its waters and report to the public a summary of those assessments every two years. As such, Ohio EPA devotes significant resources to the collection of data appropriate for use in making assessment determinations.

For assessing the recreation use, Ohio EPA collects thousands of surface water samples from lakes, streams and rivers which are then analyzed for *E. coli* content and evaluated against the applicable water quality criterion. While we did see a decline in the overall number of *E. coli* samples collected in 2012 compared to 2010 and 2011, sufficient data were collected to assess virtually the same number of watersheds in 2012 (239) as compared to 2011 (240) and more than twice the large river assessment units (eight in 2012 compared to only three in 2011). We also note that the number of samples collected year-to-year from 2008 through 2012 shows some variation. For example, the number of samples collected in 2008 was 3,211, which was far more than the 1,839 collected in 2009. But by 2010, the sampling effort was back up at 2,190. We do not think the fewer samples collected in 2012 relative to 2011 is enough to establish a trend as described in the comment. Some fluctuation in sampling effort can be expected from year-to-year. We do note that most of the sampling reduction seen in 2011 versus 2012 was a result of no longer collecting additional bacteria data in follow-up sampling of a select number of sites that were already surveyed the previous summer. This was the practice in 2008-2010.

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We have found that this additional data did not provide any benefit in the ability to assess attainment, determine probable causes of nonattainment where found, or develop TMDLs.

As of 2014, Ohio has completed bacteria TMDLs for approximately one-third of Ohio's watersheds, with many more currently in development. As of 2010, Ohio had federally approved bacteria TMDLs for only 17% of its watershed assessment units. We think this signifies real progress in the development of plans to reduce loadings necessary to meet Ohio's water quality standards. We also note that as of 2014, only one-third of Ohio's watershed assessment units remain in the category three (unassessed status). This is down from 58% in 2010 and 44% in 2012. This also shows substantial progress (see Table F-14) is being made in assessing the recreational use of Ohio's surface waters.

Our experience in sampling Ohio's waters for bacteria for over forty years has given us good insight as to the major sources of indicator bacteria (*E. coli*) found in Ohio's surface waters, including both point sources and nonpoint sources. Major point sources of bacteria loadings include municipal sewage treatment facilities ranging from large cities to small villages. These sources are highly regulated and typically have both permit limits and monitoring requirements through the NPDES program. Unfortunately, there are also some unsewered communities and many homes in rural areas with failing home treatment systems. Ohio EPA continues to work in bringing treatment systems to unsewered communities through a variety of mechanisms. Combined sewer overflows are another point source that can deliver bacteria into some waterbodies. Many communities have developed long term control plans to reduce or eliminate the magnitude and frequency of these overflows. A variety of nonpoint sources also contribute to bacteria loadings, including livestock having unrestricted access to streams, animal feeding operations if bacteria-laden runoff is allowed to flow into streams, and manure applications applied under inappropriate conditions. Ohio EPA, the Ohio Department of Agriculture (ODA), and the Ohio Department of Natural Resources-Division of Soil and Water Resources (ODNR-DSWR) share the oversight of animal feeding operations, and all have protocols for manure management that are designed to ensure utilization of the nutrients while trying to minimize pollution hazards.

Ohio EPA has documented widespread nonattainment of the recreation use throughout Ohio. As of 2014, almost 60% of Ohio's watershed assessment units are either category five (impaired and require a TMDL) or category 4 (impaired and a TMDL has been completed). In contrast, a mere 9% of the watershed assessment units have been found to be in full attainment of the recreation use as of 2014. This data clearly shows that the problem is not in the assessment and sampling effort, but in the implementation of activities proven to reduce bacteria loadings to streams. We encourage those who are interested in seeing improvements to water quality to work with local partners in implementing projects that will reduce bacteria loadings. Until significant progress is made on the ground in implementing the recommendations made in the many TMDLs that Ohio EPA has developed, continued monitoring will only continue to document the problem that had already been well defined and characterized.

### *Aquatic Life Use Comments*

#### **Comment (PWK):**

I have a concern that some people reviewing the 2014 IR will receive a wrong perception that the Lake Erie Central Basin Shoreline (Assessment Unit. 24001 002) Water Quality Standard (WQS) for Aquatic Life Use is getting worse. The percentage of sites in full attainment had been increasing, reaching 25% in

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the 2012 IR. Now it is 0%, yet residents along the lake, boaters and fishing enthusiasts see improvement (anecdotally) in the water quality. The drop in this WQS could wrongly lead to a charge that Ohio EPA is falling down on its job to clean up Lake Erie.

This perception would be a result of the sampling methodology. I gleaned the following facts for the sampling of the Lake Erie Central Basin Shoreline which is 132.4 miles long:

1. Eleven locations were sampled. Four locations had two samples one each on the east and west side of a breakwall. In the report, I could not find the reason why these four sites had two samples close together. Is it to confirm page G-11's statement that "significant impairment of sites due primarily to tributary loadings..."
2. Six locations were sampled in 2011 and again in 2012. In the report, I could not find if the lower, average, better, earlier or later score was used for the assessment.
3. If the eleven locations had been somewhat evenly spaced they would be 10 to 14 miles apart; however, there is a 42 mile gap from mile 1,158.8 (Grand River) west to 1,198.6 (Avon Point).
4. This gap includes:
  - a. All of Cleveland
  - b. Cuyahoga River Area of Concern
  - c. Northeast Ohio Sewer District (NEORSO).
  - d. Two of the three sampling points in the Central Basin that were in full attainment in the 2012 IR (Mile 1182.6 and Mile 1185.0) were left out. There should be an explanation for omitting these sites; otherwise, spin doctors on the far right will misinterpret Ohio EPA's motives.

The Assessment Unit Summary lists combined sewer overflows (CSO) as a source of impairment. With NEORSO being the largest CSO discharger on Lake Erie, it will be hard to justify CSOs as being a source of impairment to Aquatic Life use with no sampling in the vicinity of its discharges. It's harder to justify with the above statement about tributary loadings.

The first line on page G-11 states "the assessment methodology as used in past IRs was once again used..." It does not describe if the same crews were used for the assessments. It takes several years of testing to become proficient at using the methodology. In the past the same crews were used for the tests and they tended to underscore their earlier results. Ohio EPA may want to consider a sentence or brief paragraph about the testing crew.

Page G-10 states "these older data are no longer considered meaningful or relevant" yet page G-11 has comparisons of the attainment status to older reporting. Ohio EPA may want to revise the "meaningful or relevant" wording so as to make the comparisons meaningful.

I just don't think Lake Erie is getting worse (with the exception of algae blooms) as implied by the 2014 IR.

**Response:**

As mentioned in Section G of the report, aggregated sets of measures were used to assess the status of fish communities at co-located sites sampled in the 1990s and early 2000s and resampled from 2011 to 2013. While not meeting expectations, these sites remained relatively unchanged between the two time periods in all three assessment units. However, there were some trends in the data which suggested not-so-positive ecological developments. Nearly all of the Lake Erie shoreline has been altered from its natural state. Nearly all of the once widespread coastal wetlands have been compromised. Most of the major river mouths have been modified and developed as marinas or

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industrial areas. The majority of the shoreline has been developed, leaving little natural vegetation. Round gobies, white perch, zebra mussels, quagga mussels and other invasive species have negatively impacted the native fish species. All of these changes have had some degree of impact on the near shore fish populations.

White perch numbers were higher during this study period than in the previous samples. It is not known yet if the population is on the rise long term or if the larger numbers are caused by one or more productive hatches and will return to lower numbers.

During the development of the fish Index of Biotic Integrity (IBI) in the 1990s, invasive goby species were not as prevalent. Samples from this time range often included up to nine species counted in the benthic (bottom dwelling) fish metric. In order to score in the good range for this metric, a sample must have at least seven species. During the sampling period of 2011 to 2013, no sample included more than one benthic species other than gobies, and only 30% of the samples had one species in this category (log perch). All the other native benthic species originally collected and included in this metric have been greatly reduced or eliminated. The log perch may remain at low numbers because the adults grow large enough to avoid being eaten by gobies and they may feed in soft bottom areas that are not as attractive to the gobies.

Because of these physical habitat and biological stressors to the fish community, even if the water quality was meeting established goals, it is expected that the near shore fish will struggle to improve or even maintain current status. The fish must contend with habitat alteration and competition from invasive species.

Additionally, the fish in the lacustuaries of major tributaries (i.e., flooded river mouths) have remained steady or shown some improvement over time. Some of this data was captured in the assessment unit, either large river or watershed, to which it is assigned. In the near future, a report discussing the results of a larger GLRI-funded study of Lake Erie, including more detailed analyses of near shore, harbor, bay, and lacustuary reaches will be finalized. We encourage interested parties to also read this report once it is published. When completed, the report should be available at <http://epa.ohio.gov/dsw/lakeerie/index.aspx>.

Responses to the four numbered comments above are as follows.

- 1) As part of the much larger scale GLRI project, these stations were originally chosen to assist in the evaluation of the major tributaries and harbors. As plans move forward for a more sustained, long-term shoreline monitoring program, Central Basin sites will be more evenly distributed across the reach from the Pennsylvania state line to the Black River, which we have determined to be about 130 miles long.
- 2) Index scores for the two years were averaged.
- 3) This comment is addressed in #1 above.
- 4) None of the sites included in the 2012 IR Central Basin shoreline assessment (all sampled in 2002) were resampled as part of the 2011-2013 GLRI study. The GLRI sites were chosen for specific purposes and each had an equal opportunity to score well. The goal of the sampling was not to skew the outcome in either direction. However, for nearly all the sites, there was historical data from the 1990s available to use in the index and metric trend assessments in Section G.

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**Comment (TNC):****Mussels**

As we recommended in our comments on the 2010 Integrated Report, we encourage the Agency to include coverage of the status of mussels in Ohio in future Integrated Reports. Given the overall decline of the mussel community, additional species listings by the U.S. Fish and Wildlife Service, and emerging knowledge about issues such as ammonia's impacts on mussels, the Agency could correlate its extensive chemical and physical data with its own mussel data and that from other sources.

Freshwater mussels are at significant risk throughout Ohio (eg., see ODNR's listed species, available at <http://wildlife.ohiodnr.gov/species-and-habitats/state-listed-species>). ODNR's listed mollusk species include 24 endangered mussel species, four threatened and eight species of concern; eleven species are considered extirpated, and six are extinct. These 53 represent a significant percentage of the 80 mussel species that have been recorded in Ohio (Watters et al 2009<sup>1</sup>). Since the 2012 Integrated Report was published, four Ohio mussel species have been added to the federal list for protection by the US Fish and Wildlife Service, including: sheepsnose (*Plethobasus cyphus*), snuffbox (*Epioblasma triquetra*), rayed bean (*Villosa fabalis*), and rabbitsfoot (*Quadrula cylindrica cylindrica*).

Because of their sensitivity to pollution and habitat alteration and inability to significantly move, freshwater mussels have been recommended as indicators of water quality (Watters et al 2009; Hoggarth, M.A. 2006. Freshwater mussels (Unionidae) as indicators of water resource integrity. Presented at the NABS Annual meeting, Anchorage, Alaska. <http://www.benthos.org/database/allnabstracts.cfm/db/Anchorage2006abstracts/id/734>). Mussels are subject to the same litany of stresses that other biological communities are subject to, such as pollutants, hydrologic modification and invasive species.

Given the extensive collection and digitization of stream data in Ohio, Ohio EPA is well-equipped to analyze conditions related to mussel habitat and pollution. The Agency has shown it is able to analyze large amounts of data related to other biota such as fish. The Agency could help significantly advance knowledge of Ohio's water quality using mussels and help address a biological community with major problems. The Ohio State University Museum of Biological Diversity maintains an extensive database for mussel species distributions in Ohio (<http://www.biosci.ohio-state.edu/molluscs/OSUM2/index.html>). We encourage you to work with The Ohio State University and others to develop this information and assessment. A focus on mussel community health and trends could lead to more comprehensive and additional insight into water quality impacts and more comprehensively address attainment under the Clean Water Act.

In 2013, U.S. EPA published national recommended ambient water quality criteria for the protection of aquatic life from the toxic effects of ammonia, "Aquatic Life Ambient Water Quality Criteria for Ammonia-Freshwater<sup>2</sup>". Because this might address a statewide issue related to mussels, we encourage the Agency to review these criteria and provide a statewide summary of conditions where this issue might be relevant.

<sup>1</sup> Watters, G.T., M.S. Hoggarth and D.H. Stansbery. 2009. Freshwater Mussels of Ohio. The Ohio State University Press, Columbus.

<sup>2</sup> <http://water.epa.gov/scitech/swguidance/standards/criteria/aqlife/ammonia/upload/Aquatic-Life-Ambient-Water-Quality-Criteria-for-Ammonia-Freshwater-2013-Fact-Sheet-April.pdf>

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**Response:**

Ohio EPA continues to track status of mussels in Ohio streams and rivers, as it has for the last decade, as part of the standard field procedures used to sample macroinvertebrate communities. Results are reported in basin survey reports which, when relevant, include write-ups specific to mussels and assessments of their condition and trends. Methods used to inventory mussel species at sites are comparable to those defined as the “Qualitative” sampling approach in U.S. EPA’s Technical Support Document for Conducting and Reviewing Freshwater Mussel Occurrence Surveys for the Development of Site-specific Water Quality Criteria for Ammonia and this level of effort should provide the necessary information to make informed decisions about mussel populations and the need to protect them. The presence of mussels, especially those considered rare, threatened, or endangered, is an essential component of Ohio EPA’s qualitative, natural substrate collections at survey sites and often contribute to analyses determining the existing or recommended aquatic life use and most appropriate antidegradation category. This latter activity is conducted periodically using analyses based on Ohio biological databases, including one for mussels maintained by the OSU Museum of Biological Diversity, to make recommendations of candidate stream and river reaches for assignment to the Outstanding State Water or Superior High Quality Water categories.

**Comment (LEW):**

There also seems to be a disconnect in that Lake Erie walleye and yellow perch numbers are dropping while the less desirable fish numbers are growing. How does the aquatic life testing provide information on our changing fisheries? If the aquatic life testing does not provide this information then using aquatic life to determine water quality with today’s issues does not work.

**Response:**

A major goal of Ohio EPA’s GLRI project titled “Ohio Lake Erie Comprehensive Nearshore Monitoring Program” is to assess the effectiveness and reliability of biological assessment procedures developed in the mid-1990s and to recommend changes, where needed, to improve and enhance the diagnostic capabilities of these procedures to more accurately reflect conditions affecting Lake Erie’s nearshore biological populations in the 2010s and onward. This may include incorporation of new indicator organism groups such as benthic diatoms or recalibration of assessment metrics and performance targets for more established organism groups such as fish communities. Analysis and interpretation of data and compilation of results and recommendations for this project are still ongoing. Some initial ideas for which we are soliciting comment are presented in Section I5 of the Integrated Report. We also encourage interested parties to read the final GLRI project report, when completed, which should be available at <http://epa.ohio.gov/dsw/lakeerie/index.aspx>.

### *Public Drinking Water Use Comments*

**Comment (TNC):**

Page H-4: "A new core indicator, based on algae and associated cyanotoxins, will be will be used for PDWS assessments beginning in this reporting period."

The Conservancy appreciates the importance of the work of the State of Ohio agencies on the "State of Ohio Public Water System Harmful Algal Bloom Response Strategy." We thank you for this effort and support further attention to indicators such as the algae and cyanotoxins indicators cited above. We

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strongly encourage continued attention to this problem. The need to address this is urgent - Ohioans need clean, safe water on a dependable basis, and the impact of any "Do Not Drink" advisories potentially is huge, with large water supplies like Toledo's at risk. Additionally, municipalities are already experiencing significantly higher intake treatment costs related to HABs. The need to reduce phosphorus and nitrogen/nitrates reaching water supply sources, like streams and Lake Erie, therefore also is urgent. We recommend that this section include the following:

- 1) Discuss the sources and causes of these problems (e.g., nitrates, HABs/cyanotoxins) in this section;
- 2) Treatment costs and impacts to municipalities and tourism and fishing; and
- 3) Discuss and refer to other sections of the report that address what is being done to reduce threats causing these problems (e.g., nonpoint source runoff) and how the State of Ohio is specifically working with stakeholders and partners, and coordinating efforts and solutions between upstream contributors and water supply managers.

**Response:**

Thank you for the comment. Regarding the specific requests:

- 1) We don't think more information on this linkage is needed in this section. Sections A and I of the IR discuss the link between excessive nutrients and excessive algae growth. More detailed information on sources and causes of algae impairments is incorporated into TMDLs developed for impaired waters.
- 2) Data on economic impacts of algae on public water supplies is not currently available to Ohio EPA.
- 3) Reference to Ohio's Nutrient Reduction Strategy and the link to the nutrients website (where information on much of the requested information is housed) will be added to Section C and Section I. Referring to the website will direct a reader to the most current information on this evolving topic.

**Comment (AGL):**

4. Prioritization of HAB assessments and adoption of stronger impairment criteria  
Ohio should prioritize waters, such as Lake Erie, impaired by HABs and adopt stronger impairment criteria to better protect the public drinking water supply. Ohio's narrative criteria state that all waters shall be "free from substances entering the waters as a result of human activity in concentrations that are toxic or harmful to human, animal or aquatic life"<sup>5</sup>. Last year's drinking water scare in Carroll Township demonstrates that the state is not in compliance with these criteria due to HAB's associated cyanotoxins.

HABs became a more obvious threat to human, animal and aquatic life this past summer, as Ohio experienced their first water treatment plant shutdown due to high levels of the cyanotoxin microcystin. This threat should prompt the prioritization of HAB studies and aggressive action by Ohio EPA. IJC noted in their LEEP report that many concerned citizens urged action to address HABs at IJC's public open houses<sup>6</sup>. It is the responsibility of the state of Ohio to ensure that its citizens are protected and do not have to experience alarming "do not drink" water advisories due to algal toxins in the future. Further studies and impairment criteria must be introduced for algal blooms to combat the over 80 reported variants of cyanotoxins<sup>7</sup> that could threaten the health of Ohio's waters.

The Alliance is pleased that the Ohio EPA has taken an initial step to address the threat of cyanotoxins by establishing this toxin as a core indicator in Section H and newly listing assessment units as impaired by algae under the public drinking water beneficial use. However, there is an increasing need for further

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studies and action to truly protect the public drinking water supply of Ohio. It is disappointing that only seven impaired assessment units (5.7%) were able to be assessed for algae impairment because cyanotoxin sampling occurs only on an incident-response basis, as explained on page H-9.

HABs should be prioritized to protect Ohio's waters, especially in the Western Basin Shoreline assessment unit of Lake Erie found in Table H-3 to be impaired for algae under the attainment use of public drinking water supply. The TMDL for this LEAU must be prioritized and assessed much sooner than scheduled. Considering this LEAU has been categorized as impaired with a TMDL needed for all beneficial uses and has the highest priority points, it is unacceptable that next monitoring is not scheduled to occur until 2020 and a projected TMDL assessment is not scheduled until 2023, as listed in Section L3. Along with prioritization of this LEAU, Section H of the report should include a concrete strategy for HAB and cyanotoxin monitoring of all waters and explicit criteria for drinking water impairment due to HABs beyond the recently introduced thresholds and HAB advisories overseen by the Ohio EPA. Prioritization and immediate action is necessary to reduce the emerging health threat from HABs.

<sup>5</sup> OAC 3745-1-04 (D)

<sup>6</sup> *Idib.* 1, p. 38.

<sup>7</sup> USEPA Cyanobacterial Harmful Algal Blooms (CyanohABs): Policies and Guidelines.

<http://www2.epa.gov/nutrient-policy-data/cyanobacterial-harmful-algal-blooms-cyanohabs>

**Response:**

Ohio EPA will continue to conduct incident based monitoring, however, we are evaluating options for conducting additional cyanotoxin monitoring at public water systems.

Ohio is emphasizing solutions to the HAB problem by dealing with the source, excessive nutrient loadings. One way that Ohio is taking steps to reduce excessive nutrient loads into Lake Erie is by completing TMDLs for nutrients for the contributing Ohio watersheds. Nearly all of the needed TMDLs are complete or underway. These TMDLs will likely be the basis of the domestic action plans called for under the renewed (2012) Great Lakes Water Quality Agreement's Annex 4 by 2018. Ohio is actively participating with other states and the federal governments of the U.S. and Canada on Annex 4 and other aspects of the GLWQA. Relying on the Annex 4 approach for the open waters of Lake Erie is the most promising path to address Lake Erie's water quality problems because it is more comprehensive than a TMDL in that it considers multiple ecological objectives (reduction of harmful algal blooms, minimizing hypoxic zones, maintaining mesotrophic state in the western basin, etc.) and allocates loads to both the U.S. and Canada.

In addition, Ohio also developed the Ohio Nutrient Reduction Strategy ([http://epa.ohio.gov/Portals/35/wqs/ONRS\\_final\\_jun13.pdf](http://epa.ohio.gov/Portals/35/wqs/ONRS_final_jun13.pdf)) and is working on a number of initiatives as described on the nutrient website (<http://epa.ohio.gov/dsw/wqs/NutrientReduction.aspx>). In particular, the Ohio Lake Erie Phosphorus Task Force Phase II focused on agricultural practices to improve soil health and reduce runoff from agricultural lands. More information and detailed recommendations are contained in the Task Force report available at [http://epa.ohio.gov/portals/35/lakeerie/ptaskforce2/Task\\_Force\\_Report\\_October\\_2013.pdf](http://epa.ohio.gov/portals/35/lakeerie/ptaskforce2/Task_Force_Report_October_2013.pdf).

Finally, monitoring schedules in the Integrated Report represent the next time a basin is scheduled for monitoring per Ohio's rotating monitoring schedule. Ohio EPA frequently returns to watersheds ahead of the schedule in response to local needs. Also, as described in the Integrated Report and elsewhere in these responses, Ohio EPA is completing (in 2014) a Great Lakes Restoration Initiative grant to re-

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establish a Lake Erie monitoring program, which will ensure that data are collected regularly in these areas.

**Comment (LEW):**

The report should also include an emergency impaired classification when public drinking water and contact with water with toxins is a public threat.

**Response:**

Waters with PDWS Use impairments already receive the highest priority points for TMDL development.

**Comment (LEW):**

Drinking Water. This section should include Source Water Protection plans as required under the Clean Water Act. Ohio should expedite Source Water Protection plans for public water plants experiencing elevated levels of toxins from algae.

**Response:**

Ohio EPA has completed source water assessments, as required by the Safe Drinking Water Act (SDWA), for all Ohio public water supplies. Source water protection plans are locally driven, and are not required by the SDWA. Ohio EPA encourages the local development of source water protection plans and provides assistance for plan development. If algae is impacting a public water supply, the protection plan should include strategies to monitor for and mitigate that impact.

**Comment (LEW):**

Toxins from algae are seasonal and do not fit into the normal model of thirty day averaging.

**Response:**

Ohio EPA agrees that is why thirty day averaging is not used when assessing PDWS use impairments due to algae. Instead, discreet single values in exceedance of the threshold can trigger an impairment. However, to document the persistence of a problem, at least two exceedances are required, and those must be at least thirty days apart. For example, if a public water system (PWS) had a source water microcystin concentration of 1.2 ug/L in 2010 and a second detection of 1.4 ug/L in 2013, that would trigger an impairment (two microcystin detections > 1.0 ug/L more than 30 days apart).

**Comment (LEW):**

There is a dire need for setting guidelines for public drinking water plant testing, treatment and outreach for detection of microcystin.

**Response:**

Monitoring guidance is provided in the State of Ohio Public Water System Harmful Algal Bloom Response Strategy, which is updated annually. Guidance on microcystin treatment is available in the joint Ohio EPA- AWWA Algal Toxin Treatment White Paper. Ohio EPA is currently evaluating options for conducting additional cyanotoxin monitoring at public water systems. Since U.S. EPA has not established an MCL for microcystin, water systems are not required to monitor for it at this time. Ohio EPA has urged U.S. EPA to establish national drinking water thresholds for cyanotoxins and add them to

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the Unregulated Contaminant Monitoring Regulations (UCMR). U.S. EPA has indicated that recommendations on a national cyanotoxin health advisory concentrations are likely to be released late 2014 or early 2015 and they plan on adding at least microcystin to UCMR (2016 monitoring).

**Comment (LEW):**

What is the protocol for testing in water plants – treated and raw water – for microcystin, nitrates, phosphorus, algae? The number of tests in the report appears woefully inadequate. Are there different requirements at different times of the year? Consideration should be given to testing when there is a lot of turbidity and at different distances from the drinking water intake. Because the monitoring is so critical to public health, consideration should be given to providing grants for monitoring equipment for public water suppliers.

**Response:**

Ohio EPA requires monthly finished water nitrate monitoring to ensure compliance with Safe Drinking Water Act maximum contaminant levels (PWSs provide nitrate compliance data). Ohio EPA biases raw water nitrate sampling to include at least 5 samples when nutrients are typically observed at their highest concentrations (typically spring, during high flow events). At this time, microcystin monitoring is incident-response based and occurs when there is the highest likelihood of detecting toxins in the source water. Ohio EPA's PWS Response Strategy states that Ohio EPA will monitor for toxins whenever there is a likelihood of toxins impacting drinking water quality. Ohio EPA encourages routine monitoring by PWSs that have persistent cyanotoxin impacts. Ohio EPA and USEPA sampling data have shown no correlation between turbidity and microcystin concentrations (turbidity can be caused by factors other than algae).

**Comment (LEW):**

Support Ohio EPA's assessment unit determination for toxins from algae, but request that what, where and when tests are taken be reviewed.

**Response:**

Please provide specific comments on the PWS HAB Response Strategy.

**Comment (LEW):**

20 samples for drinking water over a five year period is too few and presents an unacceptable risk to the public. The issues of credible data, frequency etc. must be worked out to protect public health.

**Response:**

Efforts are made to collect samples during the time period when contaminants of concern are typically at maximum concentrations (spring high flow events for nitrate, during an active bloom for cyanotoxins).

**Comment (LEW):**

There is literature that suggests that microcystin concentrations below the WHO standards are detrimental to dialysis patients. Has Ohio EPA, Ohio Department of Health reviewed the literature and should there be special consideration for dialysis treatments?

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**Response:**

This information will be reviewed and changes may be made to address at-risk groups in the revised PWS HAB response strategy (2014).

**Comment (LEW):**

Only 36.6% of the public drinking water plants had sufficient data for nitrates. What needs to be done to get more testing?

**Response:**

Assessments for the PDWS Use are relatively new (since 2008), so data is lacking. DSW and DDAGW are collecting more samples every year to add to the number of water systems that have enough data for an assessment.

**Comment (LEW):**

There should be requirements for testing drinking water intakes when algae is present in the intake. Are the chemicals that increase treatment costs in raw water being assessed for testing requirements?

**Response:**

Any chemical that is used in the water treatment process must be reviewed and approved by Ohio EPA.

### *Wetlands Comments*

**Comment (TNC):**

I1. Wetlands

We greatly appreciate the effort to include "a strategy for including information on the condition of the state's wetland resources as part of the integrated reporting process" (page I-1). We find such analyses informative for purposes such as for directing conservation efforts to good candidate wetland areas for mitigation protection and restoration, the Clean Ohio Fund or other protection such as the Water Resource Restoration Sponsor Program (WRRSP).

Re: I1.3 Next Steps (Page I-8): We recognize that to do detailed assessments or "ground-truthing" like that conducted in the Middle Scioto watershed takes a significant amount of time, but we encourage the Agency to continue, and possibly to work with partners in completing more areas. We find the ability to assess and compare the quality of wetland sites useful for conservation of this limited resource.

The Agency proposes to conduct detailed field studies at "a random selection of wetlands within targeted HUC12 watersheds on a rotating basin schedule" (page I-8). Figure 2. Land use categories, as depicted on the 2006 National Land Cover Dataset (NLCD), for the Middle Scioto TMDL area. To continue this work, we recommend a near-term focus on areas of Ohio judged to be most at risk, such as the most rapidly developing areas, or wetland areas adjacent to these. Some high-quality wetland areas, at least according to "best professional judgment" should also be included in early assessments. For selecting watersheds, based on our review of the "area-weighted Level 1 wetland condition score for all NWI wetlands" map on page I1 Supplement -13, we recommend that the Agency focus on these two

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categories.

Re: "Workgroup of wetland experts" (Page I-8): "Ohio EPA would like to establish a workgroup of wetland experts to develop criteria for identifying wetlands that would qualify as "special waters."" The Conservancy agrees, and would appreciate being considered for participation in this group.

**Response:**

Thank you for the comments. We plan to continue to develop the wetlands analysis and will consider the request to be included in any future workgroup.

### *Harmful Algal Blooms (HABs) Comments*

**Comment (TNC):**

I4: Harmful Algal Blooms

The Conservancy greatly appreciates the coverage of Harmful Algal Blooms (HABs) in this section and encourages Ohio EPA to include this issue as a regular feature.

Specifically regarding Section I4.5, "Addressing HABs at the Source," the Conservancy would like to see more extensive descriptions of what is being done to reduce HABs. This would include coverage, in more detail, of progress in agricultural BMP implementation and measurement of the success of these programs. We expect that the Ohio Department of Natural Resources and the Ohio Department of Agriculture also would need to provide summaries of progress for this section.

We suggest rearranging these sections to have the "HABs" section follow the "Methodology Preview: Lake Habitat Use Assessment" to group these related and similar topics together.

**Response:**

We expect to include updates to the Harmful Algal Bloom section in future Integrated Reports and can expand coverage to provide more detail about progress. For this report, we have added links to information about statewide efforts to reduce nutrient loadings and will seek additional information to include in future reports.

Rearranging the sections in the order you suggest makes sense. We have switched Sections I2 and I3; I2 is now about mercury and I3 is inland lakes, followed by HABs in I4 (not changed).

### *Lake Erie Proposal (Section I5) Comments*

**Comment (TNC):**

I5: Lake Erie

This section "proposes an assessment unit framework, provides an overview of available data," etc. We thank the agency for including this section and look forward to additional content as it is collected and summarized. We agree that this is one of Ohio's best natural resources and the effort to summarize conditions in the Integrated Report is very logical and useful. We encourage the Agency to work with coordinated efforts such as the Lake Erie Millennium Network to make them aware of the Integrated Report's content need, and to enlist them in helping produce the report.

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**Response:**

We appreciate the comment and intend to coordinate with the Millennium Network and other groups collecting data or other information on Lake Erie to maximize the amount of data eligible for inclusion in future Integrated Reports.

**Comment (AGL):****1. Additional monitoring within Lake Erie and its tributaries**

The Alliance requests that additional monitoring efforts be initiated within Lake Erie and its tributaries beyond those proposed in the draft report in order to better assess impairment conditions. Section J of the draft report outlines that all three current nearshore assessment units for Lake Erie were found to be impaired for 2014 in at least one category and need TMDLs. To expand upon these three assessment units, a total of ten Lake Erie assessment units (LEAUs) are proposed for future studies in Section I5.2.2.

The presented data collected in 2013 for available proposed LEAUs found that none met LaMP standards for phosphorus and chlorophyll-a levels. All data sets available as well increased in measured levels of phosphorus and chlorophyll-a from 2012 to 2013, as seen in Figures I5-3 and I5-4. This data indicates that phosphorus levels and their harmful effects are a rising problem that must be addressed. Further monitoring in parts of the watershed has been conducted by the National Center for Water Quality Research at Heidelberg University since 1974. However, there are just a handful of stations that supply the data to determine total loads to Lake Erie from Maumee and other drainages to Lake Erie.

The International Joint Commission's (IJC) most recent Lake Erie Ecosystem Priority (LEEP) report as well notes significant knowledge gaps that exist due to lack of monitoring stations, which includes tributary and Lake Erie nearshore monitoring<sup>1</sup>. Additional monitoring stations need to be established for Lake Erie in order to reduce the threat of phosphorus and HABs.

Additional monitoring stations will allow researchers to identify highest nutrient yielding sub-watersheds in order to pinpoint locations where resource management efforts should be prioritized to achieve meaningful reductions. Furthermore, monitoring in the nearshore areas and open waters of Lake Erie needs to have greater spatial and temporal coverage to help us understand how nutrient loads affect oxygen levels and other parameters in the lake. Without sufficient characterization of the system and ongoing monitoring, it is not feasible to assess the effectiveness of management decisions and changes in the ecosystem over time. Additional LEAUs should therefore be established and addressed for the four beneficial uses in Sections E through H and for 303(d) listing.

<sup>1</sup> International Joint Commission (IJC) (February 2014). A Balanced Diet for Lake Erie: Reducing Phosphorus Loading and Harmful Algal Blooms (A Report of the Lake Erie Ecosystem Priority), p. 63-66.  
<http://www.ijc.org/files/publications/2014%20IJC%20LEEP%20REPORT.pdf>.

**Response:**

Through our monitoring and discussion with the Ohio Lake Erie Phosphorus Task Force Phase II and other Lake Erie experts, the impact of annual weather greatly impacts the formation and extent of Harmful Algal Blooms on Lake Erie. In 2012, the drought and weather patterns were a major contributor to the reduction in algal blooms observed that year. Due to the year to year variability, it is difficult to draw conclusions about phosphorus trend by simply comparing 2012 to 2013. As recommended in the Phosphorus Task Force report, it is more appropriate to consider longer term trends when evaluating the nutrient and chlorophyll levels in Lake Erie and the tributaries.

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Ohio EPA is currently evaluating the effectiveness of the 2013 ambient station monitoring network to determine how well it captures the variability of key water quality parameters among the proposed assessment units. We agree that monitoring the individual tributary loads will provide an important piece of information to monitor and track the effectiveness of implementation activities. Monitoring the nearshore and open water is also important but there are limitations to how many stations the agency can effectively manage and also a question of diminishing returns on value of data. For the purpose of tracking the seasonal or annual average of an assessment unit, several sites may be sufficient to provide a statistically valid measurement and allow to us track conditions long term. Ohio EPA also recognizes that there are other parties responsible for monitoring the nearshore and open waters and in order to maximize resources we intend to coordinate with these groups, identify the gaps and eliminate any overlap in monitoring efforts.

Expanding Lake Erie assessment from the coastal shallow waters to all of Ohio's nearshore and offshore waters compels Ohio EPA to collect representative samples to characterize each Lake Erie assessment unit (LEAU) and to work with others to ensure that high-level credible data are available. As our knowledge of Lake Erie dynamics increases there may be a compelling argument to expand beyond 10 LEAUs, but at this time we believe the proposed units are sufficient to provide a meaningful assessment of Lake Erie conditions.

Finally, as noted elsewhere in these responses, Ohio is completing TMDLs for nutrients for the contributing Ohio Lake Erie watersheds. Nearly all of the needed TMDLs are complete or underway. Ohio TMDLs begin with a detailed watershed assessment and the collection of new data. Thus, recent data are available for the watersheds draining into the western basin, including the Maumee River. Monitoring in these watersheds continues on a rotating basin schedule.

**Comment (AGL):**

2. 303(d) listing of Lake Erie as algae impaired for recreation use

The Alliance requests that Ohio EPA adds Lake Erie to the 303(d) list as algae impaired for recreation use due to excessive phosphorus levels and corresponding excessive chlorophyll levels, which are indicators of an elevated trophic level in the lake. Ohio's narrative water quality criterion states that all waters should be "free of nutrients entering the waters as a result of human activity in concentrations that create nuisance growths of aquatic weeds and algae"<sup>2</sup>. Figure 1 reveals that this is not the case for Lake Erie. Algal blooms that continue to congest the lake must be addressed.



Figure 1: Algal blooms across Western and Central Basins of Lake Erie, Oct. 2011

Comments from the Environmental Protection Agency (EPA) for Ohio EPA’s 2012 draft report urged Ohio to add Lake Erie open waters to the 2012 303(d) list. This request stemmed from their recent data that indicated impaired conditions in the lake. However, Ohio EPA ultimately decided that EPA’s data was submitted beyond the reporting period but said it would be taken into consideration for the 2014 report.

EPA provided results from three stations in open waters of the western basin of Lake Erie (Figure 2). In comparison to the recommended LaMP targets, averages over ten years were found in exceedance for all three stations, which coincided with recent increased algal blooms.

Spring water column average annual value exceedences in 10 years (2001 - 2010)

Station	Chlorophyll – a*	Highest value Chlorophyll-a µg/l (LaMP target 3.5 µg/l)	TP *	Highest value TP in µg/l (LaMP target 15 µg/l)
ER 58	5 of 10 yrs	6.28	10 of 10 yrs	88.4
ER 59	2 of 10 yrs	7.98	8 of 10 yrs	226.3
ER 60	1 of 10 yrs	21.9	8 of 10 yrs	141.2

Summer epilimnetic average annual value exceedences in 10 years (2001 – 2010)

Station	Chlorophyll – a *	Highest value Chlorophyll-a µg/l (LaMP target 3.5 µg/l)	TP *	Highest value TP in µg/l (LaMP target 15 µg/l)
ER 58	10 of 10 yrs	13.5	8 of 10 yrs	66.7
ER 59	9 of 10 yrs	16.6	6 of 10 yrs	92.4
ER 60	9 of 10 yrs	24.4	5 of 10 yrs	29.8

\*indicates number of years out of 10 that the average annual values are exceeded.

Figure 2: Spring and summer average annual value exceedences in 10 years (2001-2010)

EPA data does not appear to have been explicitly considered for this 2014 draft report, but data was provided for additional proposed LEAUs in Section I of the draft report. As referenced earlier, figures I5-3 and I5-4 show that none of these proposed assessment units met LaMP targets for phosphorus or chlorophyll-a and all available data sets as well increased in measured levels of phosphorus and chlorophyll-a from 2012 to 2013. The chlorophyll data documented in Figure I5-4 led Ohio EPA to specifically identify these proposed LEAUs as hypereutrophic, which is not a natural state for Lake Erie and must be corrected.

Ohio EPA needs to do more to ensure that LaMP targets are being reached. Harmful algal blooms due to excess phosphorus in areas such as Lake Erie have been discussed in the “Future Considerations” section (I) of the 2012 and 2014 reports but have not been significantly acted upon. Action needs to be taken now to guarantee that the health of Lake Erie is recovered. Based on all of the data provided, Ohio EPA must now add the lake to the 303(d) list as algae impaired to prompt TMDL development and improve current conditions.

<sup>2</sup> AOC 3745-1-04

**Response:**

A binational or at least federal “TMDL-type assessment” would be the most effective way to address Lake Erie and in fact such efforts are currently underway via implementation of the 2012 Great Lakes Water Quality Act (GLWQA 2012). In particular, the commitments under Annex 4 include development

of phosphorus targets and allocations for the nearshore and open waters of Lake Erie by 2016 and domestic actions plans for achieving those targets by 2018. These efforts go beyond addressing the harmful algal blooms by considering multiple ecological objectives and allocating loads to both U.S. and Canada. One advantage of this approach is inclusion of the federal, state and local partners, all working together, to design an approach that can be effectively implemented. Both the U.S. and Canada recognized the urgent need to take action on Lake Erie and accelerated the timeframes to develop targets, determine allocations and implement the domestic action plans specifically for Lake Erie. Ohio EPA is actively engaged on the Annex 4 and other Annex subcommittees and key task groups and looks for this binational effort to provide an effective management platform to addresses the sources holistically.

In this report, the current LaMP targets were used as placeholders until the new targets are finalized under the GLWQA. It is not appropriate for Ohio to designate any more of Lake Erie as impaired on the 303(d) list until there is more agreement on assessment units, targets, data sufficiency, etc. Meanwhile, the work under Annex 4 to address the problems is proceeding apace.

**Comment (AGL):**

5. Application of a collaborative binational approach is needed to reduce phosphorus loading  
 The Alliance urges Ohio EPA to join in a collaborative binational approach to address the issue of phosphorus and HABs. Lake Erie’s nutrient problem will require collective and collaborative efforts. A comprehensive binational regime is needed to limit phosphorus discharges from all sources, both point and non-point, that are contributing to HABs and hypoxia in the Basin. The IJC has recommended such a collaborative approach in its Lake Erie Ecosystem Priority (LEEP) report and proposed phosphorus loading targets. A recently developed Cyanobacterial Index–Total Phosphorus (CI-TP) loading model studied by the IJC shows that spring (March through June) discharge and TP loads entering in Lake Erie from the Maumee River from March-June are very strongly correlated to CI (Figure 3). This model along with additional studies aided IJC in their development of proposed phosphorus loading targets for Maumee River and the western and central basins of Lake Erie. Without significant reductions in phosphorus, HABs and their associated cyanotoxins cannot be addressed, and a binational approach is necessary to reach proposed targets in a timely manner.

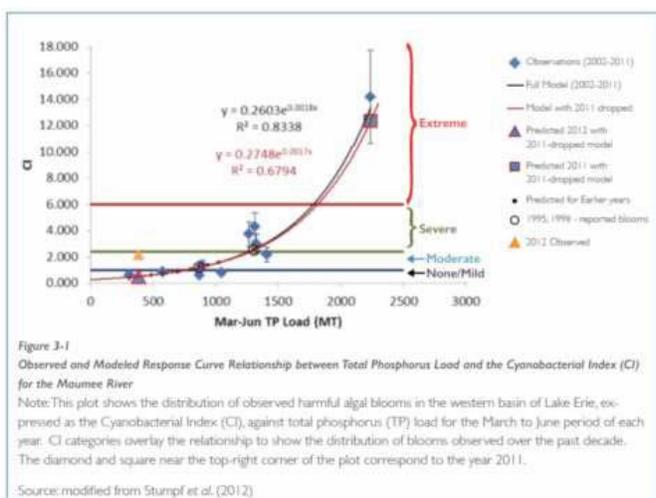


Figure 3: Observed and Modeled Response Curve Relationship between Total Phosphorus Load and the Cyanobacterial Index (CI) for the Maumee River<sup>8</sup>

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Unfortunately, the draft report does not adequately discuss collaborative phosphorus loading targets under the program summaries for surface water, environmental and financial assistance and drinking and ground waters that are outlined in Section C of the report. This section should incorporate programming such as that proposed by the IJC, through which phosphorus loading targets can help improve the health of Lake Erie's waters. The Alliance recommends that Ohio EPA adheres to phosphorus targets summarized on pages 70 and 71 of the LEEP report for the Maumee River and western and central basins of the lake and further collaborate among Great Lakes states and Canada. The IJC suggests that efforts such as a tri-state phosphorus TMDL between Michigan, Indiana and Ohio, for example, could help accomplish these recommendations. Ohio EPA should lead by example for other Great Lake states and Canada that share Lake Erie by explaining how its TMDL efforts will operate as part of a collaborative binational approach.

<sup>8</sup> Ibid. 1, p. 44.

**Comment (OUG):**

Section 15 Lake Erie

The Utilities note that Ohio EPA has provided an additional section that discusses Lake Erie. The Utilities note that whatever Ohio EPA chooses to do, any TMDL for Lake Erie needs to be coordinated among the adjoining states and between the United States and Ontario.

**Response:**

Ohio is actively working with U.S. EPA, Environment Canada and other states on the initiatives included in the renewed (2012) Great Lakes Water Quality Agreement. Annex 2 aims to establish a common monitoring framework to provide a more consistent monitoring program in the lake, while Annex 4 focuses on nutrients. The Annex 4 commitments include developing phosphorus targets and allocations for the nearshore and open waters of Lake Erie by 2016 and domestic action plans for achieving those targets by 2018. The Annex 4 approach is more comprehensive than a TMDL because it considers multiple ecological objectives (reduction of harmful algal blooms, minimizing hypoxic zones, maintaining mesotrophic state in the western basin, etc.), and allocates loads to both the U.S. and Canada.

Ohio is working in advance of the eventual Annex 4 domestic action plans by completing TMDL analyses that address nutrients in Ohio Lake Erie tributary watersheds. Nearly all of the needed TMDLs are complete or underway. In addition, Ohio is spurring action on the ground via GLRI grants to demonstrate innovative agricultural practices and funding practices to reduce phosphorus in rural and urban areas through 319 and Surface Water Improvement Fund (SWIF) grants.

Finally, Ohio pioneered the type of load reduction analysis contained in the LEEP report through the Ohio Lake Erie Phosphorus Task Force Phase II, which recommended (1) seasonal and annual targets for total and dissolved phosphorus from western basin Lake Erie tributaries and (2) a focus on agricultural practices to improve soil health and reduce runoff from agricultural lands. More information and detailed recommendations are contained in the Task Force report available at [http://epa.ohio.gov/portals/35/lakeerie/ptaskforce2/Task\\_Force\\_Report\\_October\\_2013.pdf](http://epa.ohio.gov/portals/35/lakeerie/ptaskforce2/Task_Force_Report_October_2013.pdf).

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**Comment (AGL):**

6. Conducting a more detailed evaluation of floating debris which includes onshore litter.

Ohio EPA must provide a more detailed evaluation of floating debris, including offshore litter, in order to improve the health of Lake Erie beaches and waters. The negative impact of litter on the aesthetics of the Lake Erie shoreline is indisputable. Nearshore waters and beaches strewn with dirty cigarette butts, plastic bags, bottles, cans, condoms, and the like, are not an inviting foreground for the natural beauty of Lake Erie. Of particular concern are those items that not only detract from the view, but also are a health and safety hazard to the public.

Floating debris in amounts that are “sufficient to be unsightly or cause degradation”<sup>9</sup> violates Ohio’s Water Quality Standards, yet the assessment methodology for aesthetic recreational use of lake waters does not include an evaluation of floating debris. To properly assess compliance with these standards as required by the CWA, Ohio EPA should develop a methodology to assess impairment of Lake Erie’s shoreline from floating debris. As the standard requires a determination of whether amounts are “sufficient to be unsightly or cause degradation”, the methodology must include processes for collecting and evaluating debris data and criteria for deciding if the standard has been attained.

For example, Ohio EPA might evaluate monitoring data of the volume of floating debris collected in catch basins and in stormwater systems. Additional data is readily available from agencies charged with monitoring and protecting Lake Erie beaches. EPA’s Beach Sanitary Survey (BSS), used to assess primary and secondary contact use of the Great Lakes’ beaches, provides a standardized format and method for the collection of data on beach conditions, including litter/debris. This standardized evaluation tool ensures all beaches are assessed accurately and uniformly. In their evaluation of debris/litter, the BSS measures the amount of debris/litter, both floating and onshore. Onshore litter is vital to this evaluation because much of the litter that is on the beach was either washed up on the shore from the water or can be washed into the water from the shore. An assessment that does not include onshore litter is not fully accounting for recreational use impairment in the nearshore waters.

Data collection and quality assurance methods used by the Alliance’s Adopt-a-Beach™ volunteer survey are modeled on the EPA’s BSS methodology. In the 2013 beach season, the Alliance’s Adopt-a-Beach™ surveys recorded considerable amounts of litter on a number of Ohio’s Lake Erie beaches. At beaches surveyed, such as Lakefront Reservation (Edgewater), Euclid Creek Reservation (Euclid Beach) and Huntington Beach, top collected items included food-related items (31211), cigar tips (15865) and cigarettes and filters (11568), which contributed to a grand total of 70,295 items and 9,393.33 pounds of trash collected over the season. 2013 Adopt-a-Beach™ data for Ohio’s Lake Erie beaches is included with these comments for your review. Based on this data, Ohio should list Lake Erie shoreline as impaired due to floating debris.

At a minimum, Ohio EPA must go further to assess impairments of the recreational use and aesthetics of Ohio’s Lake Erie shoreline which includes an evaluation of litter, both floating and onshore. We also urge Ohio EPA to use the EPA’s Beach Sanitary Survey as a model for collecting data on which to base the attainment determination.

<sup>9</sup> OAC 3745-1-04 (B)

**Response:**

We appreciate the comment and recommendation to consider the impact of litter and floating debris on the condition of Lake Erie. It is not clear at this time how the type of data you collect would fit in with

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requirements under Ohio's credible data law for inclusion in analysis of impairment status. Pursuant to Ohio Revised Code § 6111.52(D), only level 3 credible data may be used to determine whether a water is supporting its designated use. We do note that two of the three Lake Erie assessment units are considered impaired for the recreation use as a result of elevated bacteria levels. While no TMDL has been done yet, it is likely that reduction strategies for bacteria will also alleviate the litter problem at the same time to some extent.

This type of litter measure would be ideal for inclusion in other reports, such as the Lake Erie Quality Index (currently in preparation by the Ohio Lake Erie Commission), SOLEC and other indicator reports. We recommend that you work with the organizations responsible for those reports and evaluation to include your data.

**Comment (LEW):**

The data collection/credible data is a particular problem for Lake Erie. Not being able to assemble, assess and model collected data – Level 2 or 3 is an obstacle to gaining improved science to help Lake Erie.

**Response:**

We agree that the Credible Data requirements pose a significant hurdle for data on Lake Erie but according to ORC Sec. 6111.52, 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 total maximum daily load (TMDL) calculations. We hope you will help us encourage those groups that collect water quality data on Lake Erie to work through our Credible Data Program and submit Level 3 data to help increase the amount of data available for future Lake Erie assessments.

**Comment (LEW):**

While nearshore monitoring may work for most of the Great Lakes, in reality the whole western basin of Lake Erie would qualify for nearshore for the other Great Lakes and other basins of Lake Erie. The point being that all of the western basin of Lake Erie should be considered nearshore. The winds are more of a determining factor than putting some arbitrary line on the western shorelines. For instance in 2013, the Monroe water plant experienced much less algae than the water intakes on the southern shores. Therefore this is a request that the entire western basin of Lake Erie be classified as nearshore. There should be one assessment unit for western Lake Erie and additional assessment units for Maumee and Sandusky Bays with monitoring stations that coordinate data throughout the western basin and the bays. The data should then be linked with the major river outfalls and a monitor in each where the seche ends.

**Response:**

We acknowledge that winds play a significant role in the location and movement of harmful algal blooms on Lake Erie and also recognize that there are prevailing currents and event-based mixing occurring constantly on Lake Erie. It is an extremely dynamic lake and that in itself poses the greatest challenge for designing an effective monitoring and assessment methodology.

One of the primary objectives of the ambient station network is to characterize water quality throughout the water column in each of the designated LEAUs. There are numerous studies documenting the prevailing currents in Lake Erie and our assessment units were developed to capture

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areas with common characteristics (including sediment, water quality and biology). An original consideration was given to evaluating all of the western basin waters (>3m) as one zone. However, the Detroit River and Maumee River flows produce plumes of water with very distinct characteristics and that is why the Western Basin was subdivided at the 7m bathymetric contour.

Related to the extreme variability observed on the Lake, identifying where the lake-effect zone or seiche effects end is highly variable and we believe resources are better focused on tributary monitoring stations and nearshore stations out beyond the river-lake interface. USGS is investigating the 'rivermouth' waters to better understand water chemistry and the ecological system in these waters. Ohio EPA looks forward to the results and will consider recommendations for effective monitoring in the dynamic rivermouth zone.

**Comment (LEW):**

The problem is that water quality is determined in the streams and the runoff of sediments and nutrients is showing water quality problems in the receiving waters – lakes, bays and reservoirs. Also, public water supplies are incurring increasing costs for treating water for drinking. If the quality of the water in the public water intakes is deteriorating, then how does that translate into water quality in Ohio is improving?

**Comment (LEW):**

And the problem is clear in statements like the below:

- Maumee River, 2012: 81% full attainment over 108 miles (3 LRAUs)
- Auglaize River, 2012: 100% full attainment over 33 miles (1 LRAU)
- Tiffin River, 2012: 100% full attainment over 20 miles (1 LRAU)

Researchers in the area state that the Maumee River is over 40% of the nutrient input to Lake Erie with an excessive amount of nutrient runoff from the Maumee River watershed. Most information suggests the greatest inputs are upstream of the I75 bridge which would include the Auglaize and Tiffin Rivers. Furthermore public water plants along the river are being challenged by excess nitrate and other nutrient inputs. The Auglaize and Tiffin are listed in full attainment. This makes little sense when the Maumee and its tributaries have drinking water sources that have nitrate and other drinking water intake problems. The Tiffin, Auglaize and other Lake Erie watersheds need nutrient TMDL's.

**Response:**

There is a misperception inherent in the comments that because there are problems in the Western Basin and because other beneficial uses in the Maumee basin are impaired (i.e., Public Drinking Water Supply Use), there must be, by default, problems with aquatic life in the Maumee, Tiffin, and Auglaize river mainstems. Ohio EPA assesses each beneficial use separately, in both basin survey reports and the Integrated Report, and it is not uncommon or unexpected that different beneficial uses may have a different attainment status.

For over thirty years, Ohio EPA has assessed the status of stream and river aquatic life uses all over Ohio with robust sampling techniques and biological criteria and we are extremely confident in our overall determination of aquatic life use status and trends in all three of these mainstem rivers. Without a doubt, there have been modest to significant upward trends in attainment status in each of these rivers since they were last sampled in the 1990s, and we can point to ongoing restoration and protection activities and changing land use practices in these basins which likely contributed to the positive changes. While these downstream mainstem rivers are improving, there are still identified water

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resource impairments documented in many Maumee, Tiffin, and Auglaize subwatersheds for which TMDLs (including those for nutrients) have either been developed or are being developed. As the focus of these TMDLs is on near field beneficial use impairments, it is well understood that these will likely not be the ultimate answer to the problems afflicting the Western Basin. However, any decrease of pollutant loading over time delivered to the Western Basin via these major tributaries and attributable to successful implementation of basin-level TMDLs should bring us closer to solving that important problem.

**Comment (LEW):**

The discussion on sediments is for contaminated sediments. There are nutrients in the sediments that are not classified as contaminants but having harmful impacts. Sediment analysis should include nutrients including the different forms of phosphorus.

**Response:**

Ohio EPA collected a total of 11 sediment samples for chemical analysis from Lake Erie over the 2011-12 field seasons. Samples were collected from the Western and Sandusky Basins and from Maumee and Sandusky Bays. Both total phosphorus and ammonia were analyzed in these samples and the data are available upon request. No discussion of the results was included due to the lack of standards or targets to which to compare the results. Only total phosphorus was analyzed because Ohio EPA's lab does not have methods developed to determine phosphorus fractions in sediment.

**Comment (LEW):**

The problem with the assessment under the Great Lakes Water Quality Agreement Appendix four is that the analysis will not include Source Allocation – a key needed component to get nutrient reductions.

**Response:**

We disagree with the comment as Annex 4 requires development of phosphorus targets and allocations for the nearshore and open waters of Lake Erie by 2016 and domestic actions plans for achieving those targets by 2018. Ohio EPA is actively engaged on the Annex 4 subcommittee and key task groups and looks for this binational effort to provide an effective management platform to address the sources holistically.

Ohio EPA is working to complete TMDLs for the Sandusky and Upper Maumee watersheds and most of the watersheds draining to Lake Erie will have a TMDL in place to address nutrients and other pollutants. These TMDLs will provide some of the local information needed to utilize the allocations from Annex 4 and develop a domestic action plan that provides local targets for source reduction and allows for more strategic implementation of BMPs and other management actions.

**Comment (LEW):**

Ohio should continue to ask for a western and central nutrient TMDL whose criteria should included with the Appendix 4 evaluation. Making sure that the TMDL requirements are met will cover U.S. requirements under the Clean Water Act.

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**Response:**

In 2011 Ohio EPA requested that U.S. EPA initiate a TMDL for the western basin of Lake Erie. However, since that time, the renewed binational GLWQA shows promise as the most likely path to water quality improvement in Lake Erie. Under Annex 4, target phosphorus loads and a strategy to meet those targets will be developed. In the meantime, Ohio EPA is working to reduce loading from the Ohio tributaries that drain to Lake Erie. TMDL analyses that address nutrients and other pollutants have been established for nearly all Ohio Lake Erie watersheds.

**Comment (LEW):**

15.2.3 Identifies sources of data which has already been discussed in these comments. This section should be dedicated to source allocation of nutrients and a plan to address the reductions needed.

**Response:**

The purpose of Section 15.2.3 is to identify potential data sources for future assessment of Lake Erie and to highlight and educate potential data collectors to the Level 3 requirements. As previously described, we recognize the challenges presented by the Level 3 requirements but hope to expand the availability of Level 3 data for the 2016 assessment by notifying and working with potential data collectors in advance as many of them may not be aware of the Ohio statute's requirements. In future reports, discussion about data sources will be included in Section D.3.

**Comment (LEW):**

The report says that Lake Erie should be monitored for total phosphorus and chlorophyll, yet researchers in our area say that there also needs to be monitoring for dissolved reactive phosphorus, yet OEPA is not including this – why?? There is a different percentage of total phosphorus that is dissolved reactive from agriculture than from wastewater and manure. How are these being factored into the assessment? Also why are nitrates not included. There is science that says in late summer or fall, the 'limiter' is nitrates not phosphorus/ Please explain.

**Response:**

Ohio EPA collected a total of about 317 water samples for chemical analysis from Lake Erie over the 2010-2013 field seasons. Both orthophosphate and nitrate-nitrite were analyzed in these samples and the data is available upon request. No discussion of the results was included due to the lack of standards or targets to compare the results to. Orthophosphate is a poor candidate for development of standards or targets because it is present in the water at low concentrations and is quickly assimilated. A common reporting limit for orthophosphate is 10 ppb and concentrations are often below this level. Of the total samples analyzed for orthophosphate 64% were below this level. Ohio EPA's lab developed low level phosphorus analysis method to address this issue in 2013 and is now able to achieve a 1 ppb reporting limit for orthophosphate. Another problem with using orthophosphate to evaluate nutrient enrichment is that sample collection methods require the raw water to be filtered in the field and analyzed by the lab within 48 hours. This can be a significant obstacle to overcome.

**Comment (LEW):**

Also, there is a continuing request for Maumee and Sandusky Bays to be classified as assessment units.

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**Response:**

Consideration was given to developing separate assessment units for the Maumee and Sandusky Bays but that would require segregating the Western Basin and Sandusky Basin Coastal zones into separate zones, further stretching monitoring resources. Ultimately, those zones and the Bays are already identified as impaired, and the new LEAU designation will not change the status of the waters. Specific monitoring will be conducted on Maumee and Sandusky Bays as part of Ohio EPA's nearshore monitoring and other surveys.

**Comment (LEW):**

The greatest loads are coming into the lake in a four month window. How is assessment and evaluation incorporating this fact?

**Response:**

The methodology used to evaluate total phosphorus data is addressing this by pooling data collected from sites within an assessment unit and calculating an average spring value to compare to the target. The spring period is defined as April 1-June 30.

**Comment (LEW):**

The report page I38 states that algae peaks in mid July. Define peak? Most of the satellite images and personal observation show the worst algae concentrations in Lake August into October. Please explain.

**Response:**

Chlorophyll a concentrations are being used to evaluate algal biomass. After taking another look at the 2011-13 dataset it appears that concentrations generally peaked closer to mid-August. This change can be made to the text. Please note that this was meant to be a general statement about how the dominant forms of algae change as the season progresses. Annual variability is expected and depends greatly on weather patterns.

**Comment (LEW):**

We support the recommendation for testing for mayflies, phytoplankton, zooplankton and periphyton.

**Response:**

Thank you for the comment.

**Comment (LEW):**

Ohio EPA is trying to define an algal bloom in terms of severe, moderate, and minor. The reality is that the blooms are not stationary but move throughout the basin depending on the winds. If the winds push the algae to the shore, the most severe blooms will be along the shore. In 2011 the blooms were not as severe in the far western basin as they were further east because of winds. The algal blooms can be as variable as beach monitoring – here one day – gone the next – though the extent of the bloom will cover some areas more consistently. The NOAA monitoring data for microcystin in 2013 demonstrates this well.

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**Response:**

We agree with your statement that algal blooms are not stationary and are as dynamic as the conditions on the lake. Ohio EPA Surface Water and Drinking and Ground Water staff are coordinating with NOAA to utilize their remote sensing data to monitor the current and predicted algal bloom conditions and movement. During vertical profiling of the water column during bloom and non-bloom events the vertical movement of the cyanobacteria was evident. In some cases the NOAA imagery indicated there was no surface bloom, although our monitoring indicated densities of algal cells at depth. We have shared these observations and data with NOAA, Ohio public drinking water supply operators and other partners on the Lake and will continue to communicate with these partners.

***Miscellaneous Comments*****Comment (TNC):**

Section D: Framework for Reporting and Evaluation

Data management: The Integrated Report (IR) should provide the status of efforts to: 1) coordinate multi-agency data records in Ohio, especially through the Ohio Water Resource Council and State Agency Coordinating Group (as has been initiated/led by Cathy Alexander of the Division of Surface Water); 2) ensure that data is credible; and 3) make these data secure and publicly available in a readily accessible format. The IR should describe these data, report on progress to make the various datasets compatible, and demonstrate how they are being shared and used.

While the OWRC/SACG effort is now underway, this IR would be a good place to document this effort and ensure that the public (and other agency staff) is aware of it. "Section D: Framework for Reporting and Evaluation" might be the best place in the report to include this discussion.

This opportunity also should be briefly described in "C5. Cooperation among State Agencies and Departments," which includes a brief description of the OWRC. That section also should mention the State Agency Coordinating Group, which provides the support for the OWRC.

**Response:**

We agree that the efforts to coordinate better on data collection, and the quality of that data, is appropriate to include in the Integrated Report in some manner. For this report, a description of the OWRC sponsored efforts has been added to C5 as suggested. We will need time to develop a meaningful but relatively simple way to report progress; we will plan to provide that in the 2016 report.

**Comment (TNC):**

I2.3.1 Methodology Preview: Lake Habitat Use Assessment

In this discussion, the report should mention the link to the Harmful Algal Bloom issue. (HABs are well covered in Section I4, but it should be made clear to the reader of I2.3.1, since many HABs are occurring in these inland lakes.)

Beyond this connection between sections, it would seem clear to the general public that if a lake has a HAB, then it should be classified as impaired. While the proposed "lake habitat use criteria" in Table I2-1 might determine that one of the criteria, in effect (for example, chlorophyll), is part of a determination that a HAB is present, the HAB and the lake habitat assessments should be linked.

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**Response:**

(Based on another recommendation, Section I2.3.1 is now Section I3.3.1.) We added a general reference to the HAB discussion at the beginning of the Section I3. It is not determined at this point how the presence of a HAB would be considered in the aquatic life assessment of inland lakes, which is the primary focus of Section I3.

Listings must be based on more substantial criteria than what may seem evident to the general public. Ohio is able to provide a specific approach for the public drinking water supply use and may eventually develop methodologies for other uses and water types. For example, for the PDWS, if the lake is a source of drinking water and the HAB is producing toxins at concentrations greater than drinking water thresholds (on at least 2 occurrences), the lake will be listed as impaired for the PDWS use.

**Comment (AGL):****3. Monitoring of BMPs for nonpoint runoff**

Monitoring of BMPs for nonpoint runoff is needed to better understand progress of these programs. Best management practices (BMPs) can be an effective way to reduce the amount of nutrients in nonpoint runoff. However, there is alarmingly little study of whether or not BMPs already implemented are working as intended and whether they are effective in the long term. The most recent LEEP report acknowledges a gap in research of BMP phosphorus load reduction measurements<sup>3</sup>. The report also emphasizes a lack of understanding regarding dissolved reactive phosphorus, which has been linked to HABs because of its higher bioavailability than particulate phosphorus<sup>4</sup>. Further BMP monitoring must be completed to ensure that BMPs are properly contributing to reduced phosphorus loadings and HABs.

Section C1 of the draft report lists that a main objective of biological and water quality surveys is to determine changes found before or after implementation of BMPs, yet details are not provided on how BMP studies are incorporated into surveys. The IJC recommends that governments support additional research to determine BMP progress. Consistent, comprehensive and site specific monitoring of BMPs is vital to understand what is working and what is not when we try to reduce phosphorus inputs, thus a monitoring program for nonpoint runoff should be introduced into Section C of the report.

<sup>3</sup> Ibid.1. p. 66.

<sup>4</sup> Ibid.1. p. 72.

**Response:**

We agree that more study is needed on the effectiveness of agricultural BMPs. The Agricultural Research Service of the U.S. Department of Agriculture is charged with evaluating such BMPs. In addition, in Ohio specifically, a major research effort on the Ohio Phosphorus (P) Risk Index is underway with initial results expected in 2015. This key agriculture tool is used by farmers statewide to develop nutrient management plans for both manure and commercial fertilizer application. A three-year \$2 million project to evaluate and, as necessary, revise the Ohio P Risk Index to better predict the risk of phosphorus moving off farm fields is being funded by a \$1 million USDA Conservation Innovation Grant and \$1 million in matching donations from local funding partners. The project is using edge-of-field testing to validate the phosphorous risk index and study the effect of BMPs on phosphorous transport. The project will also develop an interactive web-based tool so farmers can calculate their P Risk Index scores, evaluate management options and make informed decisions to better manage phosphorus. Other research efforts are outlined in the Ohio Lake Erie Phosphorus Task Force Phase II report (see [http://epa.ohio.gov/portals/35/lakeerie/ptaskforce2/Task\\_Force\\_Report\\_October\\_2013.pdf](http://epa.ohio.gov/portals/35/lakeerie/ptaskforce2/Task_Force_Report_October_2013.pdf)).

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Also, Ohio EPA has documented the before and after stream condition of non-agricultural actions funded by the agency. For an example report, see “Biological and Habitat Studies: 17 River and Stream Projects in Ohio. Year 2011 Section 319(h) Clean Water Act Grants and Year 2010 GLRI/SWIF Grants,” available at [http://epa.ohio.gov/portals/35/documents/319\\_SWIF\\_TSD\\_2011.pdf](http://epa.ohio.gov/portals/35/documents/319_SWIF_TSD_2011.pdf).

**Comment (LEW):**

Also throughout the report there appears to be a very small number of tests for determinations of impaired classifications. What is the statistical confidence level that the number of tests and the conclusions reached provide? There seems to be an over emphasis on credible data but far less attention to the numbers, locations, frequency and weather conditions when the tests are taken. Furthermore the more stringent requirements of HB43 seem to be more of a hindrance than a help to assessing water quality. When data from water and wastewater plants is not acceptable, then something is gravely wrong with Ohio’s credible data requirements.

**Response:**

Data used in analysis are collected in accordance with Ohio EPA’s Quality Management Plan, as approved by U.S. EPA. Methods are documented in manuals and technical bulletins available at <http://epa.ohio.gov/dsw/bioassess/ohstrat.aspx>.

Ohio Revised Code § 6111.52 specifies that the Ohio EPA may use *only* level 3 credible data for:

- (A) Developing, reviewing, and revising use designations in water quality standards;
- (B) Developing a statewide water quality inventory or other water assessment report;
- (C) Identifying, listing, and delisting waters of the state for the purpose of section 303(d) of the Federal Water Pollution Control Act;
- (D) Determining whether a water of the state is supporting its designated use or other classification;
- (E) Establishing a total maximum daily load for a water of the state.

If the commenter believes that the credible data requirements are a hindrance to assessing and improving water quality, it must make such arguments to the General Assembly since revisions to the statute would be necessary to change these requirements.

Data from water and wastewater treatment plants submitted pursuant to permit are credible data pursuant to Ohio Revised Code § 6111.51(C), and were solicited for the Integrated Report by Ohio EPA. See Section D5.

**Comment (LEW):**

Although widely discussed on Lake Erie’s algae issues, flooding etc., the impact of changing weather – climate - is absent in the report. How is changing weather being factored into water quality assessment?

**Response:**

Looking for trends related to climate change in assessments may eventually be possible by examining the large database of Ohio biological data that has been derived from statewide, long-term, standardized and consistent approach to sampling for 30 years. Climate change is beginning to be a

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topic investigated in individual TMDL projects, mostly by altering storm intensity and stream flow extremes.

**Comment (LEW):**

The report lacks a section on source allocation for impairments which is supposed to follow the TMDL. This would be very beneficial to improving Ohio's water quality.

**Response:**

Source allocations are included in individual TMDL projects, which are completed as a result of listing on the 303(d) list. As explained elsewhere in this section, Ohio has completed many TMDLs. See Section J or the IR or the Ohio TMDL web page for additional information (<http://epa.ohio.gov/dsw/tmdl/index.aspx>).

**Comment (LEW):**

Lake Erie Waterkeeper requests that the State of Ohio request an executive order from the President of the U.S., similar to the one issued for Chesapeake Bay – attached - to require federal coordination and a nutrient TMDL (including source allocation) for the western and central basins of Lake Erie which culminates in a nutrient reduction plan for Lake Erie.

**Response:**

Ohio EPA believes that requesting such an order is not the best way to proceed at this time. As you know, in 2011 Ohio EPA requested that U.S. EPA initiate a TMDL for the western basin of Lake Erie. However, since that time, the renewed binational GLWQA shows promise as the most likely path to water quality improvement in Lake Erie. Under Annex 4, target phosphorus loads and a strategy to meet those targets will be developed. In the meantime, Ohio EPA is working to reduce loading from the Ohio tributaries that drain to Lake Erie. TMDL analyses that address nutrients and other pollutants have been established for nearly all Ohio Lake Erie watersheds. Implementing the actions needed to reduce loading from Lake Erie's Ohio tributaries is the focus of various State, federal and local programs.

**Comment (LEW):**

An overarching comment is that there should be nutrient TMDL's in the Lake Erie watersheds rather than spending time and money on aquatic TMDL's that declaring waters unimpaired when research shows that the waters are causing algae problems.

**Comment (LEW):**

Given that algae is a problem in Lake Erie, Ohio's inland lakes, Maumee and Sandusky Bays, Ohio should be conducting nutrient TMDL's rather than aquatic TMDL's. Ohio should give priority to waters that provide drinking water and the population/businesses served and waters of great economic importance for fishing, tourism, etc.

**Comment (LEW):**

Lake Erie's greatest water quality threat is nutrients. Aquatic life is negatively impacted by the algae rather than the algae being negatively impacted by the aquatic life, with the possible exception of the invasive mussels. There should be nutrient TMDL's rather than aquatic based TMDL's?

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**Response:**

When impairment of the aquatic life use is caused by nutrients, TMDLs to reduce nutrient loadings are completed. To date, of 64 TMDL projects completed in Ohio (addressing thousands of impairments), 40 have been completed for nutrients. TMDLs that include nutrient load reductions have been completed or are underway for nearly all of Lake Erie's contributing watersheds in Ohio. See the TMDL progress map and Section J of the 2014 Integrated Report for more information about TMDL progress in Ohio.

**Comment (LEW):**

Furthermore, the 303d report breaks Ohio down into 1,538 watersheds of which 1,427 have no drinking water sources and 38 large river units of which 29 have no drinking water sources. The report is based on miles of streams and does not factor in volume of water and populations served by the waters. Furthermore, Ohio reduced the size of the watersheds from 130 square miles to 27 square miles, making the smaller units on par with the larger ones diminishing assessment of downstream impacts in the larger units. The report graphs are based on the number of watersheds or rivers and how many are in compliance. There is no analysis of the volume of water, the economics from the waters or the number of people/businesses served. This methodology of water quality assessment of watershed units skews the OEPA surface water resources to waters of less import rather than the larger bodies of water like Lake Erie and the Ohio River that are more critical to Ohio's economy and people. If the graphs were based on economic benefit from the water and the number of people served, the report on the status of Ohio water quality would be much grimmer.

**Response:**

The Integrated Report is based on water quality data and water quality standards. It is a technical analysis: assessment units are defined, data are gathered, analyses are completed and results are reported. Factors such as economics and populations are important in crafting public policy, but they are outside the scope of the IR.

**Comment (LEW):**

Ohio 303d report relies heavily on testing on four categories: aquatic life, recreation, human health (from fish consumption) and drinking water. But most of the TMDL's and assessments are based on aquatic life to determine water quality – impaired waters etc. The aquatic life is again underscored with human health – which seems to make the list 3 categories. When considering aquatic life, how do excess nutrients, algae, sediments impact aquatic life other than oxygen depletion? Please explain. There is a statement in the report that impacts from nutrients on aquatic life is dependent on adopting nutrient criteria which is at least a year away for standards for small streams that will not consider runoff after rains. This seems woefully short of what is needed to address the nutrient problem in streams.

**Response:**

Besides the obvious issues related to dissolved oxygen depletion (e.g, diel respiration/photosynthesis swings and/or die-off and decay of the algae) caused by algal stimulation from excess nutrients, aquatic life is also negatively influenced by the physical presence of heavy mats or growths of plants and algae which can compromise habitat conditions to the point of limiting certain kinds of organisms sensitive to these habitat changes. In addition, excess sediment can result in the smothering of natural habitats even in areas which would appear to have adequate flushing current. Often, while sediment may appear to be slight in areas of water movement such as riffles and runs, excess sedimentation can result

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in destruction of habitat due to substrate embeddedness which can have a severe effect on the kinds of organisms that utilize these boulder/rubble microhabitats for growth and reproduction.

When impairment of the aquatic life use is caused by nutrients, TMDLs to reduce nutrient loadings are completed. Although nutrient criteria have not yet been adopted, Ohio has completed many nutrient TMDLs using the narrative criteria and the targets found in the Associations document (<http://www.epa.state.oh.us/portals/35/lakeerie/ptaskforce/AssocLoad.pdf>). To date, of 64 TMDL projects completed in Ohio (addressing thousands of impairments), 40 have been completed for nutrients. TMDLs that include nutrient load reductions have been completed or are underway for nearly all of Lake Erie's contributing watersheds in Ohio.

**Comment (LEW):**

The problem is that water quality is determined in the streams and the runoff of sediments and nutrients is showing water quality problems in the receiving waters – lakes, bays and reservoirs. Also, public water supplies are incurring increasing costs for treating water for drinking. If the quality of the water in the public water intakes is deteriorating, then how does that translate into water quality in Ohio is improving?

**Response:**

Ohio's water resources take many forms: creeks, streams, rivers, lakes, reservoirs, wetlands, etc., and those waters are evaluated for various beneficial uses. Ohio EPA has more information on some types of waters than others and can report more for some uses than others. We can say with confidence that water quality in streams and rivers is improving for the aquatic life use. We also know that the public drinking water supply use impairments show a decline in water quality (more assessment units listed as impaired in 2014 than in 2012). Over time, the Integrated Report seeks to increase the information that can be reported over time for all uses and for all types of waters.

**Comment (OUG):**

Section I2. Inland Lakes and Reservoirs

Ohio EPA should revise the discussion of the Water Quality Standards for the Protection of Aquatic Life in Lakes to reflect the revisions that Ohio EPA made in the proposed rules that were public noticed on December 28, 2011 and later withdrawn on February 1, 2012. For example, Ohio EPA has indicated that it is no longer including lake habitat use criteria for Chlorophyll a, Phosphorus, and Secchi disk transparency in the rules and Ohio EPA has revised the criteria for Dissolved Oxygen. Further, because Ohio EPA is not moving forward with the nutrient criteria for lake habitat, the results for nutrients included in Table I2-2 regarding the lake habitat use assessment for lakes sampled in 2010-2012 using the draft assessment methodology should not be included.

**Response:**

While Ohio EPA acknowledges that the Lake Habitat aquatic life use and its associated nutrient and nutrient-related criteria that were proposed in the December 2011 rulemaking have not moved forward, it is our intent to eventually resubmit as a proposed rulemaking. As new data have become available since the original proposal, we will likely include these data and revise recommended criteria as appropriate. However, the general concept and structure should remain the same. The continued inclusion of lakes data assessed in this format in Section I2.3.1 continues the dialog with interested parties from whom we are still requesting constructive comments on the suggested approach.

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**Comment (OUG):****Section I3. Mercury Reduction at Ohio EPA**

As it did in 2008, 2010, and 2012, the Water Task Force continues to recommend that Ohio EPA pursue development of a voluntary mercury reduction program for the 2016 Integrated Report so that Ohio EPA may designate waters impaired by atmospheric deposition under subcategory 5m. As recognized by U.S. EPA, developing Total Maximum Daily Loads ("TMDLs") for mercury impaired waters can be technically challenging because it requires a multi-media approach that is not feasible under the Clean Water Act alone. See, Memorandum from Craig Hooks, Director of the Office of Wetlands, Oceans, and Watersheds, U.S. EPA, to Regions I-X Water Division Directors regarding Listing Waters Impaired by Atmospheric Mercury Under Clean Water Act Section 303(d): Voluntary Subcategory 5m for States with Comprehensive Mercury Reduction Programs (March 8, 2007).

States are often presented with the insurmountable challenge of developing TMDLs although they lack the necessary resources. By implementing this voluntary program, the State would have additional time to develop TMDLs for mercury-impaired waters and the flexibility to develop programs that are tailored to address state-specific factors (e.g., economic feasibility, population exposure, economic impact, etc.). This proactive approach could lead to early reductions in mercury and reduce the number of mercury-impaired waters in Ohio. Furthermore, implementing the 5m impairment subcategory would help protect Ohio EPA from unfounded legal challenges.

The Water Task Force believes that the Ohio projects outlined in I3.2, if accomplished, would satisfy U.S. EPA's recommended elements of a voluntary mercury reduction program. Furthermore, in December 2011, U.S. EPA signed final rules that address mercury emissions from coal and oil-fired power plants. The standards in these rules will have an added benefit in significantly reducing mercury in waterbodies caused by atmospheric deposition. In fact, due to recent regulations, many Utilities have shut-down units and additional units are expected to close by 2015. In implementing these projects in Ohio, however, the Water Task Force encourages Ohio EPA to make it as comprehensive as possible by examining a wide range of potential sources, processes, and products that contribute to mercury-impaired waters. This type of approach would allow Ohio EPA to implement the program in a way that ensures the greatest reduction in mercury and may result in the eventual delisting of mercury-impaired waters. Thus, the Water Task Force recommends that Ohio EPA make it a priority to implement this program by 2016 in order to ensure that early reductions are achieved.

**Response:**

We appreciate the commenter's thoughts on this important topic. We will consider implementing the steps needed for a 5m approach in advance of the 2016 Integrated Report.

**Copies of comment letters follow, in the order received.**

**From:** [Harris, Melinda](#)  
**To:** [Mount, Trink](#)  
**Subject:** FW: 2014 IR comments  
**Date:** Tuesday, February 25, 2014 8:08:08 AM

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**From:** Phil Kiefer [mailto:pwk4@yahoo.com]  
**Sent:** Monday, February 24, 2014 7:26 AM  
**To:** EPA dsw.webmail  
**Subject:** 2014 IR comments

I have a concern that some people reviewing the 2014 IR will receive a wrong perception that the Lake Erie Central Basin Shoreline (Assessment Unit. 24001 002) Water Quality Standard (WQS) for Aquatic Life Use is getting worse. The percentage of sites in full attainment had been increasing, reaching 25% in the 2012 IR. Now it is 0%, yet residents along the lake, boaters and fishing enthusiasts see improvement (anecdotally) in the water quality. The drop in this WQS could wrongly lead to a charge that Ohio EPA is falling down on its job to clean up Lake Erie.

This perception would be a result of the sampling methodology. I gleaned the following facts for the sampling of the Lake Erie Central Basin Shoreline which is 132.4 miles long:

1. Eleven locations were sampled. Four locations had two samples one each on the east and west side of a breakwall. In the report, I could not find the reason why these four sites had two samples close together. Is it to confirm page G-11's statement that "significant impairment of sites due primarily to tributary loadings..."
2. Six locations were sampled in 2011 and again in 2012. In the report, I could not find if the lower, average, better, earlier or latter score was used for the assessment.
3. If the eleven locations had been somewhat evenly spaced they would be 10 to 14 miles apart; however, there is a 42 mile gap from mile 1,158.8 (Grand River) west to 1,198.6 (Avon Point).
4. This gap includes:
  - a. All of Cleveland
  - b. Cuyahoga River Area of Concern
  - c. Northeast Ohio Sewer District (NEORSD).
  - d. Two of the three sampling points in the Central Basin that were in full attainment in the 2012 IR (Mile 1182.6 and Mile 1185.0) were left out. There should be an explanation for omitting these sites; otherwise, spin doctors on the far right will misinterpret Ohio EPA's motives.

The Assessment Unit Summary lists combined sewer overflows (CSO) as a source of impairment. With NEORSD being the largest CSO discharger on Lake Erie, it will be

hard to justify CSOs as being a source of impairment to Aquatic Life use with no sampling in the vicinity of its discharges. It's harder to justify with the above statement about tributary loadings.

The first line on page G-11 states "the assessment methodology as used in past IRs was once again used..." It does not describe if the same crews were used for the assessments. It takes several years of testing to become proficient at using the methodology. In the past the same crews were used for the tests and they tended to under score their earlier results. Ohio EPA may want to consider a sentence or brief paragraph about the testing crew.

Page G-10 states "these older data are no longer considered meaningful or relevant" yet page G-11 has comparisons of the attainment status to older reporting. Ohio EPA may want to revise the "meaningful or relevant" wording so as to make the comparisons meaningful.

I just don't think Lake Erie is getting worse (with the exception of algae blooms) as implied by the 2014 IR.

Sincerely,

Philip W. Kiefer  
4965 Highland Drive  
Willoughby, Ohio 44094

February 28, 2014

Trinka Mount  
Ohio EPA  
Division of Surface Water  
P.O. Box 1049  
Columbus, Ohio 43216-1049

Attn: 303(d) comments

Dear Ms. Mount:

The Nature Conservancy in Ohio has reviewed the January 29, 2014, draft of the Ohio "2014 Integrated Water Quality Monitoring and Assessment Report." The Conservancy greatly appreciates the effort that went into the report and especially the new sections on current issues such as the condition of Ohio's wetlands and Harmful Algal Blooms. Thank you for the opportunity to provide the following comments.

#### Section D: Framework for Reporting and Evaluation

Data management: The Integrated Report (IR) should provide the status of efforts to: 1) coordinate multi-agency data records in Ohio, especially through the Ohio Water Resource Council and State Agency Coordinating Group (as has been initiated/led by Cathy Alexander of the Division of Surface Water); 2) ensure that data is credible; and 3) make these data secure and publicly available in a readily accessible format. The IR should describe these data, report on progress to make the various datasets compatible, and demonstrate how they are being shared and used.

While the OWRC/SACG effort is now underway, this IR would be a good place to document this effort and ensure that the public (and other agency staff) is aware of it. "Section D: Framework for Reporting and Evaluation" might be the best place in the report to include this discussion.

This opportunity also should be briefly described in "C5. Cooperation among State Agencies and Departments," which includes a brief description of the OWRC. That section also should mention the State Agency Coordinating Group, which provides the support for the OWRC.

#### Section H: Evaluating Beneficial Use: Public Drinking Water Supply H2.2 Water Quality Standards

Page H-4: "A new core indicator, based on algae and associated cyanotoxins, will be used for PDWS assessments beginning in this reporting period."

The Conservancy appreciates the importance of the work of the State of Ohio agencies on the "State of Ohio Public Water System Harmful Algal Bloom Response Strategy." We thank you for this effort and support further attention to indicators such as the algae and cyanotoxins indicators cited above. We strongly encourage continued attention to this problem. The need to address this is urgent – Ohioans need clean, safe water on a dependable basis, and the impact of any "Do Not Drink" advisories

potentially is huge, with large water supplies like Toledo's at risk. Additionally, municipalities are already experiencing significantly higher intake treatment costs related to HABs. The need to reduce phosphorus and nitrogen/nitrates reaching water supply sources, like streams and Lake Erie, therefore also is urgent. We recommend that this section include the following:

- 1) Discuss the sources and causes of these problems (e.g., nitrates, HABs/cyanotoxins) in this section;
- 2) Treatment costs and impacts to municipalities and tourism and fishing; and
- 3) Discuss and refer to other sections of the report that address what is being done to reduce threats causing these problems (e.g., nonpoint source runoff) and how the State of Ohio is specifically working with stakeholders and partners, and coordinating efforts and solutions between upstream contributors and water supply managers.

## Section I: Considerations for Future Lists

### I1. Wetlands

We greatly appreciate the effort to include "a strategy for including information on the condition of the state's wetland resources as part of the integrated reporting process" (page I-1). We find such analyses informative for purposes such as for directing conservation efforts to good candidate wetland areas for mitigation protection and restoration, the Clean Ohio Fund or other protection such as the Water Resource Restoration Sponsor Program (WRRSP).

Re: I1.3 Next Steps (Page I-8):

We recognize that to do detailed assessments or "ground-truthing" like that conducted in the Middle Scioto watershed takes a significant amount of time, but we encourage the Agency to continue, and possibly to work with partners in completing more areas. We find the ability to assess and compare the quality of wetland sites useful for conservation of this limited resource.

The Agency proposes to conduct detailed field studies at "a random selection of wetlands within targeted HUC12 watersheds on a rotating basin schedule" (page I-8). Figure 2. Land use categories, as depicted on the 2006 National Land Cover Dataset (NLCD), for the Middle Scioto TMDL area.

To continue this work, we recommend a near-term focus on areas of Ohio judged to be most at risk, such as the most rapidly developing areas, or wetland areas adjacent to these. Some high-quality wetland areas, at least according to "best professional judgment" should also be included in early assessments. For selecting watersheds, based on our review of the "area-weighted Level 1 wetland condition score for all NWI wetlands" map on page I1 Supplement – 13, we recommend that the Agency focus on these two categories.

Re: "Workgroup of wetland experts" (Page I-8):

"Ohio EPA would like to establish a workgroup of wetland experts to develop criteria for identifying wetlands that would qualify as "special waters.""

The Conservancy agrees, and would appreciate being considered for participation in this group.

### 12.3.1 Methodology Preview: Lake Habitat Use Assessment

In this discussion, the report should mention the link to the Harmful Algal Bloom issue. (HABs are well-covered in Section I4, but it should be made clear to the reader of 12.3.1, since many HABs are occurring in these inland lakes.)

Beyond this connection between sections, it would seem clear to the general public that if a lake has a HAB, then it should be classified as impaired. While the proposed “lake habitat use criteria” in Table I2-1 might determine that one of the criteria, in effect (for example, chlorophyll), is part of a determination that a HAB is present, the HAB and the lake habitat assessments should be linked.

### I4: Harmful Algal Blooms

The Conservancy greatly appreciates the coverage of Harmful Algal Blooms (HABs) in this section and encourages Ohio EPA to include this issue as a regular feature.

Specifically regarding Section I4.5, “Addressing HABs at the Source,” the Conservancy would like to see more extensive descriptions of what is being done to reduce HABs. This would include coverage, in more detail, of progress in agricultural BMP implementation and measurement of the success of these programs. We expect that the Ohio Department of Natural Resources and the Ohio Department of Agriculture also would need to provide summaries of progress for this section.

We suggest rearranging the sections to have the “HABs” section follow the “Methodology Preview: Lake Habitat Use Assessment” to group these related and similar topics together.

### I5: Lake Erie

This section “proposes an assessment unit framework, provides an overview of available data,” etc. We thank the agency for including this section and look forward to additional content as it is collected and summarized. We agree that this is one of Ohio’s best natural resources and the effort to summarize conditions in the Integrated Report is very logical and useful. We encourage the Agency to work with coordinated efforts such as the Lake Erie Millennium Network to make them aware of the Integrated Report’s content need, and to enlist them in helping produce the report.

### Mussels

As we recommended in our comments on the 2010 Integrated Report, we encourage the Agency to include coverage of the status of mussels in Ohio in future Integrated Reports. Given the overall decline of the mussel community, additional species listings by the U.S. Fish and Wildlife Service, and emerging knowledge about issues such as ammonia’s impacts on mussels, the Agency could correlate its extensive chemical and physical data with its own mussel data and that from others sources.

Freshwater mussels are at significant risk throughout Ohio (e.g., see ODNR’s listed species, available at <http://wildlife.ohiodnr.gov/species-and-habitats/state-listed-species>). ODNR’s listed mollusk species

include 24 endangered mussel species, four threatened and eight species of concern; eleven species are considered extirpated, and six are extinct. These 53 represent a significant percentage of the 80 mussel species that have been recorded in Ohio (Watters et al 2009<sup>1</sup>). Since the 2012 Integrated Report was published, four Ohio mussel species have been added to the federal list for protection by the US Fish and Wildlife Service, including: sheepsnose (*Plethobasus cyphus*), snuffbox (*Epioblasma triquetra*), rayed bean (*Villosa fabalis*), and rabbitsfoot (*Quadrula cylindrica cylindrica*).

Because of their sensitivity to pollution and habitat alteration and inability to significantly move, freshwater mussels have been recommended as indicators of water quality (Watters et al 2009; Hoggarth, M.A. 2006. Freshwater mussels (Unionidae) as indicators of water resource integrity. Presented at the NABS Annual meeting, Anchorage, Alaska. <http://www.benthos.org/database/allnabstracts.cfm/db/Anchorage2006abstracts/id/734> ) Mussels are subject to the same litany of stresses that other biological communities are subject to, such as pollutants, hydrologic modification and invasive species.

Given the extensive collection and digitization of stream data in Ohio, Ohio EPA is well-equipped to analyze conditions related to mussel habitat and pollution. The Agency has shown it is able to analyze large amounts of data related to other biota such as fish. The Agency could help significantly advance knowledge of Ohio's water quality using mussels and help address a biological community with major problems. The Ohio State University Museum of Biological Diversity maintains an extensive database for mussel species distributions in Ohio (<http://www.biosci.ohio-state.edu/~molluscs/OSUM2/index.html>). We encourage you to work with The Ohio State University and others to develop this information and assessment. A focus on mussel community health and trends could lead to more comprehensive and additional insight into water quality impacts and more comprehensively address attainment under the Clean Water Act.

In 2013, U.S. EPA published national recommended ambient water quality criteria for the protection of aquatic life from the toxic effects of ammonia, "Aquatic Life Ambient Water Quality Criteria for Ammonia – Freshwater."<sup>2</sup> Because this might address a statewide issue related to mussels, we encourage the Agency to review these criteria and provide a statewide summary of conditions where this issue might be relevant.

We appreciate the effort and additions that went into this report and the new topics that are being added and emphasized. Thank you for the opportunity to comment, and we look forward to the final version and to working with you in the future. Please contact me at [bstanley@tnc.org](mailto:bstanley@tnc.org), or Anthony Sasson at [asasson@tnc.org](mailto:asasson@tnc.org), 614-717-2770 if there are any questions.

Sincerely,



Bill Stanley  
Assistant State Director

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<sup>1</sup> Watters, G.T., M.S. Hoggarth and D.H. Stansbery. 2009. Freshwater Mussels of Ohio. The Ohio State University Press, Columbus.

<sup>2</sup> <http://water.epa.gov/scitech/swguidance/standards/criteria/aqlife/ammonia/upload/Aquatic-Life-Ambient-Water-Quality-Criteria-for-Ammonia-Freshwater-2013-Fact-Sheet-April.pdf>



February 28, 2014

VIA EMAIL to [dsw.webmail@epa.ohio.gov](mailto:dsw.webmail@epa.ohio.gov)

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

RE: 303(d) Comments

To whom it may concern:

With 95 percent of the America's fresh surface water, the Great Lakes are a national and international treasure, providing drinking water, jobs and recreation to tens of millions of people. As an organization dedicated to protecting the health of the Great Lakes, The Alliance for the Great Lakes (Alliance) has an interest in any pollutants entering into and degrading Lake Erie's health.

With the enclosed comments, the Alliance urges the Ohio Environmental Protection Agency to ensure that Lake Erie and its surrounding communities are protected against rising phosphorus levels and resulting harmful algal blooms as well as debris that dirties Lake Erie's shoreline.

This can be accomplished by better addressing the following issues in the draft 2014 Ohio Integrated Water Quality Monitoring and Assessment Report:

- Additional monitoring is needed within Lake Erie and its tributaries
- 303(d) listing of Lake Erie as algae impaired for recreation use
- Monitoring of Best Management Practices (BMPs) for nonpoint runoff
- Prioritizing Harmful Algal Bloom (HAB) assessments and adopting stronger impairment criteria
- Application of a collaborative binational approach to reduce phosphorus loading
- Conducting a more detailed evaluation of floating debris impairments, including litter

Our comments are described in greater detail in the attached comment letter. Thank you for the opportunity to comment on the draft 2014 Ohio Integrated Water Quality Monitoring and Assessment Report. Should you have any questions about the Alliance's comments, please do not hesitate to contact Lyman Welch at 312-445-9739 or [lwelch@greatlakes.org](mailto:lwelch@greatlakes.org).

Sincerely,

Lyman C. Welch  
Water Quality Program Director

Ashley M. Hewson  
Dale Bryson Water Quality Intern

# Protecting Lake Erie from Pollutants

Comments to the Ohio Environmental Protection Agency on the Draft  
2014 Ohio Integrated Water Quality Monitoring and Assessment Report

February 28, 2014

Alliance for the Great Lakes  
150 N. Michigan Ave., Suite 700  
Chicago, IL 60601  
(312) 939-0838

These comments are submitted by the Alliance for the Great Lakes (Alliance), a nonprofit organization that has advocated on behalf of the Great Lakes and the people who enjoy them for decades. The Alliance's mission is to conserve and restore the world's largest freshwater resource using policy, education, and local efforts, ensuring a healthy Great Lakes and clean water for generations of people and wildlife.

## **Background**

The Clean Water Act requires states to assess their waters for compliance with the state's water quality standards. Under Section 303(d) of the Act, each state must make a publicly available list of waters that do not meet the standards. This "303(d) list" identifies the portion of the water body that is impaired, the pollutant(s) causing the impairment, and a schedule for the development of Total Maximum Daily Loads (TMDLs) to restore the impaired waters to health. As such, the 303(d) list is an important part of ensuring that states comply with their water quality standards and work towards the Clean Water Act's goal of fishable and swimmable waters. To improve water quality and human health, it is essential that the list accurately reflect the impairment status of the state's waters.

Ohio must confront the urgent threats to Lake Erie by address rising phosphorus levels and resulting harmful algal blooms (HABs) in Lake Erie as well as debris that dirties Lake Erie's shoreline. The Alliance urges the Ohio Environmental Protection Agency (Ohio EPA) to ensure their final report and impaired waters list goes further to address the following concerns and recommendations:

- Additional monitoring is needed within Lake Erie and its tributaries
- 303(d) listing of Lake Erie as algae impaired for recreation use
- Monitoring of BMPs for nonpoint runoff
- Prioritization of HAB assessments and adoption of stronger impairment criteria
- Application of a collaborative binational approach to reduce phosphorus loading
- Conducting a more detailed evaluation of floating debris which includes onshore litter

As described in more detail below, the Alliance urges Ohio EPA to modify the draft report to ensure further protection against phosphorus, HABs and debris in Lake Erie.

### **1. Additional monitoring within Lake Erie and its tributaries**

The Alliance requests that additional monitoring efforts be initiated within Lake Erie and its tributaries beyond those proposed in the draft report in order to better assess impairment conditions. Section J of the draft report outlines that all three current nearshore assessment units for Lake Erie were found to be impaired for 2014 in at least one category and need TMDLs. To expand upon these three assessment units, a total of ten Lake Erie assessment units (LEAUs) are proposed for future studies in Section I5.2.2.

The presented data collected in 2013 for available proposed LEAUs found that none met LaMP standards for phosphorus and chlorophyll-a levels. All data sets available as well increased in measured levels of phosphorus and chlorophyll-a from 2012 to 2013, as seen in Figures I5-3 and I5-4. This data indicates that phosphorus levels and their harmful effects are a rising problem that must be addressed. Further monitoring in parts of the watershed has been conducted by the National Center for Water Quality Research at Heidelberg University since 1974. However, there are just a handful of stations that supply the data to determine total loads to Lake Erie from Maumee and other drainages to Lake Erie.

The International Joint Commission's (IJC) most recent Lake Erie Ecosystem Priority (LEEP) report as well notes significant knowledge gaps that exist due to lack of monitoring stations, which includes tributary and Lake Erie nearshore monitoring<sup>1</sup>. Additional monitoring stations need to be established for Lake Erie in order to reduce the threat of phosphorus and HABS.

Additional monitoring stations will allow researchers to identify highest nutrient yielding sub-watersheds in order to pinpoint locations where resource management efforts should be prioritized to achieve meaningful reductions. Furthermore, monitoring in the nearshore areas and open waters of Lake Erie needs to have greater spatial and temporal coverage to help us understand how nutrient loads affect oxygen levels and other parameters in the lake. Without sufficient characterization of the system and ongoing monitoring, it is not feasible to assess the effectiveness of management decisions and changes in the ecosystem over time. Additional LEAUs should therefore be established and addressed for the four beneficial uses in Sections E through H and for 303(d) listing.

## 2. 303(d) listing of Lake Erie as algae impaired for recreation use

The Alliance requests that Ohio EPA adds Lake Erie to the 303(d) list as algae impaired for recreation use due to excessive phosphorus levels and corresponding excessive chlorophyll levels, which are indicators of an elevated trophic level in the lake. Ohio's narrative water quality criterion states that all waters should be "free of nutrients entering the waters as a result of human activity in concentrations that create nuisance growths of aquatic weeds and algae"<sup>2</sup>. Figure 1 reveals that this is not the case for Lake Erie. Algal blooms that continue to congest the lake must be addressed.



Figure 1: Algae blooms across Western and Central Basins of Lake Erie, Oct. 2011

Comments from the Environmental Protection Agency (EPA) for Ohio EPA's 2012 draft report urged Ohio to add Lake Erie open waters to the 2012 303(d) list. This request stemmed from their recent data that

<sup>1</sup> International Joint Commission (IJC) (February 2014). A Balanced Diet for Lake Erie: Reducing Phosphorus Loading and Harmful Algal Blooms (A Report of the Lake Erie Ecosystem Priority), p. 63-66. <http://www.ijc.org/files/publications/2014%20IJC%20LEEP%20REPORT.pdf>.

<sup>2</sup> AOC 3745-1-04

indicated impaired conditions in the lake. However, Ohio EPA ultimately decided that EPA’s data was submitted beyond the reporting period but said it would be taken into consideration for the 2014 report.

EPA provided results from three stations in open waters of the western basin of Lake Erie (Figure 2). In comparison to the recommended LaMP targets, averages over ten years were found in exceedance for all three stations, which coincided with recent increased algal blooms.

**Spring water column average annual value exceedances in 10 years (2001 - 2010)**

Station	Chlorophyll – a*	Highest value Chlorophyll-a µg/l (LaMP target 3.6 µg/l)	TP *	Highest value TP in µg/l (LaMP target 15 µg/l)
ER 58	5 of 10 yrs	6.28	10 of 10 yrs	88.4
ER 59	2 of 10 yrs	7.98	8 of 10 yrs	226.3
ER 60	1 of 10 yrs	21.9	8 of 10 yrs	141.2

**Summer epilimnetic average annual value exceedances in 10 years (2001 – 2010)**

Station	Chlorophyll – a*	Highest value Chlorophyll-a µg/l (LaMP target 3.6 µg/l)	TP *	Highest value TP in µg/l (LaMP target 15 µg/l)
ER 58	10 of 10 yrs	13.5	8 of 10 yrs	66.7
ER 59	9 of 10 yrs	16.6	6 of 10 yrs	92.4
ER 60	9 of 10 yrs	24.4	5 of 10 yrs	29.8

\*indicates number of years out of 10 that the average annual values are exceeded.

**Figure 2: Spring and summer average annual value exceedances in 10 years (2001-2010)**

EPA data does not appear to have been explicitly considered for this 2014 draft report, but data was provided for additional proposed LEAUs in Section I of the draft report. As referenced earlier, figures I5-3 and I5-4 show that none of these proposed assessment units met LaMP targets for phosphorus or chlorophyll-a and all available data sets as well increased in measured levels of phosphorus and chlorophyll-a from 2012 to 2013. The chlorophyll data documented in Figure I5-4 led Ohio EPA to specifically identify these proposed LEAUs as hypereutrophic, which is not a natural state for Lake Erie and must be corrected.

Ohio EPA needs to do more to ensure that LaMP targets are being reached. Harmful algal blooms due to excess phosphorus in areas such as Lake Erie have been discussed in the “Future Considerations” section (I) of the 2012 and 2014 reports but have not been significantly acted upon. Action needs to be taken now to guarantee that the health of Lake Erie is recovered. Based on all of the data provided, Ohio EPA must now add the lake to the 303(d) list as algae impaired to prompt TMDL development and improve current conditions.

### **3. Monitoring of BMPs for nonpoint runoff**

Monitoring of BMPs for nonpoint runoff is needed to better understand progress of these programs. Best management practices (BMPs) can be an effective way to reduce the amount of nutrients in nonpoint runoff. However, there is alarmingly little study of whether or not BMPs already implemented

are working as intended and whether they are effective in the long term. The most recent LEEP report acknowledges a gap in research of BMP phosphorus load reduction measurements<sup>3</sup>. The report also emphasizes a lack of understanding regarding dissolved reactive phosphorus, which has been linked to HABs because of its higher bioavailability than particulate phosphorus<sup>4</sup>. Further BMP monitoring must be completed to ensure that BMPs are properly contributing to reduced phosphorus loadings and HABs.

Section C1 of the draft report lists that a main objective of biological and water quality surveys is to determine changes found before or after implementation of BMPs, yet details are not provided on how BMP studies are incorporated into surveys. The IJC recommends that governments support additional research to determine BMP progress. Consistent, comprehensive and site specific monitoring of BMPs is vital to understand what is working and what is not when we try to reduce phosphorus inputs, thus a monitoring program for nonpoint runoff should be introduced into Section C of the report.

#### **4. Prioritization of HAB assessments and adoption of stronger impairment criteria**

Ohio should prioritize waters, such as Lake Erie, impaired by HABs and adopt stronger impairment criteria to better protect the public drinking water supply. Ohio's narrative criteria state that all waters shall be "free from substances entering the waters as a result of human activity in concentrations that are toxic or harmful to human, animal or aquatic life"<sup>5</sup>. Last year's drinking water scare in Carroll Township demonstrates that the state is not in compliance with these criteria due to HAB's associated cyanotoxins.

HABs became a more obvious threat to human, animal and aquatic life this past summer, as Ohio experienced their first water treatment plant shutdown due to high levels of the cyanotoxin microcystin. This threat should prompt the prioritization of HAB studies and aggressive action by Ohio EPA. IJC noted in their LEEP report that many concerned citizens urged action to address HABs at IJC's public open houses<sup>6</sup>. It is the responsibility of the state of Ohio to ensure that its citizens are protected and do not have to experience alarming "do not drink" water advisories due to algal toxins in the future. Further studies and impairment criteria must be introduced for algal blooms to combat the over 80 reported variants of cyanotoxins<sup>7</sup> that could threaten the health of Ohio's waters.

The Alliance is pleased that the Ohio EPA has taken an initial step to address the threat of cyanotoxins by establishing this toxin as a core indicator in Section H and newly listing assessment units as impaired by algae under the public drinking water beneficial use. However, there is an increasing need for further studies and action to truly protect the public drinking water supply of Ohio. It is disappointing that only seven impaired assessment units (5.7%) were able to be assessed for algae impairment because cyanotoxin sampling occurs only on an incident-response basis, as explained on page H-9.

HABs should be prioritized to protect Ohio's waters, especially in the Western Basin Shoreline assessment unit of Lake Erie found in Table H-3 to be impaired for algae under the attainment use of public drinking water supply. The TMDL for this LEAU must be prioritized and assessed much sooner than scheduled. Considering this LEAU has been categorized as impaired with a TMDL needed for all

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<sup>3</sup> *Ibid.* 1. p. 66.

<sup>4</sup> *Ibid.* 1. p. 72.

<sup>5</sup> OAC 3745-1-04 (D)

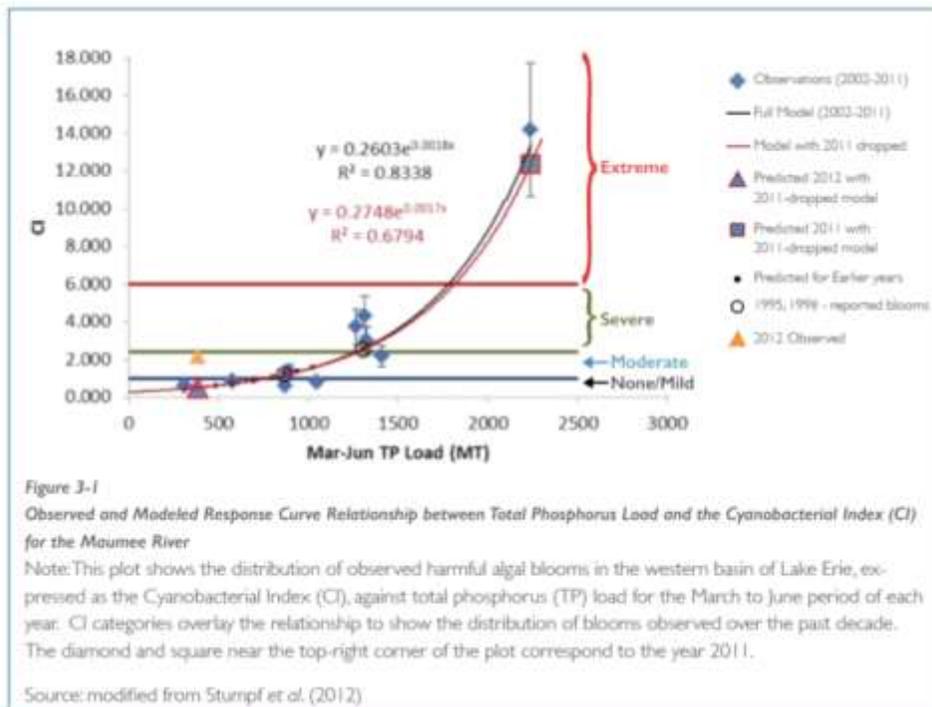
<sup>6</sup> *Idib.* 1, p. 38.

<sup>7</sup> USEPA Cyanobacterial Harmful Algal Blooms (CyanoHABs): Policies and Guidelines.  
<http://www2.epa.gov/nutrient-policy-data/cyanobacterial-harmful-algal-blooms-cyanohabs>.

beneficial uses and has the highest priority points, it is unacceptable that next monitoring is not scheduled to occur until 2020 and a projected TMDL assessment is not scheduled until 2023, as listed in Section L3. Along with prioritization of this LEAU, Section H of the report should include a concrete strategy for HAB and cyanotoxin monitoring of all waters and explicit criteria for drinking water impairment due to HABs beyond the recently introduced thresholds and HAB advisories overseen by the Ohio EPA. Prioritization and immediate action is necessary to reduce the emerging health threat from HABs.

### 5. Application of a collaborative binational approach is needed to reduce phosphorus loading

The Alliance urges Ohio EPA to join in a collaborative binational approach to address the issue of phosphorus and HABs. Lake Erie’s nutrient problem will require collective and collaborative efforts. A comprehensive binational regime is needed to limit phosphorus discharges from all sources, both point and non-point, that are contributing to HABs and hypoxia in the Basin. The IJC has recommended such a collaborative approach in its Lake Erie Ecosystem Priority (LEEP) report and proposed phosphorus loading targets. A recently developed Cyanobacterial Index–Total Phosphorus (CI-TP) loading model studied by the IJC shows that spring (March through June) discharge and TP loads entering in Lake Erie from the Maumee River from March-June are very strongly correlated to CI (Figure 3). This model along with additional studies aided IJC in their development of proposed phosphorus loading targets for Maumee River and the western and central basins of Lake Erie. Without significant reductions in phosphorus, HABs and their associated cyanotoxins cannot be addressed, and a binational approach is necessary to reach proposed targets in a timely manner.



**Figure 3: Observed and Modeled Response Curve Relationship between Total Phosphorus Load and the Cyanobacterial Index (CI) for the Maumee River<sup>8</sup>**

<sup>8</sup> *Ibid.* 1, p. 44.

Unfortunately, the draft report does not adequately discuss collaborative phosphorus loading targets under the program summaries for surface water, environmental and financial assistance and drinking and ground waters that are outlined in Section C of the report. This section should incorporate programming such as that proposed by the IJC, through which phosphorus loading targets can help improve the health of Lake Erie's waters. The Alliance recommends that Ohio EPA adheres to phosphorus targets summarized on pages 70 and 71 of the LEEP report for the Maumee River and western and central basins of the lake and further collaborate among Great Lakes states and Canada. The IJC suggests that efforts such as a tri-state phosphorus TMDL between Michigan, Indiana and Ohio, for example, could help accomplish these recommendations. Ohio EPA should lead by example for other Great Lake states and Canada that share Lake Erie by explaining how its TMDL efforts will operate as part of a collaborative binational approach.

## **6. Conducting a more detailed evaluation of floating debris which includes onshore litter**

Ohio EPA must provide a more detailed evaluation of floating debris, including offshore litter, in order to improve the health of Lake Erie beaches and waters. The negative impact of litter on the aesthetics of the Lake Erie shoreline is indisputable. Nearshore waters and beaches strewn with dirty cigarette butts, plastic bags, bottles, cans, condoms, and the like, are not an inviting foreground for the natural beauty of Lake Erie. Of particular concern are those items that not only detract from the view, but also are a health and safety hazard to the public.

Floating debris in amounts that are "sufficient to be unsightly or cause degradation"<sup>9</sup> violates Ohio's Water Quality Standards, yet the assessment methodology for aesthetic recreational use of lake waters does not include an evaluation of floating debris. To properly assess compliance with these standards as required by the CWA, Ohio EPA should develop a methodology to assess impairment of Lake Erie's shoreline from floating debris. As the standard requires a determination of whether amounts are "sufficient to be unsightly or cause degradation", the methodology must include processes for collecting and evaluating debris data and criteria for deciding if the standard has been attained.

For example, Ohio EPA might evaluate monitoring data of the volume of floating debris collected in catch basins and in stormwater systems. Additional data is readily available from agencies charged with monitoring and protecting Lake Erie beaches. EPA's Beach Sanitary Survey (BSS), used to assess primary and secondary contact use of the Great Lakes' beaches, provides a standardized format and method for the collection of data on beach conditions, including litter/debris. This standardized evaluation tool ensures all beaches are assessed accurately and uniformly. In their evaluation of debris/litter, the BSS measures the amount of debris/litter, both floating and onshore. Onshore litter is vital to this evaluation because much of the litter that is on the beach was either washed up on the shore from the water or can be washed into the water from the shore. An assessment that does not include onshore litter is not fully accounting for recreational use impairment in the nearshore waters.

Data collection and quality assurance methods used by the Alliance's Adopt-a-Beach™ volunteer survey are modeled on the EPA's BSS methodology. In the 2013 beach season, the Alliance's Adopt-a-Beach™ surveys recorded considerable amounts of litter on a number of Ohio's Lake Erie beaches. At beaches surveyed, such as Lakefront Reservation (Edgewater), Euclid Creek Reservation (Euclid Beach) and Huntington Beach, top collected items included food-related items (31211), cigar tips (15865) and cigarettes and filters (11568), which contributed to a grand total of 70,295 items and 9,393.33 pounds of

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<sup>9</sup>OAC 3745-1-04 (B)

trash collected over the season. 2013 Adopt-a-Beach™ data for Ohio's Lake Erie beaches is included with these comments for your review. Based on this data, Ohio should list Lake Erie shoreline as impaired due to floating debris.

At a minimum, Ohio EPA must go further to assess impairments of the recreational use and aesthetics of Ohio's Lake Erie shoreline which includes an evaluation of litter, both floating and onshore. We also urge Ohio EPA to use the EPA's Beach Sanitary Survey as a model for collecting data on which to base the attainment determination.

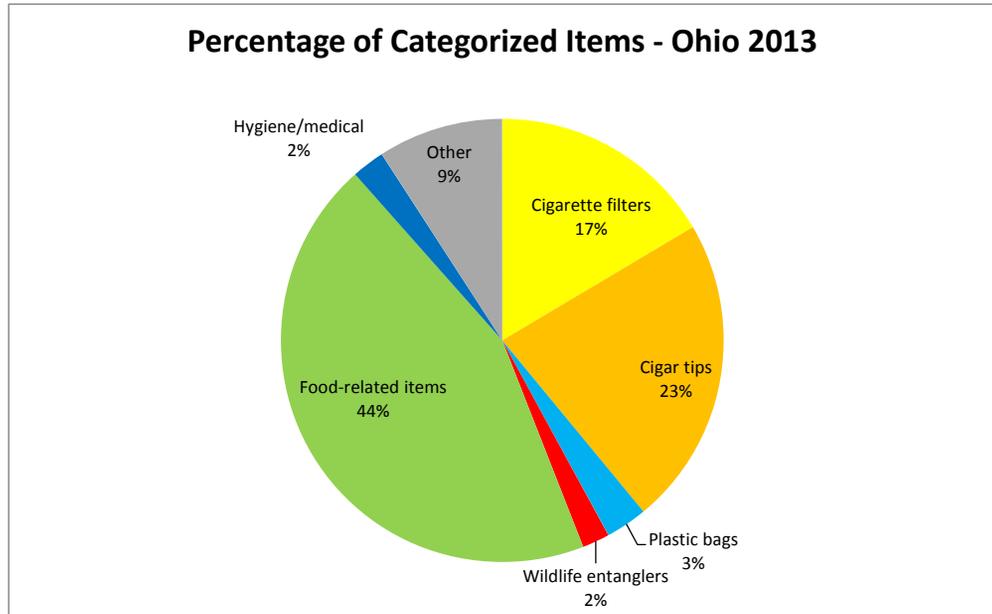
## **7. Conclusion**

The Alliance for the Great Lakes urges Ohio EPA to strengthen the 2014 Ohio Integrated Water Quality Monitoring and Assessment Report by following these recommendations in order to protect Lake Erie from excess phosphorus, HABs and debris.

Thank you for your time and the opportunity to comment on this draft report.

Items	Number Collected
Caps, lids	10623
Clothing, shoes	675
Cups, plates, forks, knives, spoons	2366
Food wrappers/containers	4033
Pull tabs	444
6-pack holders	67
Shotgun shells/wadding	933
Straws/stirrers	4841
Toys	811
Bait containers	197
Bleach/cleaner bottles	74
Buoys/floats	151
Fish traps	18
Crates	12
Fishing line	268
Fishing lures/light sticks	536
Fishing nets	125
Light bulbs/tubes	24
Oil/lube bottles	122
Pallets	12
Plastic sheeting/tarps	367
Rope	324
Strapping bands	333
Cigarettes/cigarette filters	11568
Cigarette lighters	536
Cigar tips	15865
Tobacco packaging/wrappers	771
Appliances (refrigerators, washers, etc.)	4
Batteries	32
Building materials	321
Car/car parts	80
55-gal. drums	5
Tires	104
Condoms	193
Diapers	70
Syringes	119
Tampons/tampon applicators	1304
Discarded food	184
Fireworks debris	202
Drug paraphernalia (crack pipes, bags, etc.)	108
Bags (paper)	424
Bags (plastic)	2125
Balloons	628
Beverage bottles (plastic) 2 Liters or less	4372
Beverage bottles (glass)	1713
Beverage cans	2211
<b>Total</b>	<b>70295</b>

Items	Number Collected
Cigarette filters	11568
Cigar tips	15865
Plastic bags	2125
Wildlife entanglers	1412
Food-related items	31211
Hygiene/medical	1686
Other	6428
<b>Total</b>	<b>70295</b>



OH Total Lbs 2013
9393.33







Lake Erie  
WATERKEEPER

Lake Erie Waterkeeper Inc.  
3900 N. Summit Bldg 2  
Toledo, Ohio 43611

*Lake Erie has the Great Lakes Warmest, Shallowest, Fishiest Waters*  
lakeeriewaterkeeper.org 800-551-1592

March 3, 2014

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

Sent via email to: [dsw.webmail@epa.ohio.gov](mailto:dsw.webmail@epa.ohio.gov)

Dear Reviewer:

Thank you for this opportunity to comment on Ohio E.P.A.'s 303d Integrated water report that will be submitted to USEPA as part of the Clean Water Act requirements.

Ohio EPA continues to make the report more readable and user friendly. Thanks. The maps and watershed information is easily accessible and helpful. Also thank you for adding a section on Lake Erie.

Attached are the comments. Please let me know if there are any questions or clarification needed.

Sincerely,

Sandy Bihn  
Executive Director

## Lake Erie Waterkeeper Comments Ohio EPA 303d Integrated Report 2014

Lake Erie Waterkeeper requests that the State of Ohio request an executive order from the President of the U.S., similar to the one issued for Chesapeake Bay – attached - to require federal coordination and a nutrient TMDL( including source allocation) for the western and central basins of Lake Erie which culminates in a nutrient reduction plan for Lake Erie.

An overarching comment is that there should be **nutrient TMDL**'s in the Lake Erie watersheds rather than spending time and money on aquatic TMDL's that declaring waters unimpaired when research shows that the waters are causing algae problems.

Furthermore, the 303d report breaks Ohio down into 1,538 watersheds of which 1, 427 have no drinking water sources and 38 large river units of which 29 have no drinking water sources. The report is based on miles of streams and does not factor in volume of water and populations served by the waters. Furthermore, Ohio reduced the size of the watersheds from 130 square miles to 27 square miles, making the smaller units on par with the larger ones diminishing assessment of downstream impacts in the larger units. The report graphs are based on the number of watersheds or rivers and how many are in compliance. There is no analysis of the volume of water, the economics from the waters or the number of people/businesses served. This methodology of water quality assessment of watershed units skews the OEPA surface water resources to waters of less import rather than the larger bodies of water like Lake Erie and the Ohio River that are more critical to Ohio's economy and people. If the graphs were based on economic benefit from the water and the number of people served, the report on the status of Ohio water quality would be much grimmer.

Ohio 303d report relies heavily on testing on four categories: aquatic life, recreation, human health(from fish consumption) and drinking water. But most of the TMDL's and assessments are based on aquatic life to determine water quality – impaired waters etc. The aquatic life is again underscored with human health – which seems to make the list 3 categories. When considering aquatic life, how do excess nutrients, algae, sediments impact aquatic life other than oxygen depletion? Please explain. There is a statement in the report that impacts from nutrients on aquatic life is dependent on adopting nutrient criteria which is at least a year away for standards for small streams that will not consider runoff after rains. This seems woefully short of what is needed to address the nutrient problem in streams.

Given that algae is a problem in Lake Erie, Ohio's inland lakes, Maumee and Sandusky Bays, Ohio should be conducting nutrient TMDL's rather than aquatic TMDL's. Ohio should give priority to waters that provide drinking water and the population/businesses served and waters of great economic importance for fishing, tourism, etc.

The problem is that water quality is determined in the streams and the runoff of sediments and nutrients is showing water quality problems in the receiving waters – lakes, bays and reservoirs. Also, public water supplies are incurring increasing costs for treating water for drinking. If the quality of the water in the public water intakes is deteriorating, then how does that translate into water quality in Ohio is improving?

There also seems to be a disconnect in that Lake Erie walleye and yellow perch numbers are dropping while the less desirable fish numbers are growing. How does the aquatic life testing provide information on our changing fisheries? If the aquatic life testing does not provide this information then using aquatic life to determine water quality with today's issues does not work.

Also throughout the report there appears to be a very small number of tests for determinations of impaired classifications. What is the statistical confidence level that the number of tests and the conclusions reached provide? There seems to be an over emphasis on credible data but far less attention to the numbers, locations, frequency and weather conditions when the tests are taken. Furthermore the more stringent requirements of HB43 seem to be more of a hindrance than a help to assessing water quality. When data from water and wastewater plants is not acceptable, then something is gravely wrong with Ohio's credible data requirements.

Although widely discussed on Lake Erie's algae issues, flooding etc., the impact of changing weather – climate - is absent in the report. How is changing weather being factored into water quality assessment?

Also, there is a continuing request for Maumee and Sandusky Bays to be classified as assessment units.

The report lacks a section on source allocation for impairments which is supposed to follow the TMDL. This would be very beneficial to improving Ohio's water quality.

The report should also include an emergency impaired classification when public drinking water and contact with water with toxins is a public threat.

More specific comments:

#### H. Drinking Water

1. This section should include Source Water Protection plans as required under the Clean Water Act. Ohio should expedite Source Water Protection plans for public water plants experiencing elevated levels of toxins from algae.
2. Toxins from algae are seasonal and do not fit into the normal model of thirty day averaging.
3. There is a dire need for setting guidelines for public drinking water plant testing, treatment and outreach for detection of microcystin.
4. What is the protocol for testing in water plants – treated and raw water – for microcystin, nitrates, phosphorus, algae? The number of tests in the report appears woefully inadequate. Are there different requirements at different times of the year? Consideration should be given to testing when there is a lot of turbidity and at different distances from the drinking water intake. Because the monitoring is so critical to public health, consideration should be given to providing grants for monitoring equipment for public water suppliers.
5. Support Ohio EPA's assessment unit determination for toxins from algae, but request that what, where and when tests are taken be reviewed.

6. 20 samples for drinking water over a five year period is too few and presents an unacceptable risk to the public. The issues of credible data, frequency etc. must be worked out to protect public health.
7. There is literature that suggests that microcystin concentrations below the WHO standards are detrimental to dialysis patients. Has Ohio EPA , Ohio Department of Health reviewed the literature and should there be special consideration for dialysis treatments?
8. Only 36.6% of the public drinking water plants had sufficient data for nitrates. What needs to be done to get more testing?
9. There should be requirements for testing drinking water intakes when algae is present in the intake.
10. Are the chemicals that increase treatment costs in raw water being assessed for testing requirements?

### I15 Lake Erie

1. The data collection/credible data is a particular problem for Lake Erie. Not being able to assemble, assess and model collected data – Level 2 or 3 is an obstacle to gaining improved science to help Lake Erie.
2. While nearshore monitoring may work for most of the Great Lakes, in reality the whole western basin of Lake Erie would qualify for nearshore for the other Great Lakes and other basins of Lake Erie. The point being that all of the western basin of Lake Erie should be considered nearshore. The winds are more of a determining factor than putting some arbitrary line on the western shorelines. For instance in 2013, the Monroe water plant experienced much less algae than the water intakes on the southern shores. Therefore this is a request that the entire western basin of Lake Erie be classified as nearshore. There should be one assessment unit for western Lake Erie and additional assessment units for Maumee and Sandusky Bays with monitoring stations that coordinate data throughout the western basin and the bays. The data should then be linked with the major river outfalls and a monitor in each where the seiche ends.
3. And the problem is clear in statements like the below:

- Maumee River, 2012: 81% full attainment over 108 miles (3 LRAUs)
- Auglaize River, 2012: 100% full attainment over 33 miles (1 LRAU)
- Tiffin River, 2012: 100% full attainment over 20 miles (1 LRAU)

Researchers in the area state that the Maumee River is over 40% of the nutrient input to Lake Erie with an excessive amount of nutrient runoff from the Maumee River watershed. Most information suggests the greatest inputs are upstream of the I75 bridge which would include the Auglaize and Tiffin Rivers. Furthermore public water plants along the river are being challenged by excess nitrate and other nutrient inputs. The Auglaize and Tiffin are listed in full attainment. This makes little sense when the Maumee and its tributaries have drinking water sources that have nitrate and other drinking water intake problems. The Tiffin, Auglaize and other Lake Erie watersheds need nutrient TMDL's.

4. Lake Erie's greatest water quality threat is nutrients. Aquatic life is negatively impacted by the algae rather than the algae being negatively impacted by the aquatic life, with the possible

exception of the invasive mussels. There should be nutrient TMDL's rather than aquatic based TMDL's?

5. The discussion on sediments is for contaminated sediments. There are nutrients in the sediments that are not classified as contaminants but having harmful impacts. Sediment analysis should include nutrients including the different forms of phosphorus.
6. The problem with the assessment under the Great Lakes Water Quality Agreement Appendix four is that the analysis will not include Source Allocation – a key needed component to get nutrient reductions..
7. Ohio should continue to ask for a western and central nutrient TMDL whose criteria should included with the Appendix 4 evaluation. Making sure that the TMDL requirements are met will cover U.S. requirements under the Clean Water Act.
8. 15.2.3 Identifies sources of data which has already been discussed in these comments. This section should be dedicated to source allocation of nutrients and a plan to address the reductions needed.
9. The report says that Lake Erie should be monitored for total phosphorus and chlorophyll, yet researchers in our area say that there also needs to be monitoring for dissolved reactive phosphorus, yet OEPA is not including this – why?? There is a different percentage of total phosphorus that is dissolved reactive from agriculture than from wastewater and manure. How are these being factored into the assessment? Also why are nitrates not included. There is science that says in late summer or fall, the 'limiter' is nitrates not phosphorus/ Please explain.
10. The greatest loads are coming into the lake in a four month window. How is assessment and evaluation incorporating this fact?
11. The report page I38 states that algae peaks in mid July. Define peak? Most of the satellite images and personal observation show the worst algae concentrations in Lake August into October. Please explain.
12. We support the recommendation for testing for mayflies, phytoplankton, zooplankton and periphyton.
13. Ohio EPA is trying to define an algal bloom in terms of severe, moderate, and minor. The reality is that the blooms are not stationary but move throughout the basin depending on the winds. If the winds push the algae to the shore, the most severe blooms will be along the shore. In 2011 the blooms were not as severe in the far western basin as they were further east because of winds. The algal blooms can be as variable as beach monitoring – here one day – gone the next – though the extent of the bloom will cover some areas more consistently. The NOAA monitoring data for microcystin in 2013 demonstrates this well.

THE WHITE HOUSE

Office of the Press Secretary

For Immediate Release

May 12, 2009

EXECUTIVE ORDER

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CHESAPEAKE BAY PROTECTION AND RESTORATION

By the authority vested in me as President by the Constitution and the laws of the United States of America and in furtherance of the purposes of the Clean Water Act of 1972, as amended (33 U.S.C. 1251 *et seq.*), and other laws, and to protect and restore the health, heritage, natural resources, and social and economic value of the Nation's largest estuarine ecosystem and the natural sustainability of its watershed, it is hereby ordered as follows:

PART 1 - PREAMBLE

The Chesapeake Bay is a national treasure constituting the largest estuary in the United States and one of the largest and most biologically productive estuaries in the world. The Federal Government has nationally significant assets in the Chesapeake Bay and its watershed in the form of public lands, facilities, military installations, parks, forests, wildlife refuges, monuments, and museums.

Despite significant efforts by Federal, State, and local governments and other interested parties, water pollution in the Chesapeake Bay prevents the attainment of existing State water quality standards and the "fishable and swimmable" goals of the Clean Water Act. At the current level and scope of pollution control within the Chesapeake Bay's watershed, restoration of the Chesapeake Bay is not expected for many years. The pollutants that are largely responsible for pollution of the Chesapeake Bay are nutrients, in the form of nitrogen and phosphorus, and sediment. These pollutants come from many sources, including sewage treatment plants, city streets, development sites, agricultural operations, and deposition from the air onto the waters of the Chesapeake Bay and the lands of the watershed.

Restoration of the health of the Chesapeake Bay will require a renewed commitment to controlling pollution from all sources as well as protecting and restoring habitat and living resources, conserving lands, and improving management of natural resources, all of which contribute to improved water quality and ecosystem health. The Federal Government should lead this effort. Executive departments and agencies (agencies), working in collaboration, can use their expertise and resources to contribute significantly to improving the health of the Chesapeake Bay. Progress in restoring the Chesapeake Bay also

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will depend on the support of State and local governments, the enterprise of the private sector, and the stewardship provided to the Chesapeake Bay by all the people who make this region their home.

PART 2 - SHARED FEDERAL LEADERSHIP, PLANNING, AND ACCOUNTABILITY

Sec. 201. Federal Leadership Committee. In order to begin a new era of shared Federal leadership with respect to the protection and restoration of the Chesapeake Bay, a Federal Leadership Committee (Committee) for the Chesapeake Bay is established to oversee the development and coordination of programs and activities, including data management and reporting, of agencies participating in protection and restoration of the Chesapeake Bay. The Committee shall manage the development of strategies and program plans for the watershed and ecosystem of the Chesapeake Bay and oversee their implementation. The Committee shall be chaired by the Administrator of the Environmental Protection Agency (EPA), or the Administrator's designee, and include senior representatives of the Departments of Agriculture (USDA), Commerce (DOC), Defense (DOD), Homeland Security (DHS), the Interior (DOI), Transportation (DOT), and such other agencies as determined by the Committee. Representatives serving on the Committee shall be officers of the United States.

Sec. 202. Reports on Key Challenges to Protecting and Restoring the Chesapeake Bay. Within 120 days from the date of this order, the agencies identified in this section as the lead agencies shall prepare and submit draft reports to the Committee making recommendations for accomplishing the following steps to protect and restore the Chesapeake Bay:

(a) define the next generation of tools and actions to restore water quality in the Chesapeake Bay and describe the changes to be made to regulations, programs, and policies to implement these actions;

(b) target resources to better protect the Chesapeake Bay and its tributary waters, including resources under the Food Security Act of 1985 as amended, the Clean Water Act, and other laws;

(c) strengthen storm water management practices at Federal facilities and on Federal lands within the Chesapeake Bay watershed and develop storm water best practices guidance;

(d) assess the impacts of a changing climate on the Chesapeake Bay and develop a strategy for adapting natural resource programs and public infrastructure to the impacts of a changing climate on water quality and living resources of the Chesapeake Bay watershed;

(e) expand public access to waters and open spaces of the Chesapeake Bay and its tributaries from Federal lands and conserve landscapes and ecosystems of the Chesapeake Bay watershed;

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(f) strengthen scientific support for decisionmaking to restore the Chesapeake Bay and its watershed, including expanded environmental research and monitoring and observing systems; and

(g) develop focused and coordinated habitat and research activities that protect and restore living resources and water quality of the Chesapeake Bay and its watershed.

The EPA shall be the lead agency for subsection (a) of this section and the development of the storm water best practices guide under subsection (c). The USDA shall be the lead agency for subsection (b). The DOD shall lead on storm water management practices at Federal facilities and on Federal lands under subsection (c). The DOI and the DOC shall share the lead on subsections (d), (f), and (g), and the DOI shall be lead on subsection (e). The lead agencies shall provide final reports to the Committee within 180 days of the date of this order.

Sec. 203. Strategy for Protecting and Restoring the Chesapeake Bay. The Committee shall prepare and publish a strategy for coordinated implementation of existing programs and projects to guide efforts to protect and restore the Chesapeake Bay. The strategy shall, to the extent permitted by law:

(a) define environmental goals for the Chesapeake Bay and describe milestones for making progress toward attainment of these goals;

(b) identify key measureable indicators of environmental condition and changes that are critical to effective Federal leadership;

(c) describe the specific programs and strategies to be implemented, including the programs and strategies described in draft reports developed under section 202 of this order;

(d) identify the mechanisms that will assure that governmental and other activities, including data collection and distribution, are coordinated and effective, relying on existing mechanisms where appropriate; and

(e) describe a process for the implementation of adaptive management principles, including a periodic evaluation of protection and restoration activities.

The Committee shall review the draft reports submitted by lead agencies under section 202 of this order and, in consultation with relevant State agencies, suggest appropriate revisions to the agency that provided the draft report. It shall then integrate these reports into a coordinated strategy for restoration and protection of the Chesapeake Bay consistent with the requirements of this order. Together with the final reports prepared by the lead agencies, the draft strategy shall be published for public review and comment within 180 days of the date of this order and a final strategy shall be published within 1 year. To the extent practicable and authorized under their existing authorities, agencies may begin implementing core elements of restoration and protection programs and strategies,

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in consultation with the Committee, as soon as possible and prior to release of a final strategy.

Sec. 204. Collaboration with State Partners. In preparing the reports under section 202 and the strategy under section 203, the lead agencies and the Committee shall consult extensively with the States of Virginia, Maryland, Pennsylvania, West Virginia, New York, and Delaware and the District of Columbia. The goal of this consultation is to ensure that Federal actions to protect and restore the Chesapeake Bay are closely coordinated with actions by State and local agencies in the watershed and that the resources, authorities, and expertise of Federal, State, and local agencies are used as efficiently as possible for the benefit of the Chesapeake Bay's water quality and ecosystem and habitat health and viability.

Sec. 205. Annual Action Plan and Progress Report. Beginning in 2010, the Committee shall publish an annual Chesapeake Bay Action Plan (Action Plan) describing how Federal funding proposed in the President's Budget will be used to protect and restore the Chesapeake Bay during the upcoming fiscal year. This plan will be accompanied by an Annual Progress Report reviewing indicators of environmental conditions in the Chesapeake Bay, assessing implementation of the Action Plan during the preceding fiscal year, and recommending steps to improve progress in restoring and protecting the Chesapeake Bay. The Committee shall consult with stakeholders (including relevant State agencies) and members of the public in developing the Action Plan and Annual Progress Report.

Sec. 206. Strengthen Accountability. The Committee, in collaboration with State agencies, shall ensure that an independent evaluator periodically reports to the Committee on progress toward meeting the goals of this order. The Committee shall ensure that all program evaluation reports, including data on practice or system implementation and maintenance funded through agency programs, as appropriate, are made available to the public by posting on a website maintained by the Chair of the Committee.

### PART 3 - RESTORE CHESAPEAKE BAY WATER QUALITY

Sec. 301. Water Pollution Control Strategies. In preparing the report required by subsection 202(a) of this order, the Administrator of the EPA (Administrator) shall, after consulting with appropriate State agencies, examine how to make full use of its authorities under the Clean Water Act to protect and restore the Chesapeake Bay and its tributary waters and, as appropriate, shall consider revising any guidance and regulations. The Administrator shall identify pollution control strategies and actions authorized by the EPA's existing authorities to restore the Chesapeake Bay that:

(a) establish a clear path to meeting, as expeditiously as practicable, water quality and environmental restoration goals for the Chesapeake Bay;

(b) are based on sound science and reflect adaptive management principles;

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- (c) are performance oriented and publicly accountable;
- (d) apply innovative and cost-effective pollution control measures;
- (e) can be replicated in efforts to protect other bodies of water, where appropriate; and
- (f) build on the strengths and expertise of Federal, State, and local governments, the private sector, and citizen organizations.

Sec. 302. Elements of EPA Reports. The strategies and actions identified by the Administrator of the EPA in preparing the report under subsection 202(a) shall include, to the extent permitted by law:

- (a) using Clean Water Act tools, including strengthening existing permit programs and extending coverage where appropriate;
- (b) establishing new, minimum standards of performance where appropriate, including:
  - (i) establishing a schedule for the implementation of key actions in cooperation with States, local governments, and others;
  - (ii) constructing watershed-based frameworks that assign pollution reduction responsibilities to pollution sources and maximize the reliability and cost-effectiveness of pollution reduction programs; and
  - (iii) implementing a compliance and enforcement strategy.

PART 4 - AGRICULTURAL PRACTICES TO PROTECT THE CHESAPEAKE BAY

Sec. 401. In developing recommendations for focusing resources to protect the Chesapeake Bay in the report required by subsection 202(b) of this order, the Secretary of Agriculture shall, as appropriate, concentrate the USDA's working lands and land retirement programs within priority watersheds in counties in the Chesapeake Bay watershed. These programs should apply priority conservation practices that most efficiently reduce nutrient and sediment loads to the Chesapeake Bay, as identified by USDA and EPA data and scientific analysis. The Secretary of Agriculture shall work with State agriculture and conservation agencies in developing the report.

PART 5 - REDUCE WATER POLLUTION FROM FEDERAL LANDS AND FACILITIES

Sec. 501. Agencies with land, facilities, or installation management responsibilities affecting ten or more acres within the watershed of the Chesapeake Bay shall, as expeditiously as practicable and to the extent permitted by law, implement land management practices to protect the Chesapeake Bay and its

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tributary waters consistent with the report required by section 202 of this order and as described in guidance published by the EPA under section 502.

Sec. 502. The Administrator of the EPA shall, within 1 year of the date of this order and after consulting with the Committee and providing for public review and comment, publish guidance for Federal land management in the Chesapeake Bay watershed describing proven, cost-effective tools and practices that reduce water pollution, including practices that are available for use by Federal agencies.

#### PART 6 - PROTECT CHESAPEAKE BAY AS THE CLIMATE CHANGES

Sec. 601. The Secretaries of Commerce and the Interior shall, to the extent permitted by law, organize and conduct research and scientific assessments to support development of the strategy to adapt to climate change impacts on the Chesapeake Bay watershed as required in section 202 of this order and to evaluate the impacts of climate change on the Chesapeake Bay in future years. Such research should include assessment of:

(a) the impact of sea level rise on the aquatic ecosystem of the Chesapeake Bay, including nutrient and sediment load contributions from stream banks and shorelines;

(b) the impacts of increasing temperature, acidity, and salinity levels of waters in the Chesapeake Bay;

(c) the impacts of changing rainfall levels and changes in rainfall intensity on water quality and aquatic life;

(d) potential impacts of climate change on fish, wildlife, and their habitats in the Chesapeake Bay and its watershed; and

(e) potential impacts of more severe storms on Chesapeake Bay resources.

#### PART 7 - EXPAND PUBLIC ACCESS TO THE CHESAPEAKE BAY AND CONSERVE LANDSCAPES AND ECOSYSTEMS

Sec. 701. (a) Agencies participating in the Committee shall assist the Secretary of the Interior in development of the report addressing expanded public access to the waters of the Chesapeake Bay and conservation of landscapes and ecosystems required in subsection 202(e) of this order by providing to the Secretary:

(i) a list and description of existing sites on agency lands and facilities where public access to the Chesapeake Bay or its tributary waters is offered;

(ii) a description of options for expanding public access at these agency sites;

(iii) a description of agency sites where new opportunities for public access might be provided;

(iv) a description of safety and national security issues related to expanded public access to Department of Defense installations;

- (v) a description of landscapes and ecosystems in the Chesapeake Bay watershed that merit recognition for their historical, cultural, ecological, or scientific values; and
- (vi) options for conserving these landscapes and ecosystems.

(b) In developing the report addressing expanded public access on agency lands to the waters of the Chesapeake Bay and options for conserving landscapes and ecosystems in the Chesapeake Bay, as required in subsection 202(e) of this order, the Secretary of the Interior shall coordinate any recommendations with State and local agencies in the watershed and programs such as the Captain John Smith Chesapeake National Historic Trail, the Chesapeake Bay Gateways and Watertrails Network, and the Star-Spangled Banner National Historic Trail.

#### PART 8 - MONITORING AND DECISION SUPPORT FOR ECOSYSTEM MANAGEMENT

Sec. 801. The Secretaries of Commerce and the Interior shall, to the extent permitted by law, organize and conduct their monitoring, research, and scientific assessments to support decisionmaking for the Chesapeake Bay ecosystem and to develop the report addressing strengthening environmental monitoring of the Chesapeake Bay and its watershed required in section 202 of this order. This report will assess existing monitoring programs and gaps in data collection, and shall also include the following topics:

- (a) the health of fish and wildlife in the Chesapeake Bay watershed;
- (b) factors affecting changes in water quality and habitat conditions; and
- (c) using adaptive management to plan, monitor, evaluate, and adjust environmental management actions.

#### PART 9 - LIVING RESOURCES PROTECTION AND RESTORATION

Sec. 901. The Secretaries of Commerce and the Interior shall, to the extent permitted by law, identify and prioritize critical living resources of the Chesapeake Bay and its watershed, conduct collaborative research and habitat protection activities that address expected outcomes for these species, and develop a report addressing these topics as required in section 202 of this order. The Secretaries of Commerce and the Interior shall coordinate agency activities related to living resources in estuarine waters to ensure maximum benefit to the Chesapeake Bay resources.

#### PART 10 - EXCEPTIONS

Sec. 1001. The heads of agencies may authorize exceptions to this order, in the following circumstances:

- (a) during time of war or national emergency;

more

(OVER)

(b) when necessary for reasons of national security;

(c) during emergencies posing an unacceptable threat to human health or safety or to the marine environment and admitting of no other feasible solution; or

(d) in any case that constitutes a danger to human life or a real threat to vessels, aircraft, platforms, or other man-made structures at sea, such as cases of *force majeure* caused by stress of weather or other act of God.

PART 11 - GENERAL PROVISIONS

Sec. 1101. (a) Nothing in this order shall be construed to impair or otherwise affect:

- (i) authority granted by law to a department, agency, or the head thereof; or
- (ii) functions of the Director of the Office of Management and Budget relating to budgetary, administrative, or legislative proposals.

(b) This order shall be implemented consistent with applicable law and subject to the availability of appropriations.

(c) This order is not intended to, and does not, create any right or benefit, substantive or procedural, enforceable at law or in equity, by any party against the United States, its departments, agencies, or entities, its officers, employees, or agents, or any other person.

BARACK OBAMA

THE WHITE HOUSE,  
May 12, 2009.

# # #

The following web form had been received from 1,524 people as of 3/21/2014.

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**From:** [The Sierra Club Ohio Chapter](#) on behalf of [Judy Simmons](#)  
**To:** [EPA.dsw.webmail](#)  
**Subject:** Don't let Ohio drown in sewage pollution  
**Date:** Tuesday, March 04, 2014 9:02:31 PM

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Mar 4, 2014

Interim Director, Ohio EPA Craig Butler

Dear Interim Director, Ohio EPA Butler,

Please fulfill your agency's commitment to improving Ohio's water quality by sufficiently addressing bacterial pollution in Ohio's rivers and streams.

The US EPA clearly identifies bacteria as a leading cause of water quality pollution and a leading cause to why our waterways are listed as impaired. Raw sewage from combined sewer overflows (CSOs) and animal manure from unsustainable farming practices cause harmful pollution to flood our rivers, lakes, and streams. Escherichia coli (E. Coli) identified in our waters indicates the potential presence of pathogenic bacteria, viruses, and protozoans that threaten human and animal health.

The Ohio EPA acknowledges these facts but, in your draft 2014 Integrated Water Quality Report, you admit that you failed to collect adequate E. Coli data to determine the recreational health for 60% of Ohio's inland streams and 60% of Ohio's large rivers. These are the same percentages as the 2012 report which indicates that you have made no progress in the past four years to better understand bacterial pollution in Ohio's streams and rivers.

Under Table F-11, you also indicate that you sampled less frequently in 2011 and 2012 than in 2010. This downward trend is alarming considering Ohio operates 1,233 permitted CSOs and allows unregulated manure applications across the state.

If the Ohio EPA does not increase E. Coli sampling in Ohio's streams and rivers, I fear that you will not know how to accurately address and reduce bacterial pollution. Do not allow raw sewage in our waterways to threaten the livelihoods of the general public.

Sincerely,

Mrs. Judy Simmons

CHERI A. BUDZYNSKI  
419.321.1332  
[cbudzynski@slk-law.com](mailto:cbudzynski@slk-law.com)

March 6, 2014

**VIA EMAIL AND U.S. MAIL**

Ohio EPA  
Division of Surface Water  
P.O. Box 1049  
Columbus, Ohio 43216-1049  
[dsw.webmail@epa.state.oh.us](mailto:dsw.webmail@epa.state.oh.us)

**Re: 303(d) Comments – 2014 Integrated Water Quality Monitoring and  
Assessment Report**  
*Our File No. 043751*

To Whom It May Concern:

On behalf of the Water Task Force of the Ohio Utility Group and its members,<sup>1</sup> we submit the following comments on the 2014 Integrated Water Quality Monitoring and Assessment Report and the 303(d) list (“Integrated Report”) that Ohio EPA has proposed to submit to U.S. EPA. First, the Water Task Force appreciates Ohio EPA’s extension of time of one week to submit these comments. The Water Task Force also appreciates the time and effort that Ohio EPA has put into the Integrated Report, which is an extensive and detailed document. The Water Task Force believes that Ohio EPA has produced, in general, a technically sound approach to assessing the status of water bodies. However, because Ohio EPA strives to ensure that each report is updated with the most accurate data and the soundest scientific techniques, the Water Task Force provides these comments and hopes that Ohio EPA will consider them as it finalizes the report.

**Section E. Evaluating Beneficial Use: Human Health (Fish Contaminants)**

The Water Task Force recommends that Ohio EPA reassess the risk assessment input variables for determining whether a watershed is impaired for the PCB human health criteria. Under the methodology used in the 2014 Integrated Report, a high number of the state’s stream miles and inland lake and reservoir acres are impaired primarily due to Ohio EPA’s assessment of PCBs in fish tissue. While a high percentage of streams have, historically, been listed as impaired due to measured PCB levels that exceed the fish consumption nonattainment use threshold, the Water Task Force is concerned with the practical implications of continued and pervasive “nonattainment” of

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<sup>1</sup> The member companies include: AEP Generation Resources Inc., Buckeye Power, Inc., The Dayton Power and Light Company, Duke Energy Ohio, FirstEnergy Solutions, and Ohio Valley Electric Corporation.

the PCB criterion. Listing a water body as impaired consequently results in a *de facto* “no discharge” requirement for point sources located near that water body. The Water Task Force is concerned that if U.S. EPA were ever to adopt Method 1668C for detecting PCBs, point sources may find that they are discharging PCBs at levels higher than the water quality standards.<sup>2</sup> While Method 1668C has not been officially adopted<sup>3</sup> by U.S. EPA pursuant to 40 CFR Part 136, Method 1668C has an extremely sensitive Method Detection Level and a discharger would likely report detectable levels of the pollutant even though the ultimate source of PCBs could be intake water or atmospheric deposition. Thus, the Water Task Force recommends that Ohio EPA reevaluate the values used to determine if a water body is impaired for PCBs so that it is prepared to address this issue if, or when, U.S. EPA elects to adopt the new analytic method. Moreover, it may be appropriate to list those water bodies impaired by PCBs under a separate category, such as the 5m category that is discussed below.

On page E-4—“Step 1: Determine available data,” Ohio EPA describes the procedures used to evaluate fish tissue contaminant data for possible waterbody impairment. The second sentence reads: “The most recent 10 years of data collection, 2003 - 2012, were used for making category 1 and category 5 determinations.” The Water Task Force believes that while the use of fish tissue data as old as ten years is generally acceptable, the Agency should first assess the data for any temporal trends in contaminant concentration. While the Water Task Force understands that the long-term database for a particular species at a particular location may be limited, there are probably some locations where levels of a pollutant have been declining. There are many statistical procedures that can test whether a true trend is occurring. By calculating an average concentration of a contaminant in fish tissue over a 10-year period, the Agency may find a risk of waterbody impairment that would not be identified if data from more recent years were used when there is evidence of a temporal trend.

Contaminant levels in fish tissue often co-vary with fish length, weight, or age. Does Ohio EPA evaluate fish tissue data using a size standardization? Levels of mercury in fish tissue are often standardized to a selected length so that comparisons of tissue levels over time are not confounded by size differences in fish collected throughout the assessment period.

Under Section “Step 2: Determine fish tissue contaminant concentrations,” the Agency indicates that one year of fish tissue data is adequate to categorize a waterbody as impaired or not impaired. The Water Task Force believes that such a decision should be based on the magnitude of variation in the fish tissue contaminant. While the Water Task Force agrees that a geometric mean concentration for each species at a particular location is appropriate, the variability of the pollutant concentrations should not be ignored. A trophic level-weighted average fish tissue concentration of mercury that has a cumulative coefficient of variation (CV) of 90% is different than a trophic level-weighted fish tissue concentration that has a cumulative CV of 25%. The difference between these CV is the certainty (confidence) in what is the true fish community average mercury concentration. The Water Task Force believes that Ohio EPA should consider the variability in levels of fish tissue contaminants before deciding that impairment decisions can be made with one year’s data.

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<sup>2</sup> It is the Utilities’ understanding that U.S. EPA is not going to propose Method 1668 as part of the 2014 Methods Update Rule.

<sup>3</sup> Adoption of this analytical method was proposed on September 23, 2010. 75 Fed. Reg. 58024-58076.

## **Section I2. Inland Lakes and Reservoirs**

Ohio EPA should revise the discussion of the Water Quality Standards for the Protection of Aquatic Life in Lakes to reflect the revisions that Ohio EPA made in the proposed rules that were public noticed on December 28, 2011 and later withdrawn on February 1, 2012. For example, Ohio EPA has indicated that it is no longer including lake habitat use criteria for Chlorophyll a, Phosphorus, and Secchi disk transparency in the rules and Ohio EPA has revised the criteria for Dissolved Oxygen. Further, because Ohio EPA is not moving forward with the nutrient criteria for lake habitat, the results for nutrients included in Table I2-2 regarding the lake habitat use assessment for lakes sampled in 2010-2012 using the draft assessment methodology should not be included.

## **Section I3. Mercury Reduction at Ohio EPA**

As it did in 2008, 2010, and 2012, the Water Task Force continues to recommend that Ohio EPA pursue development of a voluntary mercury reduction program for the 2016 Integrated Report so that Ohio EPA may designate waters impaired by atmospheric deposition under subcategory 5m. As recognized by U.S. EPA, developing Total Maximum Daily Loads (“TMDLs”) for mercury-impaired waters can be technically challenging because it requires a multi-media approach that is not feasible under the Clean Water Act alone. *See*, Memorandum from Craig Hooks, Director of the Office of Wetlands, Oceans, and Watersheds, U.S. EPA, to Regions I-X Water Division Directors regarding Listing Waters Impaired by Atmospheric Mercury Under Clean Water Act Section 303(d): Voluntary Subcategory 5m for States with Comprehensive Mercury Reduction Programs (March 8, 2007).

States are often presented with the insurmountable challenge of developing TMDLs although they lack the necessary resources. By implementing this voluntary program, the State would have additional time to develop TMDLs for mercury-impaired waters and the flexibility to develop programs that are tailored to address state-specific factors (e.g., economic feasibility, population exposure, economic impact, etc.). This proactive approach could lead to early reductions in mercury and reduce the number of mercury-impaired waters in Ohio. Furthermore, implementing the 5m impairment subcategory would help protect Ohio EPA from unfounded legal challenges.

The Water Task Force believes that the Ohio projects outlined in I3.2, if accomplished, would satisfy U.S. EPA’s recommended elements of a voluntary mercury reduction program. Furthermore, in December 2011, U.S. EPA signed final rules that address mercury emissions from coal and oil-fired power plants. The standards in these rules will have an added benefit in significantly reducing mercury in waterbodies caused by atmospheric deposition. In fact, due to recent regulations, many Utilities have shut-down units and additional units are expected to close by 2015. In implementing these projects in Ohio, however, the Water Task Force encourages Ohio EPA to make it as comprehensive as possible by examining a wide range of potential sources, processes, and products that contribute to mercury-impaired waters. This type of approach would allow Ohio EPA to implement the program in a way that ensures the greatest reduction in mercury and may result in the eventual delisting of mercury-impaired waters. Thus, the Water Task Force

recommends that Ohio EPA make it a priority to implement this program by 2016 in order to ensure that early reductions are achieved.

**Section I5 Lake Erie**

The Utilities note that Ohio EPA has provided an additional section that discusses Lake Erie. The Utilities note that whatever Ohio EPA chooses to do, any TMDL for Lake Erie needs to be coordinated among the adjoining states and between the United States and Ontario.

The Water Task Force appreciates the opportunity to comment on these important issues and looks forward to working with Ohio EPA and other interested stakeholders to continue to improve the listing and de-listing process.

Very truly yours,



Cheri A. Budzynski

CAB\bd

cc: Michael Snyder, Esq.  
Michael Born, Esq.  
Louis E. Tosi, Esq.  
The Water Task Force Members