

Section D:

Framework for Reporting and Evaluation

2008 Ohio Integrated Report

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

The 2008 Integrated Report (IR) continues Ohio's evolution to a fully-formed watershed basis for reporting on water quality conditions. For the past 16 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 methodology¹. 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 functions.

Reporting on Ohio's water resources continues to develop, including more data types and more refined methodologies. 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. 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. A methodology for comparing fish tissue contaminant data to human health criteria via fish consumption advisories was included in the 2004 report. That methodology was refined in 2006, comparing the data directly to the criteria without the consideration of the presence of a fish consumption advisory and remains essentially the same for 2008. An assessment methodology for the public drinking water supplies is being introduced in 2008 after being demonstrated in the 2006 report.

D1. Assessment Units

The 2008 IR continues the watershed orientation outlined in previous reports. 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) – 331 watersheds that align with the 11-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) – 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 500 square miles.
- Lake Erie Assessment Units – for 3 nearshore areas of the lake: western, central, and 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.

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

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.state.oh.us/dsw/document_index/psdindx.html. TMDL reports are another source of more in-depth analyses, available at <http://www.epa.state.oh.us/dsw/tmdl/index.html#TMDL%20Projects>.

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 river assessment units (rivers with drainages greater than 500 mi²).

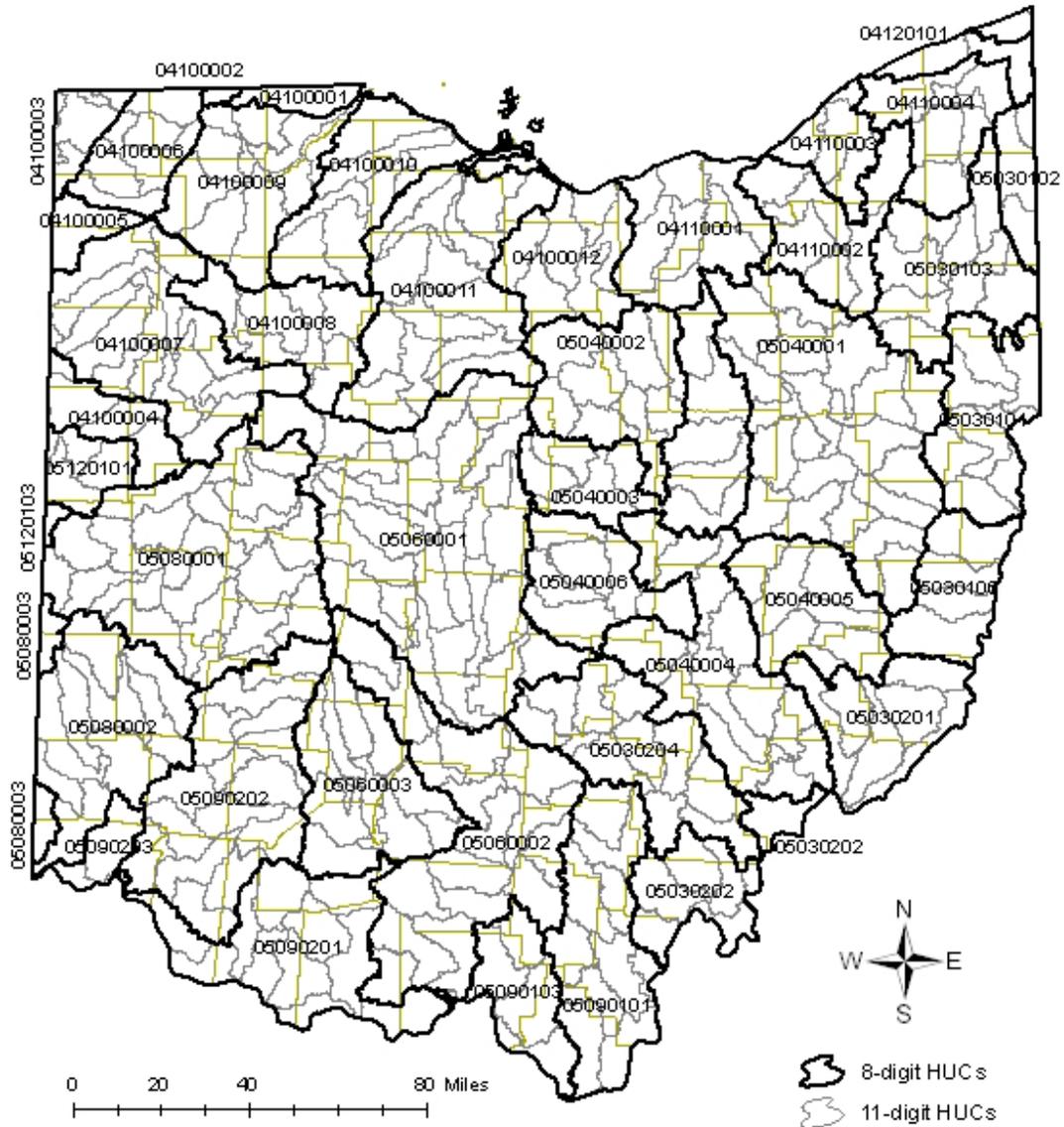


Figure D-2. Ohio's watershed assessment units (11-digit HUCs, 8-digit HUCs shown with a heavy line).

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. The following chart lists all of Ohio's WQS designated uses and how the use was evaluated for the Ohio 2008 IR.

Beneficial Use Category	Key Attributes (why a water would be designated in the category)	Evaluation status in 2008 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	66% of the Watershed Assessment Units and 70% of the large River Assessment Units fully assessed using direct comparisons of fish and macroinvertebrate community index scores to the biocriteria in Ohio's WQS; sources and causes of impairment were assessed using biological indicators and water chemistry data
Warmwater Habitat (WWH)	typical assemblages of fish and invertebrates	
Modified Warmwater Habitat	tolerant assemblages of fish and macro-invertebrates; irretrievable condition precludes WWH	
Limited Resource 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/bath house	Lake Erie public beaches fully evaluated; no inland waters evaluated
Primary Contact Recreation	water depth allows full body immersion	47% of the assessment units assessed using percentile rankings of fecal coliform counts
Secondary Contact Recreation	water depth prevents full body immersion	Assessed as part AU using PCR 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 sued as emergency supplies	Sufficient data were available to assess 37% of the 94 assessment units 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

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 marks the first time that Ohio's Credible Data Law has been 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 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).

Because of the new rules, Ohio EPA solicited data from all major NPDES dischargers, Level 3 QDCs, and parties who formerly submitted information. The letter requesting data and the web site containing information about how to submit data are included in Section D5.1. The chart below summarizes the water quality standards (WQS) uses evaluated in the 2008 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.

WQS Uses & Criteria Evaluated (basic rationale ¹)	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 1983 to 2006	Fish Tissue Contaminant Database	Data collected within past 10 years. Three fish tissue samples of appropriate species from same water body.
Recreation Use, pooled all data within water body and compared the average and maximum criteria to the 75th & 90th percentiles of the data, respectively	Bacteria counts 2002 to 2006 (May to October only)	NPDES permittees Cuyahoga County Health Department Northeast Ohio Regional Sewer District (NEORS D)	Bathing Waters - 5 <i>E. coli</i> samples over 30 day period Primary Contact - 3 sites per assessment unit and 15 fecal coliform samples
Aquatic life (specific sub-categories), fish and macroinvertebrate community index scores compared to biocriteria in WQS ²	Watershed scale biological and water quality surveys & other more targeted monitoring 1997 to 2006	Ohio DNR U.S. Geological Survey NEORS D Midwest Biodiversity Institute Heidelberg College	Fish and/or macroinvertebrate samples collected using methods cited in WQS ³ . Generally, at least 5 locations sampled per watershed assessment unit (11-digit HUC)

WQS Uses & Criteria Evaluated (basic rationale ¹)	Type of Data Time period	Source(s) of Data	Minimum Data Requirement
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 2002-2006	SDWIS (PWS compliance database) Heidelberg College Syngenta Crop Protection, Inc. (Atrazine Monitoring Program) ⁴	Data collected within past five years. Minimum of 10 samples with a few exceptions (noted in Section H).

¹ Additional explanation is provided in the text of Section D2.

² OAC 3745-1-07(A)(6) and Table 7-15.

³ OAC 3745-1-03(A)(5)

⁴ 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.).

Ohio EPA's 2008 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.

Bacteria data were used in the same way as in 2006, and external data were pooled with Ohio EPA results. Direct comparison to the specifications in the WQS (i.e., 5 samples over a 30 day period) is not possible, however. Most bacteria data generated by outside entities were acquired directly through access to the NPDES permit monthly operating data (MOR).

The evaluation of biological and water quality survey data was not changed from the approach used in the 2006 IR. Data collected by Ohio EPA and Level 3 Qualified Data Collectors were evaluated. The following Qualified Data Collectors submitted data:

- 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
- Ohio State University
- Ohio Department of Health
- Cuyahoga County Board of Health
- NPDES permit holders (MORs)

The following table summarizes the data Ohio EPA has used in the 2008 IR for evaluation.

Entity	Dates Data Were Collected	Data Description	Basis of Qualification ¹
<i>Data Collected Before Credible Data Law (March 24, 2006)</i>			
Ohio EPA	1997 - 2005	Fish tissue	
NPDES permittees	2002 - 2005 (May - October only)	Bacteria	
Cuyahoga County Health Department	2002 - 2005 (May - October only)	Bacteria	
Northeast Ohio Regional Sewer District	2002 - 2005 (May - October only)	Bacteria	
Lake County General Health	2002 - 2005	Bacteria	

Entity	Dates Data Were Collected	Data Description	Basis of Qualification ¹
District	(May - October only)		
Ohio Department of Natural Resources	1997 - 2005 2001 - 2005	Fish tissue Biology (fish only) Physical habitat	
U.S. Geological Survey	2003	Biology (macro-invertebrates only)	
Northeast Ohio Regional Sewer District	2001 2005	Biology (macro-invertebrates only) Fish Tissue	
Midwest Biodiversity Institute/ Center for Applied Bioassessment and Biocriteria	2001 - 2004	Biology Physical habitat Chemistry	
Heidelberg College	2004	Biology (macro-invertebrates only)	
PWS compliance database (permittees)	January 2002 - February 2006	Chemistry	
Heidelberg College	January 2002 - February 2006	Chemistry	
Syngenta Crop Protection, Inc.	January 2002 - February 2006	Chemistry	
<i>Data Collected After Credible Data Law (March 24, 2006)</i>			
Ohio EPA	April - September 2006	Fish Tissue	State Agency
NPDES permittees	2006 (May - October only)	Bacteria	Data credible - submittal pursuant to permit
Cuyahoga County Health Department	2006 (May - October only)	Bacteria	Level 3 qualified data collectors
Northeast Ohio Regional Sewer District	2006 (May - October only)	Bacteria	Level 3 qualified data collectors
Ohio Department of Natural Resources	April - November 2006 September - October 2006	Fish Tissue Biology (fish only) Physical habitat	State Agency
Northeast Ohio Regional Sewer District	July - October 2006	Biology Physical habitat	Level 3 qualified data collectors
PWS compliance database (permittees)	March 2006 - June 2007	Chemistry	Data credible - submittal pursuant to permit
Heidelberg College	March - September 2006	Chemistry	Level 3 qualified data collectors
Syngenta Crop Protection, Inc. ²	March - December 2006	Chemistry	See footnote

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

² 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.).

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 to 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 has prepared the Section 305(b) report for the Ohio River and has listed the impaired beneficial uses and segments of the Ohio River. Ohio EPA defers to the ORSANCO analysis and the list of impaired Ohio River segments found in *2008 Biennial Assessment of Ohio River Water Quality Conditions* (ORSANCO, 2008; expected to be available summer 2008).

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 2008 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:

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- 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.state.oh.us/dsw/document_index/psdindx.html.

The draft 2008 303(d) list, contained in the draft 2008 Integrated Report, will be available for public review beginning in January 2008 (date to be determined) for at least 30 days. Comments received, and responses to those comments, will be summarized in Section B4 of the final report.

D5.1 Solicitation for External Water Quality Data, 2008 Integrated Report Project (August 31, 2007)

A memorandum soliciting level 3 qualified data was mailed at the end of August 2007 to all major NPDES discharge permit holders, those who had formerly submitted data, and all level 3 qualified data collectors. The memorandum is displayed below.

Date August 31, 2007

Re Solicitation of Water Quality Data, 2008 Integrated Report
(No action is required on your part - submission of data is voluntary)

To Interested Parties: Stream Monitoring Personnel

From 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 2008 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 sources, including Level 3 certified data collectors and NPDES discharge permit holders.

At this time, the Ohio EPA Division of Surface Water (DSW) is soliciting readily available data for use in the 2008 Integrated Report. The report, due to U.S. EPA on April 1, 2008, fulfills the State's reporting obligations under Sections 305(b) and 303(d) of the Clean Water Act. Ohio EPA intends to use the same methodologies in the 2008 Integrated Report as used in 2006 (<http://www.epa.state.oh.us/dsw/tmdl/2006IntReport/2006OhioIntegratedReport.html>).

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 to 06), effective March 2006, to 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.

According to the Ohio EPA administrative rules, you 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 lakes, rivers and streams that you are qualified to collect by October 15, 2007.

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.state.oh.us/dsw/tmdl/2008IntReport/DataRequest.html>.

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.

2008 Integrated Water Quality Monitoring and Assessment Report – Call for Level 3 Credible Data

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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 2008 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 between 2002 and 2006. The data can be of various types (bacteria, biological, physical, and chemical water quality data).

Microbiological Data

- Ohio EPA measures recreational 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](#) (PDF 68K). These indicator bacteria serve as predictors for the presence of enteric pathogens in the water that can cause a variety of illnesses. The two types of indicator bacteria that Ohio EPA utilizes are fecal coliform and *E. coli*. For the purposes of the integrated report, Ohio uses *E. coli* for reporting on the recreational water quality of the Lake Erie Beaches and Lake Erie, and utilizes fecal coliform for all inland waters.

Data collected by NPDES discharge permit holders at ambient stream sites upstream and downstream of discharge locations and reported in monthly operating reports (MORs) 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 after May 1, 2002 through October 15, 2006 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](#) (PDF 68K). 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

- Ohio EPA primarily uses sampling methods described in the "[Manual of Ohio EPA Surveillance Methods and Quality Assurance Practices, 2006](#)" (PDF 523K). Sample analysis method references are listed in [paragraph \(C\) of OAC 3745-4-06](#) (PDF 25K). 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.

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Have I already given Ohio EPA my data?

Level 3 Credible Data Ohio EPA has received and may use for 305(b)/303(d) reporting:

Source	Data Description	Date(s) Collected
Ohio Department of Health	Bacteria	2002-2006
Cuyahoga County Board of Health	Bacteria	2002-2006
Lake County General Health District	Bacteria	2002-2005
NPDES permit holders (MORs)	Bacteria	2002-2006

Source	Data Description	Date(s) Collected
Northeast Ohio Regional Sewer District	Bacteria	2002-2006
Syngenta Crop Protection, Inc.	Atrazine	2004-2006
Mt. Orab Water Treatment Plant	Atrazine	2004-2006
Ohio Department of Natural Resources	Biological	2002-2006
Miami University	Biological	1997
Ohio Northern University	Biological	1997
Midwest Biodiversity Institute / Center for Applied Bioassessment and Biocriteria	Biological and chemical	2002, 2005
Ohio University (Athens)	Biological	1995

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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](#) (PDF 25K).

Microbiological Data Requirements

An individual or organization who submits bacteria data to Ohio EPA for consideration in the 2008 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:

- A. Sampling and Test Methods, Quality Assurance/Quality Control (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, 2006”](#) (PDF 523K).

Analytical testing must be conducted in accordance with U.S. EPA approved methods under [40 CFR 136.3](#) (PDF 212K). Acceptable references for methods for QDCs are given in [paragraph \(C\) of OAC 3745-4-06](#) (PDF 25K) and include Ohio EPA references, U.S. EPA references, and Standard Methods. Data submissions must include a description of the 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.

- B. Description of Sampling Program: A brief description of the purpose of data collection and the sampling design considerations should be provided. Are specific sources of potential contamination under investigation? Are samples collected at fixed station locations? How often and under what kinds of environmental conditions are samples collected? Have the results been published in a report or the scientific literature?

- C. Minimum Data Submission: Ohio EPA is requesting only bacteria data (fecal coliform or *E. coli*) collected during the recreational season (May 1st to October 15th) from 2002-

2006. The following information must be included in the data submission in an electronic spreadsheet or database format:

- Sample collection date
- Sample site location including water body name, county, river mile (if known), latitude/longitude (decimal degrees or degrees, minutes, and seconds)
- Fecal coliform count (or *E. coli* count – beaches only)
- Identification of units associated with bacteria counts
- Contact name, address, telephone number, and e-mail address of the person submitting the data set
- Identification of the laboratory performing the sample analysis
- Weather conditions, flow, precipitation, and total suspended solids (all optional)

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 2008 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:

- A. Analytical and sampling procedures:
- [Manual of Ohio EPA Surveillance Methods and Quality Assurance Practices, 2006](#) (PDF 523K)
 - [Habitat and biology sampling manuals](#)

Only data that are consistent with these guidelines can be considered Level 3 data.

- B. Description of Sampling Program: A brief description of the purpose of data collection and the sampling design considerations should be provided. Are specific sources of potential contamination under investigation? Are samples collected at fixed station locations? How often and under what kinds of environmental conditions are samples collected? Have the results been published in a report or the scientific literature?
- C. Minimum Data Submission: Ohio EPA is requesting biological, chemical and physical data collected from 2002-2006. The following information must be included in the data submission in an electronic spreadsheet or database format:
- Sample collection date
 - 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)
 - 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.state.oh.us 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, 2002 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.state.oh.us or Dennis Mishne at (614) 836-8775 or dennis.mishne@epa.state.oh.us 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, 2002 and must meet the basic acceptability specifications listed above. Data must be provided in 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 October 15, 2007, to Chris Skalski, chris.skalski@epa.state.oh.us, 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 October 15, 2007, to Jeff DeShon, jeff.deshon@epa.state.oh.us, or Dennis Mishne, dennis.mishne@epa.state.oh.us, Ohio EPA/Groveport Field Office, 4675 Homer-Ohio Lane, Groveport, Ohio 43125.

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More information about the Integrated Report is on the [2008 Integrated Water Quality Monitoring and Assessment Report](#) page.

D5.2 Web Page Announcing 2008 IR Preparation

2008 Integrated Water Quality Monitoring and Assessment Report

Preparation of 2008 Integrated Report is Underway

Ohio EPA is preparing the 2008 Integrated Report, which fulfills the State's reporting obligations under Sections 305(b) and 303(d) 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 report will follow [a memorandum released by U.S. EPA in October 2006](#). The [most recent Ohio Integrated Report](#) was completed on March 27, 2006.

Ohio EPA will continue to use the watershed-based listing approach, first used in 2002. We will include data collected as recently as 2007 where possible. We plan to include an assessment of the drinking water use for the first time; the 2006 report previewed the methodology for listing under this use. No other significant changes in the methods for gauging impairment are expected. Major project milestones and dates for completion are:

Refine methodologies / compile data	June - November 2007
Prepare list / internal review	December 2007
Public notice draft 303(d) list	January 2008
Respond to comments / prepare final list	February - March 2008
Submit to U.S. EPA Region V for approval	April 1, 2008

Please continue to check this Web site for updates.

For more information, contact:

Trinka Mount

TMDL Coordinator

trinka.mount@epa.state.oh.us

(614) 644-2140

Back to the [Ohio Integrated Water Quality Monitoring and Assessment Report](#) page.

D5.3 Notice of Availability and Request for Comments FWPCA Section 303(d) TMDL Priority List for 2008

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 by January 23, 2008

OHIO ENVIRONMENTAL PROTECTION AGENCY PUBLIC NOTICE

NOTICE OF AVAILABILITY and REQUEST FOR COMMENTS FWPCA Section 303(d) TMDL PRIORITY LIST FOR 2008

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 2008 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 *2008 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 2008 through 2010.

All interested persons wishing to submit comments for Ohio EPA's consideration may do so by email to trinka.mount@epa.state.oh.us, 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 25, 2008. 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, 2008.

The report will be available on Ohio EPA Division of Surface Water Web site at <http://www.epa.state.oh.us/dsw> not later than January 23, 2008. 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 Trinka Mount at the e-mail address above or by calling (614) 644-2140.

D6. Public Comments and Responses to Comments on Draft Report

The draft 2008 Integrated Report was available for review from January 23 through February 25, 2008. Comments were received from the parties listed in the following table:

Date	Author	Organization	Identifier
2/11/08	Ruth E. Ford	Citizen	REF
2/11/08	Cindy Drozdowski-Breda	Citizen	CDB
2/17/08	Deanna M. Rice	Citizen	DMR
2/18/08	Jamie Veri	Citizen	JV
2/19/08	Lyman Welch	Alliance for the Great Lakes	AGL
2/19/08	Meg Plona	Cuyahoga Valley National Park	CVNP
2/24/08	Jennifer Greear	Citizen	JG
2/25/08	Pamela Harvey	Citizen	PH
2/25/08	Julia Sifford	Citizen	JS
2/25/08	Michelle Williams	Citizen	MW
2/25/08	Adria Snorton	Citizen	AS
2/25/08	Frank P. Greenland	Northeast Ohio Regional Sewer District	NEORSD
2/25/08	Sandy Bihn	Western Lake Erie Association/Waterkeeper	WLEA
2/25/08	Neil S. Kagan	National Wildlife Federation	NWF
2/25/08	Simmonette Reyes	Citizen	SR
2/25/08	Mary Grady	Citizen	MG
2/29/08	Anthony Sasson	The Nature Conservancy	TNC
3/10/08	Michael A. Snyder	Water Task Force of the Environmental Committee of the Ohio Electric Utility Institute	WTFEC

Comments are identified by organization submitting the comment. Page numbers cited in comments are based on the draft report and may not be the same in the final version of the report. Copies of the comment letters and emails are provided in full at the end of this appendix. Comments are grouped by topic, as follows:

- D6.1 General Comments
- D6.2 Evaluation of Beneficial Use: Human Health (Fish Contaminants)
- D6.3 Evaluation of Beneficial Use: Recreation
- D6.4 Evaluation of Beneficial Use: Aquatic Life Use
- D6.5 Evaluation of Beneficial Use: Public Drinking Water Supply
- D6.6 Miscellaneous Issues
- D6.7 Monitoring Schedule
- D6.8 Exotic Species

D6.1 General Comments

Comment: First and foremost, I would like to thank you for all your efforts in trying to figure out a way to make the beaches more swimmable for us. As I read the report, it angered me to know that we as a society could've prevented the degradation of our natural beaches, we had the capability of preventing our beaches from getting polluted. But it is also encouraging to know that measures are being taken to improve the water in order for us have more recreational use of our beaches. This not only helps our generation but also future generations to appreciate our environment. [SR]

Comment: I reviewed Section F and also Section A which I found most informative and interesting. I was not aware of the protocols or testing that is completed to ensure our safety in the various ecosystems. I believe we need to take a more active role in keeping our lakes and streams clean and safe. I have observed on numerous occasions testing of water at Edgewater Beach. At that time I didn't really understand the importance. I applaud your efforts to make people aware of the condition of our lakes and streams more important the steps that are taken to ensure the safety of our water for future generations. [PH]

Comment: The report contains notable achievements and changes which the Conservancy would like to recognize. First, the improvements in stream quality show that persistent and extensive dedication to comprehensive water quality management actually will result in such improvements. We appreciate the Agency's leadership and its ability to quantify and explain causes and sources. Second, the attention to differences between impacts to large and small streams is greatly appreciated. We believe this should help recognize smaller streams' vulnerability and importance. Third, the attention to the impairments caused by land disturbance is critical, and should help to further understanding by the general public. Fourth, the coverage of wetlands is a significant step forward. Finally, as we stated in our comments on the 2006 draft, Ohio EPA's completion of the number of Total Maximum Daily Load Reports (TMDLs), such as for the Scioto River basin, and their comprehensive coverage of impairment causes and their sources is outstanding, and Ohio is making real progress in attainment of Clean Water Act goals through this process. [TNC]

Comment: Section I states "it is natural for evaluation and reporting of water quality conditions to evolve." We applaud the inclusion of the coverage of wetlands in this section, and encourage other such excellent work in the future. Ohio EPA has advanced the understanding of wetlands, their water quality standards, and mitigation in the recent past, and significant advances such as this should be addressed and refined. An example of recent advancement is in the surveys and assessments of wetlands, such as the Wetland Ecology Group's reports at http://www.epa.state.oh.us/dsw/wetlands/WetlandEcologySection_reports.html. [TNC]

Comment: Section I4 states:

"The proposal is to report on the next smaller size watershed to provide information on a finer scale and allow for better reporting of watershed improvements." We agree that the smaller HUCs can lead to better reporting, and also better ensure Ohio addresses missed problems, such as with headwater streams degradation, cumulative impacts, and the impact on downstream uses. We encourage Ohio EPA to continue these efforts, especially given the high quality database in place, and expand the number of reports prepared. Ohio EPA reports, such as that addressing the Headwater Habitat Evaluation Index, have added significantly to the understanding of Ohio stream health. [TNC]

Comment: The Utilities appreciate the time and effort that the Ohio EPA has put into the Integrated Report, which is an extensive and detailed document. As such, the Utilities wish to thank the Ohio EPA for granting additional time to review and comment on the report. The Utilities believe that Ohio EPA has produced, in general, a technically sound approach to assessing the status of water bodies. [WTFEC]

Response: Thank you for the comments.

D6.2 Evaluation of Beneficial Use: Human Health (Fish Contaminants)

Comment: It appears that Lake Erie is listed as impaired for PCBs, but not listed as impaired for mercury. I understand that Ohio health authorities advise eating no more than one meal of fish per week because of mercury concerns. Don't you have fish tissue data from Lake Erie for mercury? Can you explain why Lake Erie is not listed as impaired for mercury? [AGL]

Response: Ohio EPA has an extensive dataset of mercury in Lake Erie fish dating back to 1974. Lake Erie is not listed as impaired for mercury because the average concentration of mercury for any species found in the lake did not exceed the mercury impairment threshold. The threshold used to determine mercury impairment in the Lake Erie basin is 0.35 ppm mercury. The 0.35 ppm is based on water quality standards (WQS) rules, which result in different thresholds than those used in determining advisories. Ohio EPA uses the WQS as the basis for impairment as opposed to advisory thresholds because that is what is recommended by U.S. EPA in their 2006/2008 Integrated Report guidance. The calculations used in the derivation of the 0.35 ppm threshold can be found in Section E of the 2008 Integrated Report.

Comment: If Ohio reduces watershed assessment units to smaller areas as proposed in Section 14, that will create many new assessment units that will be missing fish tissue data and could cause Ohio to delist such segments. Ohio should retain areas currently listed as impaired on the list until new fish tissue data confirms that such areas are no longer impaired. [AGL, WLEA]

Response: Using smaller assessment units will result in assessment units that will be missing fish tissue data, as commented. However, Ohio EPA is required to retain segments that were formerly listed as impaired until new data are available that indicate that an impairment is no longer warranted, or until the methodology changes such that current data are compatible with delisting. In the case of the HUC14 modification to the methodology, Ohio EPA will retain any previous category 5 listings until new data are available that indicate they should be listed as category 1 instead, or in some cases where the assessment unit does not produce fish of large enough size to sample, it may be relisted as category 3 (insufficient data).

D6.3 Evaluation of Beneficial Use: Recreation

Comment: I read the section on Recreational Water on Lake Erie and found it very helpful and interesting. I have noticed while going to both Mentor Headlands and Huntington Beaches the number of days signs were posted reflecting elevated bacteria levels in the water. However, I was a little concerned to see it was E. Coli. After studying the effects of E. Coli in school and seeing the number of people that have contracted it in the recent years, it is good to know that the EPA is taking this threat seriously. With so few days during the year to utilize the beaches it is important to monitor issues like this so that families can enjoy them throughout the summer months. It was nice to see the rivers are included as well in this study. These are important areas for wildlife to live and grow which adds beauty to the Ohio area. I am hoping that the areas still needing to submit their information will do it in a timely fashion so that you can act on these areas as well and ensure their usability for the 2008 summer season. While I have been aware of the levels it still helps to have this report which puts it into better perspective by listing the percentages of days with higher levels. Thank you again for providing this to the citizens of Ohio and for following up on this much needed issue. [REF]

Response: The Ohio Department of Health (ODH) and Ohio EPA use *E. coli* as an indicator for the potential presence of pathogens. Specific strains of *E. coli* are not identified and not all *E. coli* is pathogenic. The presence of *E. coli* is an indication of the presence of untreated waste of warm-blooded animal origin, and thus the possible presence of pathogenic viruses, bacteria and parasites that may be carried by those animals. The comment author may be referring to the specific *E. coli* strain (O157:H7) that is most often attributed to food-borne illnesses resulting from contamination during the processing or preparation of food.

The Integrated Report cannot by itself address the need the public has for information about beach safety. While it can provide some sense as to which beaches tend to have fewer or more advisory postings as a result of elevated *E. coli* levels, the data necessary to provide useful risk information to a potential swimmer would need to reflect water quality at the time of use. Even data collected the day before (the data used to post or not post beach advisories) is "old news" because it looks backward in time (a reality of the time it takes to collect, incubate, analyze and report the results). A good source of beach safety information is 1-866-OHIO BCH (866-644-6224) or by email at BEH@odh.ohio.gov. There is also information at the Ohio Department of Health's Beach Monitoring web site: <http://www.odh.ohio.gov/odhPrograms/eh/bbeach/beachmon.aspx>.

Information on rivers is more difficult to come by. Ohio EPA continues to seek data in addition to the samples the Agency and permitted dischargers collect. In park areas with established swimming areas, the Ohio Department of Natural Resources (ODNR) or a local health department may be able to provide the public with more specific local information. Sampling results at inland state park beaches are also available at the Ohio Department of Health beach monitoring web site.

Comment: My comment pertains to section F of your report of "Integrated Water Systems" Section F, "Evaluating Beneficial Use: Recreation." I am a yearly visitor of one of the beaches that was notated in your report - Maumee Bay State Park. I have taken my family camping there every summer for the past 4 years, which covers a good portion of the monitoring time in your report. We always camp during the last week in July and the summer is well underway by that time. I have noted that during the hotter, drier summers that Maumee Bay seemed more dirty with more algae floating along the edge of the beach than the couple of summers that it rained. There was never an advisory posted during the time we camped but there were times when I thought there should have been.

What struck me most was the amount of time that Maumee Bay exceeded the number of good recreational days. There were not many in comparison to some of the other beaches but there were some. I can remember thinking that Lake Erie was dirty but the beach was clean and because we always jet ski when we go camping there have been times that I did not participate because the water looked dirtier than was palatable for me at the time. There were other summers when the water seemed cleaner than others and those times did coincide with the weather now that I think about it. I will be especially interested to see your next set of tests for 2007 because there was a very bad rain storm during our whole weekend and I am anxious to see how that affected the bacterial levels in the beach.

Next, I would like to say that it is great to see how the information we are learning in Microbiology affects our everyday life. Because *E. coli* can cause serious and even fatal illnesses in people it is good to know that the beaches and streams are regularly monitored for elevated levels. [DMR]

Response: The following web site provides updated information during the summer about bacteria levels at the major public beaches along Ohio's Lake Erie coast, as well as some inland lakes. The web site is: <http://www.odh.ohio.gov/odhPrograms/eh/bbeach/beachmon.aspx>. It is important to point out that there are many different strains of *E. coli* bacteria, not all of which are human pathogens. In fact, *E. coli* is a normal inhabitant within the intestinal tract of all warm-blooded animals, including humans. One of the pathogenic strains of *E. coli* that can cause severe illness by releasing toxins is *E. coli* O157:H7. This is the particular strain of *E. coli* that occasionally makes news headlines and is most associated with consumption of raw or undercooked ground beef.

Comment: In 2006 the *E. coli* criterion went to 235/100ml. During 2002-2005 they used 125/100ml. If the new criteria were used in previous years, would the number of acceptable days at the beach increase or decrease. How did the report take into account sampling after storms. It seems that after a good summer storm, bacteria levels are normally higher. With so many companies being on the lake (i.e. First Energy) that are consistently dumping into the water, should the same criteria be applied overall for all beaches, or should different criteria be used based on the amount of activity occurring in the area. On days that bacteria levels are "acceptable", could this still be harmful to small children? Is the fish safe to eat from the bacteria-infested waters? [JV]

Response: The comment writer refers to the Ohio Department of Health's change in methodology for beach closures from a rolling average (5-day) to a single sample maximum (SSM). Depending on the beach and the year, there were some increases, some decreases, and some beaches where the number of acceptable days did not change by much at all. This is best observed by examining Table F-1 on page F-6 and comparing the number of days posted in the "5-day" column against the "SSM" column for any beach and any year (5-day not available in 2006). While the "5-day" column is based on a smaller 126/100 ml standard, it is expressed as a mean of multiple values while the "SSM" is based on the higher value of 235/100 ml that is an absolute value not to be exceeded.

The report did not distinguish samples collected during or shortly after storms from samples collected during extended dry periods since the objective of the report was to determine the attainment status of the recreational use of the Lake Erie beaches, as well as other streams and rivers in the State. The water quality standards to protect recreation apply at all times during the summer recreation season, not only during "dry periods." Storm events result in temporary discharges of untreated sewage that may impact swimming areas if those areas are located downstream or in the vicinity of an active combined sewer overflow. In addition, bacteria associated with runoff from the land may be washed into beach areas following a storm. These increases in bacteria can linger for some time even after a storm is over. Following general advice such as avoidance of swimming at a beach for 24-72 hours after a storm event can reduce the potential risk associated with elevated bacteria following a storm. Waters in Ohio that are identified in this report as impaired are subject to further studies by Ohio EPA to locate pollution sources and identify solutions to control pollution. This would include the identification of pollution sources related to storm events.

The application of a consistent standard assures the recreating public that they are being equally protected, no matter the locality. Many would find it unfair if the beaches or rivers in their part of the state were not protected at the same level as those in another part of the state. Aside from discrete point sources such as waste water treatment plant discharges and

combined sewer overflows, bacteria sources can originate from diffuse sources such as storm water runoff, failing home septic systems, farm animals, pets, and waterfowl.

Even though a beach or river may meet or attain the bacteria water quality standards, there is still a level of statistical risk present for contracting a waterborne illness. The bacteria water quality criteria are not set at a “zero risk” level. Statistically, water that meets the water quality criteria should not result in more than 8 illnesses per 1,000 swimmers.

Aside from this, samples collected for determining whether or not a beach is considered safe (e.g., attaining the water quality standard) require 24 hours to process and notify the public (typically done in Ohio by posting an advisory sign on the beach). Because bacteria levels can change dramatically within 24 hours (for example, as a result of a storm), the water quality from a sample collected the previous day is not always reflective of the conditions a swimmer encounters the following day. As previously mentioned, it is generally recommended to avoid swimming at a beach for 24-72 hours after a storm event in order to reduce the potential risk associated with elevated bacteria following a storm.

Proper cleaning, cooking, handling, and preservation of fish will allay any concerns about bacteria present in or on the fish. There is a separate program that monitors the safety of recreationally-caught fish. This program monitors for the potential presence of chemical contaminants, such as mercury or PCBs, in sport fish caught in Ohio. The information obtained from the monitoring program is updated annually and distributed to the public as part of the fishing license renewal and via <http://www.epa.state.oh.us/dsw/fishadvisory/index.html>.

Comment: I am currently taking a microbiology class and many things which I wasn't to aware of this class has brought to my attention. I really never use public pools and throughout the summer I hear the most about the unsafe conditions at edgewater park. Here are a few comments on the report and they are as follows:

What time of the day are the samples taken, I wonder if there are times at which the levels of bacteria are higher and should there be a notice to the public as to when is the best time for them to swim.

Also when those taken the samples are these the same people taking the samples from the exact location they have been taken the samples from, because I have noticed those who are familiar with a certain technique and area they seem to have good results.

I noticed that the most severe beaches are located toward the middle of Ohio, such as Lakeshore and Edgewater, versus Conneaut and Geneva State Park. What do you think is causing the high levels of bacteria?

Are there classes offered to the public about the safety and prevention of recreational water. Because I believe if people are more educated about the risks of polluting the water and seriousness of waterborne illness they will perhaps take care of the waters.

What is being done to cut back on the number of insufficient data which is being collected? I know that there is going to be times at which you can't use data but it seems like there is a high number of samples which were taken and the data cannot be used to benefit the public.

This report didn't indicate improvement or decline for Ohio's beaches? What is your agency going to do to improve the waters, because a lot of money is going into obtaining, evaluating and reporting this information, but why isn't our water quality improving? [JS]

Response: Most bacteria sampling at Lake Erie beaches is conducted in the morning, though the exact time can vary from one beach to another. With regard to the best time to swim at a beach, a particular time cannot be specified other than it is prudent to avoid swimming at a beach for 24-72 hours following rain, especially a heavy rain event.

There is a standard sampling protocol that is used. While the same person may not collect the sample every day, usage of a standardized sampling protocol by whoever collects the sample promotes consistency and confidence in the data. The sampling protocol does specify the use of a consistent sampling location in an area of the beach that is used for swimming.

Some beaches near large urban areas are affected by combined sewer overflows and/or surface runoff that can carry bacteria to beaches. Areas that are most remote from urban areas, most notably the beaches at South Bass Island and Kelly's Island state parks, tend have fewer exceedances of the bacteria criteria. When pollution is detected, studies are usually done to examine the contributing causes and sources, which can range from combined sewer overflows to concentrations of waterfowl, failing home septic systems, livestock, and pets.

Check with your local health department or beach about classes offered. Many beaches will post signs or distribute literature describing what you can do to make your beach experience safer and more enjoyable. The annual Coastweeks observance provides unique opportunities to explore and appreciate Lake Erie through enjoyable educational, environmental and recreational activities. Beach parties, sandcastle-building contests, interpretive hikes and canoe floats, beach cleanups, birding adventures, tours, open houses and more are scheduled in lakefront communities from Painesville to Toledo. Check the Ohio Lake Erie Commission web site at www.epa.state.oh.us/oleo for a complete list of Coastweeks events. The Clean Beach Council's Clean Beaches Week web page may also be useful: <http://www.cleanbeaches.org/events/cbw/>. Additionally, the NRDC publishes an annual report called "Testing the Waters." The readers may find some of the information in this report useful (<http://www.nrdc.org/water/oceans/ttw/titinx.asp>).

The main funding mechanism for the Lake Erie beach monitoring program is money allocated to Ohio and other coastal states provided by Congress under the federal BEACH Act. In 2007, \$9.9 million was provided through U.S. EPA. Ohio's share was \$224,300. For the 2008 recreation season, U.S. EPA expects to release \$9.75 million, and Ohio's allocation is expected to be \$220,780. Hence, the main funding resource is fairly flat, and is actually a slight drop in funding of about 2%. Compared to many states, Ohio has a very robust sampling program of its coastal beaches.

There are so many variables that can affect bacteria concentrations at beaches that data must be compared over a number of years to really notice an improved or declining trend in beach quality. As explained in the report, rainy summers will produce higher bacteria concentrations because of storm water runoff and sewage overflows. High winds can also stir up bacteria that may be harbored in sand and sediment along the shoreline. Large flocks of gulls or Canada geese can contribute to the bacteria count. Since the federal Beach Act was passed in 2000, sampling methodologies at beaches have become more consistent and money has been available to support a more frequent monitoring routine, so there are more data. Compared to

the condition of Lake Erie beaches 40 years ago, the current state is much improved as billions of dollars have been spent installing sanitary sewers and upgrading wastewater treatment plants. However, billions of dollars are still needed to eliminate combined sewer overflows and more effectively control/treat storm water runoff. In addition, work continues at many beaches to explore and address sources of contamination.

Comment: I am not shocked after reading the Section F, "Evaluating Beneficial Use: Recreation" deals with bacterial contamination of Lake Erie beaches. This is the reason I do not go to public beaches. The chart in figure F-2 was quite informing. I don't quite understand how Edgewater in 2005 was much lower in bacteria than 2003 but much higher in 2006. What would cause the increase? If it was up to me I would close Edgewater, Lakeview, Villa Angela, Euclid, and Lakeshore until the bacteria is drastically decreased. People should not be allowed in those beaches and should be advised to go to other beaches. I know that the beaches can not be 100% free from bacteria but people should really be educated on what exactly they are swimming in and how it can be very harmful. I'm curious to see if Edgewater can ever have the numbers that South Bass and Kelly's Island have, what are those beaches doing to have low numbers of bacteria. Overall the beaches should be shut down. [MW]

Response: One possible explanation of the difference in Edgewater Beach bacteria levels between years is the difference in local rain patterns from one year to the next. Some beaches, such as Edgewater, tend to be vulnerable to the effects of combined sewer overflows and storm water runoff associated with urban land use.

Ohio currently does not close beaches when bacteria levels are elevated, but rather, the state posts advisory signs allowing the public to make their own informed decision as to whether to recreate in the water.

Reductions in the bacteria present over a recreation season at Edgewater beach are quite possible, and although those numbers may be difficult to reduce to the levels typical of the beaches at South Bass Island and Kelly's Island, the numbers can be reduced to a safe level and a greater frequency of time. The Cleveland area will be investing billions of dollars over the next three or so decades to address its combined sewer overflows, which will result in better water quality.

Comment: I enjoyed reading this report because as a frequent visitor of the Cleveland area beaches, I have often wondered who kept up with the conditions and how they were monitored. My family and I visit the Headlands East beach most often and I had noticed that during the hotter, drier summers, the water seemed murkier with more algae floating along the edge of the beach than the summers that had received more rain. Sometimes on those hot summers, the water would be so cloudy that I wouldn't let my son get in for fear that it wasn't safe.

I was surprised at the seasonal geometric E. coli mean for Headlands East. Table F-1 indicated that the E. coli levels there were in the top 5 for all 5 years tested. I was also surprised to see that for all 5 years there was impairment of the recreational use due to the exceedance of the geometric mean on a seasonal basis. This report has made me aware of what research I need to do before my family and I decide to go play in the beach from now on. It is good to know that the Ohio Department of Health is monitoring the beaches, rivers, and streams on a more consistent basis for unhealthy levels of bacteria and that their focus is on keeping the public safe. [AS]

Comment: I live and often frequent the beaches between Headlands and Edgewater. It is disturbing that these are the beaches with the highest percentages “when Ohio Lake Erie public beaches exceeded Ohio’s single sample maximum E. coli criterion compared to the total number of days in the sampling period, 2002 – 2006” as listed on Table F-2 of the report. The report cited under section F3 (page F-4) that some of the reasons for the higher percentages in my area are due in part to “the close proximity of urban areas in Lorain and Cuyahoga counties where inputs of storm water runoff and combined sewer overflows are known sources of bacteria.”

It is my hope that these areas are looking to improve the storm water and sewer issues that are contributing to the increase in bacteria in the beaches in Cuyahoga County and the surrounding areas of Lake and Lorain Counties. Also mentioned in the report on page F-5 was the fact that the weather can play a factor in increasing or decreasing the bacteria levels. Drier recreational seasons have seen improvements whereas wetter seasons show an increase in bacteria levels.

Prior to reading this article I was unaware of the monitoring processes of Ohio’s beaches. I also did not realize the many factors that can contribute to the increase or decrease of bacteria levels. While I think great progress has been made in the research and reporting processes since 2002, I would like to see additional testing done. The random testing and constant change of weather, water runoff and sewer overflow should be grounds for more routine and more frequent monitoring. [MG]

Response: One recent advance in research is the development of modeling tools that can be used to predict bacteria levels based upon various factors such as recent precipitation, wave height, water temperature, and water turbidity. These models are advantageous because they predict the actual concentration of bacteria in the water on the day a swimmer is at a beach, unlike measurements of actual bacteria levels which are based on a water sample collected the previous day. Just like models used to forecast weather, results of the bacteria models are not always accurate. However, when used in combination with actual sampling, bacteria modeling provides the swimming public an additional tool to use when making a decision about whether to use the beach. You can learn more about this type of forecasting at the following United States Geological Survey web site: <http://www.ohionowcast.info/index.asp>.

Comment: While reading this report all I could think about was, ok, we know that there is a problem with bacteria in the Lake Erie water, but what is being done to correct the problem. I think that it is absolutely disgusting that people are swimming in water that is infected with sewer overfill. I understand that there are warnings out on days when the bacteria levels are high, but that doesn't mean that there isn't still E. Coli bacteria in the water. I have grown up in the Maumee Bay area and I remember growing up hearing that the Bay was closed to swimmers due to bacteria, but I didn't know that it was from sewer overfill, I don't remember that information being told on the news. I think that people should be alerted not only that it is closed due to bacteria, but that even on days when the beach is open that there are still some levels of bacteria in the water from the sewer, just that the level isn't high enough to close the beach. I really want to know what can or is being done to decrease the source of the bacteria. I understand that not all things are preventable, like storm water, but there has to be a way to decrease the levels of bacteria from sewer overfill. I know for a fact that if there was stool in our bath water or pool water I wouldn't want to be in it, and I'm sure not many people would, so something should be done so people can feel safe swimming in the lake that they aren't bathing with stool. [JG]

Response: The bathing beach monitoring program is designed to provide information to the public about the water quality conditions at bathing beaches and alert them to increased risks as warranted. As pointed out in the comment, natural bodies of water will always contain some bacteria, even if relatively “pristine.” As such, even those waters could potentially harbor pathogens. This report identifies waterbodies that are not within the acceptable range of water quality, and as such, places them on a list of waters for which pollution causes and sources must be identified for correction.

Comment: Section F2 Evaluation Method on page F-2 defines the “recreation season as May 1 – October 15 though Lake Erie beach monitoring typically commences in late May and concludes Labor Day weekend.” This limited window of monitoring and research seems to leave many opportunities for “increasing the risk of contracting waterborne illness as a result of exposure to pathogens while recreating in the water” (page F-1 under section F2 Evaluation Method). With the winter months bringing the melted snow and debris to the waters of Lake Erie, I would hope that an earlier start to the “monitoring” season of the waterways be implemented as well as continuing this process later into the year.

Individuals can be protected from contaminants in a public pool because they are only open from Memorial Day to Labor Day, but after the many months of winter and cold that are part of the Ohio winters, many individuals attempt a trip to the beach (whether for a splash for themselves or their dogs) at the first sign of nice weather. The beauty of nature is that it is “always open.” Beaches are no different – at least to the eager individual who lives in Ohio. Further, Labor Day weekend does not mean the end of “beach weather.” People are going to continue to use the beaches as long as the weather allows. [MG]

Response: The recreation season is tied to the period of year that is most conducive to water-based recreation activity in Ohio. The routine sampling of Lake Erie beaches is dependent on funding sources that allocate resources to conduct the sampling during the period of the season that is used by people with the greatest frequency, which typically runs from Memorial Day weekend through Labor Day weekend.

Comment: We are also pleased to see the Ohio EPA’s consideration of revisions to the Ohio recreational use criteria and support making the state criteria more consistent with the Federal criteria. We gladly offer our expertise in this matter if we can be of any assistance during the drafting of these revisions. [NEORS]

Response: Thank you for your comment and offer of assistance.

D6.4 Evaluation of Beneficial Use: Aquatic Life Use

Comment: I did not see any mention that Lake Erie was designated as impaired for nutrients. Did you consider nutrient impairments in Lake Erie in your analysis? Why not list the nearshore areas of Lake Erie as impaired by nutrients, especially in the western and central basins where algae has been a concern? [AGL]

Response: Since Ohio EPA does not have a regular monitoring program for the Lake Erie shoreline, the options for how to rate Lake Erie are somewhat limited. Ohio EPA lists impairments based on the data available. For example, the Lake Erie nearshore area is divided into three units: western basin nearshore, Lake Erie Islands and central basin nearshore.

These categories were based on work Ohio EPA completed several years ago to develop biological assessment protocols and interim biological criteria for the Lake Erie nearshore.

The only databases where Ohio EPA has enough data to make impaired/not impaired decisions are with fish communities, bacteria at beaches and fish tissue or consumption. Causes and sources (which include a listing for nutrients for all three assessment units, see page M4-1 through 3) were gleaned from available biological and physical habitat data and the biological responses Ohio EPA observed within those data.

Comment: Did you evaluate temperature impairments in your analysis? I believe that several facilities on Lake Erie have temperature variances—why not list these nearshore areas of Lake Erie as impaired for temperature? [AGL]

Lake Erie has near shore temperature variances—these nearshore areas of Lake Erie should be listed as impaired for temperature. An example is the First Energy Bayshore Power plant where the water temperature in the outfall has been measured at 95 degrees Fahrenheit. [WLEA]

Response: Ohio EPA has not approved any Section 316(a) demonstrations for facilities discharging directly into Lake Erie, which would allow the discharger to exceed water quality standards for temperature. (Section 316(a) variances may be issued only if the discharge does not cause beneficial use impairments based upon biological studies.) Although Lake Erie power plant cooling water discharges frequently exceed water quality standards for temperature *at the point of discharge*, these standards apply *at the outside edge of the thermal mixing zone* [see Ohio Administrative Code 3745-1-31(A)]. Based upon available data and Ohio EPA rules for establishing thermal mixing zones, Ohio EPA believes there is no current justification to conclude that temperature standards are being violated after these discharges thoroughly mix with Lake Erie waters. In addition, available data do not indicate water quality impairment based upon temperature at this time. Finally, any finding of impairment would be reached independently from the existence of a Section 316(a) variance.

Comment: 2008 CLEAN WATER ACT SECTIONS 303(d), 305(b), AND 314 INTEGRATED REPORT DRAFT REPORT. on the draft Water Quality and Pollution Control in Ohio, 2008 Sections 303(d), 305(b), and 314 Integrated Report. Every two years, the OEPA prepares and submits an Integrated Report to the United States Environmental Protection Agency to satisfy the listing requirements of Section 303(d) and the reporting requirements of Sections 305(b) and 314 of the federal Clean Water Act. The Integrated Report describes the status of water quality in Ohio and includes a list of water bodies that are not attaining Ohio Water Quality Standards and require the establishment of pollutant Total Maximum Daily Loads. OEPA fails to correct its practice of not properly considering Ohio's narrative water quality standards for turbidity and nutrient impairments, leaving watercourses impaired by these pollutants as being unlisted and not impaired.

Ohioan has not adopted EPA's recommended standards for phosphorus and nitrates as nutrients. There is no evidence of Ohio considering that algae, slimes and other objectionable aspects of narrative impaired waters affect OEPA's decisions as to water recreation uses, except for the presence of untreated sewage. OEPA acknowledges that algae/nutrient/phosphorus/eutrophication problems in the Western basin of Lake Erie are impacting water quality but OEPA fails to produce a finding that nutrient impairments and nuisance algae affect any impairment designation, other than for public water supply. OEPA

then fails to designate Maumee Bay and its surrounding phosphorus contributing watershed as being an impaired water body for nutrients. Although OEPA lists Lake Erie waters for dioxin and PCB fish contamination, there is no recognition that Lake Erie is impaired for nutrients. [WLEA]

Response: While it remains Ohio EPA's approach at this time to not use the water quality standards (WQS) narrative criteria as the basis for listing a water body segment as impaired, Ohio EPA does believe that application of Ohio's numeric criteria adequately identifies all impaired waters in the state. If a narrative criterion appears to be exceeded, it is likely that a numeric criterion has also been exceeded.

Although Ohio EPA has not adopted U.S. EPA's recommended standards for nutrients, nutrients are very often listed as a cause of impairments throughout the state. TMDLs have been prepared that include nutrient targets for achievement of designated uses that are based on models developed for that particular assessment unit. Since Ohio EPA does not have a regular monitoring program for Lake Erie, the options of how to rate impairments in Lake Erie are limited. However, based on data that have been collected on the status of the aquatic community in the nearshore areas, nutrients are listed as a cause of impairment in all three Lake Erie assessment units (see Section M4). Both Maumee Bay and Sandusky Bay fall under the western basin assessment unit, which is considered impaired due to nutrients. Ohio EPA does not list Lake Erie as impaired for dioxin in fish tissue.

Currently, Ohio EPA uses only bacteria as the criterion for determining impairment to recreation. Since the late 1990s, Lake Erie has been experiencing a resurgence in the occurrence of algal blooms in open water (particularly the blue-green *Microcystis*) and *Cladophora* growth along the shoreline. *Lyngbya wollei*, another blue green algae, suddenly proliferated in Maumee Bay in 2006. Coincidentally, Heidelberg College's tributary monitoring program has noted a substantial increase in the amount of dissolved phosphorus in tributary loads to Lake Erie beginning around 1995. In March 2007, Ohio EPA established an Ohio Lake Erie Phosphorus Task Force to explore the potential connection of this increased loading to the increasing algal growth in the lake. The Task Force is investigating all potential sources and identifying additional research needs and management actions to try to reduce the dissolved reactive phosphorus load and better understand the situation. Recommendations for next steps are expected in the spring of 2008. Many other areas around the Great Lakes and outside of Ohio have been experiencing problems with *Cladophora* washing up and impairing beaches. There has been some research done to indicate that piles of *Cladophora* mounding up on beaches may be harboring *E. coli* and potentially being a human health hazard. As more data are collected, the need for developing criteria associated with measuring the impact of nuisance algae on recreation may be realized. Ohio EPA is aware of this issue.

Comment: Ohio health authorities advise eating no more than one meal of fish per week because of mercury concerns. There is no evaluation of the health effects of the algae problems that are plaguing the near shore areas of southern Maumee Bay and extending east in Lake Erie along the shoreline. There is a new algae – *lyngbya wollei* that is blanketing much of the southern shoreline of Maumee Bay and has been observed in the bay to be the size of a house. I have personally observed mounds of this algae that appear as dunes peaking out of the water. In the fall of 2007 a windsurfer crashed into a pile of *lyngbya*, fell off and his arm broke out in a rash. Yet there has been no testing of this new invasive, no information on rather it can be excavated and what its uses can be, and most importantly no impacts on human health and aquatic life. [WLEA]

Response: *Lyngbya wollei* began blooming in Maumee Bay in 2006. Historical plankton data indicate that it has been in the western basin for years, but it was not until recently that it began multiplying to become a nuisance. *Microcystis* has also been a member of the western basin plankton community for years, but it was not until the late 1990s that it started to become a nuisance. Both of these species are blue-green alga (cyanobacteria) and are capable of releasing toxins. Microcystin, the toxin associated with *Microcystis*, could impact water supplies if present in high enough concentrations. Research being done by Environment Canada is examining the potential toxic effects of this particular strain of *Lyngbya* in the Great Lakes region. Ohio EPA is working to develop a monitoring plan to better determine the current status of water quality in Maumee Bay and the various associated components.

Comment: OEPA should evaluate listing the nearshore areas of Lake Erie as impaired by nutrients, especially in the western and central basins where algae has been a concern. According to the 2006 Lake Erie LaMP report, “Long-term records relating to Lake Erie’s nutrient status suggest a process of reduced nutrient status. U.S. EPA’s water quality data show a downward trend of eutrophy (the Carlson Trophic State Index) for the period 1983-2000. Furthermore, concentrations of total phosphorus in the water, averaged over the whole year have been falling by about 0.2 mg/m3/yr. However, the amounts of nutrients present in the water in early spring have continued to rise, extending to eight years a trend that was first seen in 1995. Much of the among-year variation in the amount of phosphorus entering the lake over the last few years is due to the intensity and timing of storms, which cause flooding and erosion, rather than to municipal inputs. Data from the last several years indicate that more phosphorus is leaving Lake Erie in the waters of the Niagara River than is entering the Lake from the major tributaries.....In summertime, light is penetrating deeper into the water - algae are now growing (and producing oxygen) in the deep layers of the central basin and on the western and central basin lake bottoms.” Blooms of blue-green algae came back to Lake Erie in 1998, 2001, 2002 and 2003(and beyond) – the problem is getting worse. [WLEA]

Response: These nearshore areas are listed as impaired for nutrients in the 2008 report (see Section M4) and have been listed since 2004. A number of research projects are underway across Lake Erie to try to determine why phosphorus concentrations appear to be increasing and what the potential impacts of those increases might be. Ohio EPA established an Ohio Lake Erie Phosphorus Task Force in March 2007 to investigate the potential causes of the increasing dissolved phosphorus loads. Over the next two years, the Lake Erie LaMP will be reviewing the status of nutrient science in Lake Erie and begin development of a lakewide binational nutrient management strategy. Ohio EPA participates in the Lake Erie LaMP process. Ohio’s role in assessing and addressing impairments in Lake Erie is largely restricted to the nearshore or where current data exist and regulatory authority (fish tissue, drinking water supply intakes). The open waters of the lake fall under the authority of U.S. EPA. U.S. EPA, Environment Canada, Ontario, Michigan, New York and Pennsylvania are all working with Ohio to better manage the overall state of the lake.

Comment: The summary report states that the Maumee RAP has assessed Maumee Bay. The statement is incorrect. The RAP has not assessed Maumee Bay. In fact Maumee Bay does not get included in many of the maps and information. This estuary should have a HUC unit and be assessed for its own characteristics. Maumee Bay is important for aquatic habitat and there is a public beach on Maumee Bay. Additionally, the report fails to mention the studies on the Ottawa River by US Fish and wildlife that show contamination in the Ottawa River. The results of US Fish and Wildlife testing in the Ottawa River should be included in the report. [WLEA]

Response: Ohio EPA acknowledges that the Maumee RAP has not assessed Maumee Bay. This statement has been corrected in the report. The shoreline of Maumee Bay is considered to be impaired. The beach at Maumee Bay State Park is assessed under the State's Beach Monitoring Program led by the Ohio Department of Health. Ohio EPA agrees that more background assessment information is needed for Maumee Bay and has been working to develop a comprehensive monitoring plan and find the resources to implement such a plan. The Ottawa River is currently the subject of a number of studies including work under the Maumee RAP, a Natural Resource Damage Assessment (with work done by both Ohio EPA, U.S. FWS and potentially a number of local parties), and work with U.S. EPA under the Great Lakes Legacy Act. The Ottawa River is listed as impaired. The purpose of the IR is to present a summary report of the overall status of Ohio's waters by listing what is impaired or not impaired, the major causes for the impairment and some projection as to when it can be expected that a TMDL will be done. The report is not designed to describe all the work that is underway all across the state to improve Ohio's waters.

On page M2-1, the report acknowledges that many studies have been completed on the Ottawa River. That fact that a Natural Resource Damage (NRD) Assessment is underway will be added. This will cover the work that is being done by the U.S. Fish and Wildlife Service, which is a trustee under the NRD.

D6.5 Evaluation of Beneficial Use: Public Drinking Water Supply

Comment: The chart for the Western basin of Lake Erie that is said to include Maumee and Sandusky Bay states that this basin is not a source for drinking water. This is simply not true. The Cities of Toledo, Oregon, Port Clinton, Sandusky and others draw their drinking water from this basin. [WLEA]

Response: Ohio EPA is uncertain as to which chart the commenter is referring. However, on page M4-2, the summary page for the assessment unit to which you refer, several public drinking water supplies are listed. On pages L4-1 and L3-1, impairment of the water quality standards for drinking water use is listed as "No," meaning that none of the public drinking water supply withdrawals exceeded water quality standards.

Comment: We appreciate the coverage of pesticides such as atrazine in Section H: Evaluating Beneficial Use: Public Drinking Water Supply. More samples in the May-June timeframe would be very helpful in pinning down the average concentration at that time of year. [TNC]

Response: Ohio EPA agrees with the comment. Historically, Ohio EPA's monitoring strategy was designed to maximize data collection during the critical period for aquatic life and recreation use (summer low flow), and as a result, most of the chemical water quality data are collected between June and September. Ohio EPA recognizes that data are needed from the spring season to accurately assess the PDWS waters and the agency is currently adjusting sampling plans and investigating other ways to generate the data.

A number of the assessments for atrazine were completed using the Safe Drinking Water Act (SDWA) compliance data submitted to the Division of Drinking and Ground Waters (DDAGW) by Ohio public water systems and their certified laboratories. The SDWA monitoring schedules for pesticides are targeted on the spring period when the highest concentrations are most likely to occur. However, treated water quality data could only be used for assessments for water

systems that do not blend with ground water, selectively pump from the stream source to an upground reservoir to avoid contamination, or use a pesticide removal treatment process.

D6.6 Miscellaneous Issues

Comment: After Reading several sections of the Integrated Water Quality report, I have some concerns. I would like to know if any fish were tested for microbe contaminants in addition to the chemical (Mercury, PCBs etc). In addition to *E. coli*, does the OEPA test for *Giardia*, *Cryptosporidium parvum* or any other disease causing bacteria found in contaminated waters?

According to the Great Lakes Water Quality Agreement Act four of Ohio's rivers have been named Areas of Concern (Ashtabula, Black Cuyahoga, Maumee) What remedial action plans has the OEPA implemented? Although the report was very informative, I would like to know where I can find the actions the OEPA plans to take regarding the water pollution. [CDB]

Response: The commenter asked questions in a number of areas.

Testing of fish tissue. Ohio EPA does not test fish for microbial contamination. Ohio EPA makes the assumption that people are cooking the fish before consuming them. Any microbes should be killed in the cooking process. Therefore, if the fish are contaminated with microbes, those microbes would not go on to affect human health through fish consumption. Since the water quality standards as they pertain to fish consumption focus on human health effects, we do not test the fish for microbial contamination.

Testing for individual pathogens. Ohio does not test surface waters for individual pathogenic microorganisms because there are simply too many possible pathogens present in water to test for them all on a routine monitoring basis. Ohio EPA uses *E. coli* as an indicator bacterium. Its presence indicates the potential for pathogens to also be present in the water. When *E. coli* is present at elevated levels, it indicates a greater risk of disease-causing microorganisms being present in the water. For waters used as sources of drinking water, Ohio EPA requires the public water systems to directly test the treated water for total coliforms (*E. coli* and fecal) and they must maintain extremely low levels of turbidity. Turbidity is a measure of the cloudiness of water and is used to indicate water quality and filtration effectiveness (e.g., whether disease-causing organisms are present). Higher turbidity levels are often associated with higher levels of disease-causing microorganisms such as viruses, parasites (such as giardia) and some bacteria. Organisms such as *Giardia*, *Legionella* and viruses are not directly measured but are effectively filtered out if turbidity standards are maintained. Additionally, as part of surface water treatment rules, Ohio public water systems with elevated *E. coli* levels are now required to test their source water for *Cryptosporidium*. Additional information about this rule and required testing is available on U.S. EPA's website at <http://www.epa.gov/OGWDW/disinfection/lt2/basicinformation.html>.

Areas of Concern. Ohio has four areas of concern (AOCs). Detailed information on each site can be found via various links on the Ohio EPA Remedial Action Plan (RAP) web page at: www.epa.state.oh.us/dsw/rap/rap.html. All of the RAPs have active local groups that are focused on restoring the AOCs. Cleaning up and restoring these areas cannot be done by Ohio EPA alone and many actions by many partners have been implemented since the early 1990s.

The most significant remediation to date has been the removal of contaminated sediments from the Ashtabula River AOC. As of October 2007, approximately 500,000 cubic yards of contaminated sediment (PCBs, PAH, chlorinated organic chemicals) were removed from the

lower river. An additional 150,000 cubic yards are scheduled to be removed from the river mouth and harbor area by July 2008. This will complete the remediation and will be followed by habitat restoration and several years of monitoring to determine if all uses have been restored to the river.

Many projects have been implemented to date including: removal of contaminated sediments; dam removal; stream bank habitat restoration; installation of fish shelves; design and demonstration of fish habitat that could be built to enhance areas like the bulkheaded, narrow Cuyahoga shipping channel; numerous educational workshops for all sectors; storm water education and projects; and watershed plan development for subwatersheds within the AOCs. Other projects planned or underway in each AOC can be found via the web page listed above.

Comment: On page A-15, please change the reference to Cuyahoga Valley National Recreation Area to Cuyahoga Valley National Park. Our designation to "national park" was effective in 2000. [CVNP]

Response: Thank you for the comment. The text in the final report was corrected.

Comment: In addition to Section A, which is long for many readers, include an Executive Summary. The information at the bottom of the page at http://www.epa.state.oh.us/dsw/tmdl/2008IntReport/2008OhioIntegratedReport_draft.html could be used for an Executive Summary and provided as part of the Integrated Report. An Executive Summary could be provided as a pdf file. Short portion of other sections of the report, such as the beginning of Section D, also might be used in an Executive Summary. [TNC]

Response: An executive summary has been added to the final report.

Comment: Page A-7 – It would be helpful to preface this discussion of land disturbance with a brief statement on how the great improvements in control of point sources has allowed the effects of land disturbance to become more apparent.

This section could include a brief statement highlighting, and maybe providing some statistics for, the significant portion of some watersheds where land disturbance dominates and determines stream quality. [TNC]

Response: The suggested content about improvements already appears on page A-11. Information on the second item would require more time to prepare than is available; it will be considered for inclusion in the 2010 report.

Comment: Page A-6 – We suggest specifically mentioning a large river success story here, such as the lower Scioto River's improvements.

Page A-8 – The section on "organic enrichment" should clarify that this enrichment "is the addition of carbon-based materials from living organisms" beyond natural rates and amounts. This might help the public understand the contributions of natural organic matter to stream life, i.e., native vegetation - leaves and woody debris. In the later section on "nutrient enrichment," it does state "excess contribution of materials," which makes the point this is beyond natural rates.

The discussion of "siltation/sedimentation" should mention that sediment transports other pollutants.

Page A-9 – In the paragraph on row crop cultivation, we suggest the second sentence be modified to something such as: “Frequently, cultivated cropland involves surface (ditch construction and stream modification) and subsurface (tile) drainage, and a challenge is ...”

In the last sentence of this paragraph, we suggest “regularity of the stream channel, lack of in-stream cover and increased water temperature reduce biological diversity.

“Land development is the conversion of forest, wetlands or agriculture ...,” or it could just state “natural areas or agriculture.”

We also note that agricultural drainage has some of the same effects of land development, increasing flashiness and causing streams to become unstable. For a discussion, see: Baker, D.B., R. P. Richards, T.T. Loftus, and J.W. Kramer. 2004. A new flashiness index: Characteristics and applications to midwestern rivers and streams. *Journal of the American Water Resources Association* 40(2), 503–522. Concerning the sentence on page A-10, “The resultant channel is less able to assimilate nutrients and other pollution,” the same should be noted for row crop cultivation/agricultural drainage impacts in the preceding paragraph.

Page A-10 – In the discussion of stream temperatures in the first paragraph, we suggest a change to “when water runs over hot pavement and rooftops or sits in detention basins....”

Page A-12 – It’s worth noting that improvements are needed, and opportunities are extensive, in agricultural BMPs related to water quality in this area, including those related to drainage.

Page A-13 - Considering the influence of agriculture on water quality in this part of Ohio, it is worth noting the Lake Erie Conservation Reserve Enhancement Program (CREP) <http://www.dnr.state.oh.us/soilandwater/programs/crep/lecrep/tabid/8867/Default.aspx> [TNC]

Page A-23 -- The spelling should be “variegate” darter. [TNC]

Page A-24 - Considering the influence of agriculture on water quality in this part of Ohio, it is worth noting the \$207 million/70,000 acre Scioto Conservation Reserve Enhancement Program (CREP) (<http://www.dnr.state.oh.us/soilandwater/programs/crep/sciotocrep/default/tabid/8870/Default.aspx>). [TNC]

Response: The suggested changes clarify the meaning of the text and have been incorporated in the final report.

Comment: Page A-13 – Under the discussion of the Rural Drainage Advisory Committee, should credit be given to ODNR, Division of Soil and Water Conservation for forming this committee?

We note that the report recommendations propose significant changes in use designations, determination of downstream impacts and depend on U.S. EPA approval, all of which are major undertakings or concerns. [TNC]

Response: We acknowledge the comment. The Committee’s work is mentioned briefly in the Integrated Report to let readers know of the discussions and to direct them to more information via the references provided. We invite interested readers to follow progress on potential water

quality standards issues via the Division of Surface Water's web page at <http://www.epa.state.oh.us/dsw/index.html>

Comment: Page A-23 -

“Species that once existed and were lost are reappearing and some species that have never been recorded have pioneered their way into some central Ohio streams. Examples include the spotted, bluebreast, verigate and tippecanoe darters in Walnut Creek, the clubshell and rayed bean mussels in Big Darby Creek, and the blue sucker in the Scioto River.”

We understand that while there might have been a limited number of clubshell and rayed bean mussels recorded recently in Big Darby Creek, we are not aware of evidence that the clubshell has a reproducing population in Big Darby Creek. The rayed bean might represent a continued population that escaped detection in other recent surveys, especially because they are small and hard to locate. We suggest modifying, as appropriate, the statement on page A-23, and refer you to Dr. Tom Watters at the Ohio State University Museum of Biological Diversity and Dr. Michael Hoggarth of Otterbein College. [TNC]

Response: The sentence was revised to exclude mention of the mussels.

Comment: [Section C] We appreciate the reference to the Clean Ohio Fund related to protecting water quality. The Agency might mention in the report that Governor Strickland supports continuation of this program, as referred to in his State of the State address of 2/6/08 (see <http://www.governor.ohio.gov/Default.aspx?tabid=835>):

“Through issuing bonds, the \$1.7 billion Building Ohio Jobs package will create more than 80,000 good-paying jobs in Ohio and lay the foundation for future economic prosperity by investing in the state's energy economy, distribution infrastructure, biomedicine, bioproducts, public works, our downtown neighborhoods and the Clean Ohio fund.”

The Clean Ohio Fund is being offered as part of this comprehensive statewide ballot issue in November 2008. [TNC]

Response: Thank you for the comment. Information regarding the Clean Ohio Fund has been added to Section C6.

Comment: According to OAC 3745-4-01(C)(3), level three credible data is necessary for the regulatory purposes specified in 6111.52 of the Ohio Revised Code. These purposes include, at 6111.52(C), developing a statewide water quality inventory or other water assessment report. Clearly, the biennial Integrated Reports prepared by the Ohio EPA fall under this category and therefore require all data obtained following the effective date of the Credible Data Rules to be level three credible. We understand that these rules did not go into effect until 2006, and therefore not all of the data used in the 2008 Integrated Report is required to be level three credible. However, we did find the draft report confusing in regard to which data was level three credible and which data was not. We would like to suggest that the Ohio EPA provide clarification of the credibility of the data used in the 2008 Integrated Report and consider a mechanism for indicating the credibility and the sources of the data in this and future reports. [NEORS]

Response: Ohio EPA appreciates the suggestion. The table below will be added to the report in section D3.

Entity	Dates Data Were Collected	Data Description	Basis of Qualification ¹	
<i>Data Collected Before Credible Data Law (March 24, 2006)</i>				
Ohio EPA	1997 - 2005	Fish tissue		
NPDES permittees	2002 – 2005 (May - October only)	Bacteria		
Cuyahoga County Health Department	2002 – 2005 (May - October only)	Bacteria		
Northeast Ohio Regional Sewer District	2002 – 2005 (May - October only)	Bacteria		
Lake County General Health District	2002 – 2005 (May - October only)	Bacteria		
Ohio Department of Natural Resources	1997 - 2005 2001 - 2005	Fish tissue Biology (fish only) Physical habitat		
U.S. Geological Survey	2003	Biology (macro-invertebrates only)		
Northeast Ohio Regional Sewer District	2001 2005	Biology (macro-invertebrates only) Fish Tissue		
Midwest Biodiversity Institute/ Center for Applied Bioassessment and Biocriteria	2001 - 2004	Biology Physical habitat Chemistry		
Heidelberg College	2004	Biology (macro-invertebrates only)		
PWS compliance database (permittees)	January 2002 - February 2006	Chemistry		
Heidelberg College	January 2002 - February 2006	Chemistry		
Syngenta Crop Protection, Inc.	January 2002 - February 2006	Chemistry		
<i>Data Collected After Credible Data Law (March 24, 2006)</i>				
Ohio EPA	April - September 2006	Fish Tissue		State Agency
NPDES permittees	2006 (May - October only)	Bacteria	Data credible - submittal pursuant to permit	
Cuyahoga County Health Department	2006 (May - October only)	Bacteria	Level 3 qualified data collectors	
Northeast Ohio Regional Sewer District	2006 (May - October only)	Bacteria	Level 3 qualified data collectors	
Ohio Department of Natural Resources	April - November 2006 September - October 2006	Fish Tissue Biology (fish only) Physical habitat	State Agency	
Northeast Ohio Regional Sewer District	July - October 2006	Biology Physical habitat	Level 3 qualified data collectors	
PWS compliance database (permittees)	March 2006 - June 2007	Chemistry	Data credible - submittal pursuant to permit	

Heidelberg College	March - September 2006	Chemistry	Level 3 qualified data collectors
Syngenta Crop Protection, Inc. ²	March - December 2006	Chemistry	See footnote

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

² 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.).

Comment: We encourage the Agency to include coverage of the status of mussels in Ohio in its next Integrated Report. As you know, the health of many species of freshwater mussels is at risk throughout Ohio (e.g., see ODNR's listed species, available at <http://dnr.state.oh.us/tabid/5664/Default.aspx>, <http://ohiowatersheds.osu.edu/toolshed/mussels.html>) and North America. ODNR's listed mollusk species include 24 endangered mussel species, four threatened and nine species of concern. About 69% of freshwater mussel species are at risk in the U.S. (Stein, B.A., L.S. Kutner, and J.S. Adams (eds.) 2000. Precious heritage: The state of biodiversity in the United States. Oxford University Press. 399 pp.)

Because of their sensitivity to pollution and habitat alteration, freshwater mussels have been recommended as indicators of water quality (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/allabstracts.cfm/db/Anchorage2006abstracts/id/734>). 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/OFMA.htm>). Mussels can be good indicators of quality because they are stationary, must filter the water passing around them and integrate conditions over a long period of time. Given the digitization of and extensive stream data in Ohio, Ohio EPA is well-equipped. 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. We encourage you to work with The Ohio State University and others to develop this information. [TNC]

Response: Ohio EPA agrees that mussels have the potential to provide valuable information in that many species are very sensitive to environmental perturbations. In fact, Ohio EPA records and those from the Ohio State University Museum of Biological Diversity are being actively used to aid in the selection of candidate streams and rivers for higher antidegradation tiers in Ohio (Superior High Quality Waters and Outstanding State Waters). Unfortunately, there is still little in the published literature that aids in the development of an aquatic life use assessment. Ohio EPA looks forward to a pending mussel IBI publication by one of Dr. Hoggarth's graduate students expected in the autumn of 2008.

Comment: The Agency lists hydromodification among the top causes of impairment (pages A-7 and A-9). However, this is not addressed elsewhere in the report, in Chapter 3745-1 of the Ohio Administrative Code water quality criteria and values, or in this report's Section I: Considerations for Future Lists. As you know, many of the existing impairments, including

organic and nutrient enrichment and contaminants, are exacerbated by hydromodification. Therefore, we suggest the next report in 2010 include work to: a) undertake a comprehensive statewide assessment of these impairments; b) address hydromodification in both the 'free from' and numeric water quality standards. Hydromodification standards would both address this impairment directly and also help meet existing water quality standards and TMDLs that are being developed. Such standards would provide a consistent level of environmental protection and improve the quality of regulatory decisions. They would also support ongoing efforts to pass and implement the anticipated Great Lakes Compact. Also, stream flow might be timely relative to increasing commodity prices and the response of the agricultural community toward more and larger irrigation systems, such as in the Scioto watershed.

The Conservancy encourages stream flow standards that: a) cover all rivers and streams (and ideally other waterbodies); b) is protective of aquatic life; c) is based on the natural variations of flows and water levels; and d) allows for reasonable other uses.

Additional issues that must be addressed include: a) a provision for sufficient water for other reasonable and necessary uses of water; b) specific numerical criteria, c) a determination of the maximum amount of water that can be safely withdrawn, diverted or used from ground or surface water while still being protective of aquatic life.

As mentioned elsewhere in these comments, we support the wetlands coverage in the Integrated Report. Please note that wetlands are dependent on intact hydrologic regimes – and many are affected by altered stream flow.

The Conservancy is willing to help provide technical assistance to the Agency and other stakeholders on the stream flow issue. [TNC]

Response: Ohio EPA agrees that flow is an important component of stream health. However, because clear authority does not lie with the Agency and funding and resources are not available for a major effort, a statewide assessment could not be completed at this time.

Comment: Also of interest are the compounds we discharge through our wastewater treatment systems. We suggest a statewide screening analysis for pharmaceuticals and personal care products (PPCPs) in streams below Ohio wastewater treatment plants (WWTPs) (e.g., the Washington Department of Ecology report at <http://www.ecy.wa.gov/biblio/0403051.html>). As you know, the U.S. Geological Survey study on Tinker's Creek in the Cuyahoga River watershed provides some background on the issue (http://www.peoplelandandwater.gov/usgs/usgs_03-30-07_usgs-tests-new.cfm). USGS is considering an expanded study. Growing awareness of the issue could help clarify the level of influence of these chemicals in Ohio's waters. [TNC]

Response: Ohio EPA concurs that the issue of PPCPs is becoming increasingly important as a water quality problem in Ohio water bodies. As such, Ohio EPA continues to support efforts such as the Tinkers Creek study to help determine effects of these chemicals and supports the development of procedures that can be used to identify them as primary causal links to aquatic life impairment or other human health concerns. Staff from Ohio EPA have been invited and will be participating in an upcoming workshop sponsored by the Water Environment Research Foundation with the goal of developing a cross-sector collaboration devoted to research efforts that will determine the ecological consequences of trace organic compounds (i.e., emerging

contaminants, microconstituents, and endocrine disrupting chemicals/PPCPs) in North American receiving waters.

Comment: Many of the stresses and impairments that Ohio streams are subject to are generally well-covered in Section A. We encourage the Agency to consider addressing stream crossings (i.e., culverts and bridges) in the report as another source of impact.

Below are some examples of how this issue is addressed elsewhere. Many states have or are considering establishing stream crossing standards, and we encourage Ohio to conduct a general review of these potential sources of impairment. Such an effort would not only help improve the quality of Ohio's streams, but also would help establish the degree of impact in Ohio and provide clear and effective expectations for mitigation standards, 401 certifications, permits and other actions. The Conservancy supports establishment of improved standards for stream crossings in such actions as Nationwide Permits, 401 certifications and mitigation.

The Conservancy encourages Ohio EPA to build on the stream crossing (culvert) standards under the recently adopted Clean Water Act Section 401 Certifications for Nationwide Permits program. (http://www.epa.state.oh.us/dsw/401/NationwideCertification_final_jul07.html)

In 2007, the Conservancy provided comments to Ohio EPA on the above standards for culverts. The standards in the Agency's 2007 Nationwide Permit appear to recognize the issue and be based on similar standards established elsewhere, such as the State of Washington's "Design of Road Culverts for Fish Passage." This is a positive step, especially since there are limited standards elsewhere in Ohio EPA rules or permits for stream crossings. The need for and progress in stream crossing standards is very evident, and local governments (http://www.etowahhpc.org/research/documents/tech_rpt_stream_crossings_4-30-07.pdf (See attached draft document)), other states (e.g., attached Massachusetts poster; <http://streamcontinuity.org/>, <http://www.fishpassage.wsu.edu/related-links/>) and the federal government (e.g., U.S. Forest Service - <http://stream.fs.fed.us/fishxing/>, U.S. Department of Transportation <http://www.fhwa.dot.gov/engineering/hydraulics/envirohyd/fishback.cfm>) are advancing similar standards.

The Conservancy is willing to help provide technical assistance to the Agency and other stakeholders on both the stream crossing issue. [TNC]

Response: Ohio EPA acknowledges the impacts that stream culverts can have on aquatic environments within the state of Ohio. The Agency will continue to work with the Ohio Department of Transportation on the identification of improved stream crossing methods and work to incorporate those methods into permitting activities. It should be noted, however, that there are insufficient staff resources available to develop a specific initiative to address this issue at this time.

Comment: Antidegradation map - We thank you for the attainment, Section 303(d) Reporting category and Ohio TMDL Program Progress maps in Section K. These are very helpful. In addition, we would appreciate inclusion of a map of antidegradation status for Ohio, showing the streams that are listed under antidegradation. This would be a good addition to the report, and also would be very useful to supplement the List of Special High Quality Waters contained in Ohio Administrative Code 3745-1-05. A map could be included with Section K, or in Section C, Managing Water Quality. [TNC]

Response: Ohio EPA has added a map to Section C that shows the antidegradation status of streams in Ohio.

Comment: Section I3 of the draft report states that Ohio does not intend to use the EPA 5(m) designation for the report: "While moving in this direction would be preferable as a way to focus on this important pollutant, Ohio EPA has decided that such a move is not possible for this report." Can you explain why Ohio such a move is not possible? [AGL]

Comment: Section I3 of the draft report states that Ohio does not intend to use the EPA 5(m) designation for the report: "While moving in this direction would be preferable as a way to focus on this important pollutant, Ohio EPA has decided that such a move is not possible for this report." Ohio should use the 5(m) designation, and it is hoped that a more stringent plan for mercury action would be required. [WLEA]

Response: The 5m category is recommended for states with a comprehensive mercury reduction program in place containing elements suggested by U.S. EPA, including the following:

- that "specific legislation, regulations, or other programs that implement the recommended elements have been formally adopted by the State, as opposed to being in the planning or development stage."
- that State would describe its comprehensive mercury reduction program and how the program meets the recommended elements, including multi-media monitoring, inventories, targets and measures.

Ohio EPA determined that efforts to date would not qualify as a comprehensive program. However, a discussion of those efforts is included in the report. Recognizing that mercury reductions are needed even though they are not quantified to the level needed for a total maximum daily load (TMDL) analysis, Ohio is nevertheless taking steps to reduce sources of mercury as much as possible, as outlined in the Integrated Report discussion.

Comment: While the utilities understand that implementing a voluntary, comprehensive mercury reduction program was not possible in this report, the Utilities recommend that Ohio EPA pursue developing a program for the 2010 Integrated Report so that Ohio EPA may designate waters impaired by atmospheric deposition under subcategory 5m. As recognized by the 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 the attached U.S. EPA memo from Craig Hooks to U.S. EPA Regions 1 – 10.

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 in addition to flexibility to develop programs to reduce mercury by tailoring the programs to address State-specific factors (e.g., economic feasibility, population exposure, economic impact, etc.). This proactive approach could lead to early reductions in mercury, which could ultimately reduce the number of mercury-impaired waters in Ohio. Moreover, by implementing the 5m impairment subcategory, Ohio EPA would be adequately protected against unfounded legal challenges that seek to compel the agency to implement reduction measures within the legal framework of environmental statutes other than the Clean Water Act.

The Utilities believe that the Ohio Projects outlined in Section I3.2, if accomplished, would satisfy the U.S. EPA's recommended elements of a mercury reduction program. Further, in implementing these projects, the Utilities encourage 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. It is through such an approach that Ohio EPA can ensure the greatest reduction in mercury, which could result in the future delisting of mercury-impaired waters. Thus, the Utilities recommend that the Ohio EPA make it a priority to implement this program by 2010 in order to ensure early reductions in mercury. [WTFEC]

Response: Thank you for the comment. Ohio EPA will continue to pursue effective mercury reduction strategies. To the extent possible with available resources, the Agency plans to assemble a comprehensive mercury program to meet the 5m requirements.

Comment: The Utilities support the modified evaluation method for determining impaired waters based on the human health water quality criteria because this evaluation strikes a balance between over-designating and under-designating waters as impaired. Under the current method, a water body is considered impaired if the weighted average of three or more samples of fish tissue are above the threshold for a given contaminant. The Utilities believe that this method leads to erroneous positive assessments of water bodies as impaired. For example, under this method, a significant number of water bodies are impaired for PCBs, an ubiquitous, recalcitrant class of organochlorine compounds that continue to persist in environment despite a manufacturing ban that has been in place for several decades. Under the modified evaluation, a water body in which the geometric mean exceeds the threshold for **both** trophic levels 3 and 4 are considered impaired; if the geometric mean is below the threshold for **both** trophic levels, the water body is unimpaired. However, if the geometric mean exceeds the threshold for only one trophic level, a second analysis is conducted based on a modification of U.S. EPA's methodology for assessing methylmercury levels. This method computes an average concentration based on the geometric means of trophic levels 3 and 4. If the average concentration exceeds the threshold, the water will be designated impaired.

The pilot data of two assessment watersheds, which were unimpaired for mercury but impaired for PCBs in the 2008 Integrated Report, indicate that, under the modified method, the water bodies are still unimpaired for mercury; however, only one water body is impaired for PCBs. The Utilities agree with Ohio EPA that this methodology better utilizes the data. The Utilities support this use of the most recent, scientifically defensible fish tissue level thresholds to determine water body-specific risk assessments and believe that the use of the geometric mean is appropriate to determine a central tendency measure for pollutants in fish tissue. Further, the overall effect of Ohio EPA's updated scientific assessment will likely decrease the number of water bodies assessed as impaired due to PCBs. This methodology allows Ohio EPA to utilize its resources to develop TMDLs for those bodies that are impaired while eliminating development of TMDLs for water bodies that were likely false positives under the current method. [WTFEC]

Response: Thank you for the comment.

D6.7 Monitoring Schedule

Comment: In looking at the Field Monitoring and TMDL scheduling dates, I cannot help but reflect on the fact that if each river, lake, or stream was a person with cancer, they would more than likely be dead before any testing was done. I find the OEPA schedules for Field Monitoring

and TMDL's to be far too long and failing to diagnose problems for the waters we drink and recreate in and the fish that we eat from them.

Here in the Western Basin of Lake Erie we have the most biologically productive waters in the Great Lakes and the most consumable fish anywhere in the Great Lakes. Why is it then that OEPA places such little value to testing the waters and fish? [WLEA]

Response: The monitoring schedule indicates repeat visits, so even if monitoring is not scheduled for some time, it does not mean that Ohio EPA has never been to that location to monitor. TMDL projects are already underway in about one-half of the state's watersheds. Ohio EPA does have limited resources to address monitoring and TMDL needs. Issues related to fish consumption are primarily dealt with through other Ohio EPA programs (e.g., Sport Fish Consumption Advisory Program; see <http://www.epa.state.oh.us/dsw/fishadvisory/statewide.html>).

Ohio EPA works with local governments and citizens to protect ground water through the source water assessment and protection (SWAP) program. In 2008, Ohio EPA began listing public drinking water sources as impaired and will begin completing TMDLs for impaired rivers and streams for this designated use. Lake Erie is an international waterbody and therefore is under the jurisdiction of the U.S. EPA, with whom Ohio EPA works to protect this valuable water resource.

D6.8 Exotic Species

Comment: On behalf of the National Wildlife Federation ("NWF"), I am writing to comment on the *Draft Ohio 2008 Integrated Water Quality Monitoring and Assessment Report* ("IR"). In particular, NWF wishes to address the issue of exotic species. (The term "exotic species" means any species that is not native to a particular ecosystem, including its seeds, eggs, spores, or other biological material capable of propagating that species. Exotic species which have invaded or been introduced in Ohio waters and established themselves there are "invasive species.")

Many exotic species have invaded and become established in Ohio waters, and they have seriously impaired these waters. Additional invasions are expected to occur at an increasing rate unless effective safeguards are placed on the discharge of ballast water from oceangoing vessels. Thomas Johengen et al., *Assessment of Transoceanic NOBOB Vessels and Low-Salinity Ballast Water as Vectors for Non-indigenous Species Introductions to the Great Lakes 1-1* ("NOBOB Final Report"), <http://www.glerl.noaa.gov/res/projects/nobob/products/NOBOBFinalReport.pdf> (last visited Feb. 25, 2008); United States General Accounting Office, *Invasive Species: Clearer Focus and Greater Commitment Needed to Effectively Manage the Problem* ("Clearer Focus Report"), GAO-03-1, at 56 (Oct. 2002), <http://www.gao.gov/new.items/d031.pdf> (last visited Feb. 25, 2008). "[S]cientists have identified 17 species from the Ponto-Caspian region (Caspian, Black, and Azov Seas) of Eastern Europe alone that have a high invasion potential, are likely to survive an incomplete ballast-water exchange, and are considered probable future immigrants to the Great Lakes." *Clearer Focus Report* at 56.

Despite the significant and detrimental effects of invasive species in the Great Lakes ecosystem, the IR fails to (1) include waters impaired or threatened by exotic species in the category of waters requiring a TMDL, (2) identify exotic species as a cause of the impairments

or threats, and (3) develop TMDLs to address the impairments or threats caused by exotic species. The Ohio Environmental Protection Agency (“OEPA”) must revise the IR to correct these defects.

1. Exotic species are pollutants.

The federal Clean Water Act (“CWA”) defines the term “pollutant” to mean “biological materials...discharged into water.” 33 U.S.C. § 1362(6). The courts have interpreted this definition to include live animals, and exotic species in particular. *National Wildlife Federation v. Consumers Power Co.*, 862 F.2d 580, 583 (6th Cir. 1988) (fish and fish remains are pollutants because they constitute biological materials); *Northwest Env’tl. Advocates v. EPA (“NEA v. EPA”)*, No. C 03-05760 SI, 2005 WL 756614, at *9 (N.D. Cal. Mar. 30, 2005) (a ballast water discharge is a discharge or addition of pollutants under the CWA because it introduces biological materials from outside sources); *United States Pub. Interest Research Group v. Atl. Salmon of Me., LLC*, 215 F. Supp. 2d 239, 247 (D. Me. 2002) (“Fish that do not naturally occur in the water, such as non-North American salmon, fall within the term ‘biological material’ and are therefore pollutants under the Act.”).

Therefore, the OEPA must identify those waters within the State’s boundaries for which effluent limitations and other pollution control requirements are insufficient to ensure compliance with any applicable water quality standard because of exotic species. 33 U.S.C. § 1313(d)(1)(A); 40 C.F.R. § 130.7(b)(1).

2. Exotic species are impairing or threatening Ohio waters.

A pollutant impairs a state’s waters when effluent limitations and other pollution control requirements are not stringent enough to implement any water quality standard applicable to such waters. 33 U.S.C. § 1313(d)(1)(A); 40 C.F.R. § 130.7(b)(1). A “water quality standard” (“WQS”) consists of the designated uses of the water involved, the water quality criteria based upon such uses (both numeric and narrative criteria), and antidegradation requirements. 33 U.S.C. § 1313(c)(2)(A); 40 C.F.R. §§ 130.2(d), 130.7(b)(3). Thus, impairments exist where effluent limitations and other pollution control requirements are not stringent enough to implement any one of the three components of a WQS, whether it be the designated uses, water quality criteria (numeric or narrative), or antidegradation requirements of the WQS. *Cf. PUD No. 1 v. Washington Dept. of Ecology*, 511 U.S. 700, 715 (1994) (“a project that does not comply with a designated use of the water does not comply with the applicable water quality standards”).

To compile Ohio’s list of impaired or threatened waters, the OEPA must draw on the wealth of “existing and readily available water quality-related data and information” relating to the designated uses which are impaired by exotic species. 40 C.F.R. § 130.7(b)(5). This includes extensive data and information amassed by various governmental agencies. Even a small sampling of such data and information reveals impairments and threats to the State’s designated uses. (The OEPA includes the following in its list of designated uses of Ohio waters: industrial and public water supply, recreation, and aquatic life uses. IR at D-4-5.) The exotic species found in Ohio waters include the zebra mussel, round goby, spiny water flea, fishhook flea, and Eurasian milfoil.

- Industrial and Public Water Supply

The fishhook flea causes problems with drinking water supplies and interferes with industrial water systems. U.S. Geological Survey Nonindigenous Aquatic Species Database, <http://nas.er.usgs.gov/queries/FactSheet.asp?speciesID=163> (last visited Feb. 22, 2008). The zebra mussel has had “devastating economic impacts on municipal and residential drinking water delivery systems, power plant intakes, and industrial facilities that use raw surface water.” *Clearer Focus Report* at 55. “They colonize pipes constricting flow, therefore reducing the intake in heat exchangers, condensers, fire fighting equipment, and air conditioning and cooling systems.” U.S. Geological Survey Nonindigenous Aquatic Species Database, <http://nas.er.usgs.gov/queries/FactSheet.asp?speciesID=5> (last visited Feb. 22, 2008).

- Aquatic Life Uses

“[A]fter habitat destruction, alien invasive species is the second leading cause of extinction of native aquatic species.” Great Lakes Water Quality Board, Report to the International Joint Commission, *Alien Invasive Species and Biological Pollution of the Great Lakes Ecosystem*, May 2001, at 3 (“*Water Quality Board Report*”), <http://www.ijc.org/rel/pdf/ais.pdf> (last visited Feb. 25, 2008). For instance, zebra mussels interfere with the growth, feeding, movement, respiration, and reproduction of native species, and it has been predicted that zebra mussels will cause the extinction of up to 140 native mussel species by 2012. *Clearer Focus Report* at 55.

The effects of the zebra mussel’s massive consumption of phytoplankton may ripple through the food web to affect fish, potentially causing increased competition, decreased survival and decreased biomass of fish that eat plankton. U.S. Geological Survey Nonindigenous Aquatic Species Database, <http://nas.er.usgs.gov/queries/FactSheet.asp?speciesID=5> (last visited Feb. 22, 2008). Zebra mussels may also cause biomagnification of toxins into both fish and birds. U.S. Geological Survey Nonindigenous Aquatic Species Database, <http://nas.er.usgs.gov/queries/FactSheet.asp?speciesID=5> (last visited Feb. 22, 2008).

The round goby has caused declines in the numbers of native fish species because of competition for food and habitat. U.S. Geological Survey Nonindigenous Aquatic Species Database, <http://nas.er.usgs.gov/queries/FactSheet.asp?speciesID=713> (last visited Feb. 22, 2008). The round goby’s presence in Lake Erie led the State to shut down the smallmouth bass fishery to help prevent predation on smallmouth eggs. *Id.* The spiny water flea competes with larval fish for food. U.S. Geological Survey Nonindigenous Aquatic Species Database, <http://nas.er.usgs.gov/queries/FactSheet.asp?speciesID=162> (last visited Feb. 22, 2008). Eurasian milfoil “supports a lower abundance and diversity of invertebrates, organisms that serve as fish food,” and reduces foraging space available to large predator fish, making them less efficient at catching their prey. U.S. Geological Survey Nonindigenous Aquatic Species Database, <http://nas.er.usgs.gov/queries/FactSheet.asp?speciesID=237> (last visited Feb. 22, 2008). It also degrades water quality and depletes dissolved oxygen levels. *Id.*

- Recreation

The zebra mussel affects recreational boating and fishing by attaching to exposed surfaces, increasing drag, overheating engines, sinking navigational buoys, and fouling fishing gear. U.S. Geological Survey Nonindigenous Aquatic Species Database, <http://nas.er.usgs.gov/queries/FactSheet.asp?speciesID=5> (last visited Feb. 22, 2008). Similarly, the fishhook flea can “achieve high population densities, forming ‘clumps’ that can entangle the fishing lines of anglers.” U.S. Geological Survey Nonindigenous Aquatic Species Database, <http://nas.er.usgs.gov/queries/FactSheet.asp?speciesID=163> (last visited Feb. 22,

2008).) The spiny water flea also fouls fishing gear and competes with larval fish for food. U.S. Geological Survey Nonindigenous Aquatic Species Database, <http://nas.er.usgs.gov/queries/FactSheet.asp?speciesID=162> (last visited Feb. 22, 2008). Eurasian milfoil forms dense beds which restrict swimming, fishing and boating, and its decaying mats foul lakeside beaches. U.S. Geological Survey Nonindigenous Aquatic Species Database, <http://nas.er.usgs.gov/queries/FactSheet.asp?speciesID=237> (last visited Feb. 22, 2008).

3. The OEPA must identify exotic species as a cause of impairments or threats to Ohio waters.

The OEPA not only must include Ohio waters which are impaired or threatened by exotic species in its list of impaired or threatened waters, it must also identify exotic species as the cause of the impairment or threat. 40 C.F.R. § 130.7(b)(4) (“The list required under § § 130.7(b)(1) and 130.7(b)(2) of this section...shall identify the pollutants causing or expected to cause violations of the applicable water quality standards.”)

4. The OEPA must develop TMDLs to address the impairments or threats caused by exotic species.

The CWA requires the OEPA to establish TMDLs for Ohio waters impaired or threatened by exotic species “at a level necessary to implement the applicable water quality standards.” 33 U.S.C. § 1313(d)(1)(c); see also 40 C.F.R. § 130.7(c)(1) (“TMDLs shall be established at levels necessary to attain and maintain the applicable narrative and numerical WQS.”) (emphasis added). This means that a TMDL must be established at levels necessary to attain and maintain not just narrative and numerical criteria, but all elements of a WQS, including designated uses, even where they are expressed in broad, narrative terms. *Cf. PUD No. 1 v. Washington Dept. of Ecology*, 511 U.S. 700, 715-16 (1994) (“pursuant to [CWA] § 401(d) the State may require that a permit applicant comply with both the designated uses and the water quality criteria of the state standards”).

Thus, the absence of numerical criteria for exotic species in Ohio WQS does not excuse the OEPA from establishing TMDLs to address them. Rather, the OEPA must base TMDLs for exotic species on the designated uses of Ohio waters.

Data and models are available to predict the likelihood of exotic species becoming invasive species, and may provide a basis for predicting an acceptable loading rate for point sources such as oceangoing vessels. See MacIsaac, H.J. *et al.*, *Modeling Biological Invasions of Lakes*, Freshwater Bioinvaders: Profiles, Distribution and Threats, F. Gherardi, ed. at 347-68 (2007), <http://web2.uwindsor.ca/courses/biology/macisaac/pages/publications.htm> (last visited Feb. 10, 2008); Thomas Johengen *et al.*, *Assessment of Transoceanic NOBOB Vessels as Vectors for Nonindigenous Species Introductions to the Great Lakes* (2004), http://www.research.noaa.gov/spotlite/archive/spot_nobob.html (last visited Feb. 10, 2008); Hugh J. MacIsaac *et al.*, *Modeling Ships' Ballast Water as Invasion Threats to the Great Lakes*, *Can. J. Fish. Aquat. Sci.* 59: 1245–1256 (2002), <http://www.math.ualberta.ca/~mathbio/publications/cjfas.pdf> (last visited Feb. 11, 2008). Yet, exotic species do not dissipate over time once they become established in the ecosystem, and the serious ecological, economic, and social harms caused by existing invasive species to the full range of designated uses justifies a highly cautionary approach.

The safest course would be to regard Ohio waters as unable to assimilate any random introductions of exotic species, which would mean a TMDL assigning quantitative zero allocations to point and nonpoint sources, both. In the absence of treatment technology or management practices capable of achieving zero, however, an alternative might be to establish a qualitative zero load, one which requires zero detectable loadings using the best sampling equipment and methodologies available. See M. Falkner *et al.*, Cal. State Lands Comm'n, Report on Performance Standards for Ballast Water Discharges in California Waters at 21 (2006), <http://ucce.ucdavis.edu/files/filelibrary/5802/25917.pdf> (last visited Feb. 22, 2008). At the very least, a TMDL should be based on the most stringent performance standards, which would drive the development of treatment technologies and management practices to meet them, as well as the development of methodologies for evaluating their effectiveness. *Id.* To NWF's knowledge, California has adopted the most stringent set of performance standards to date, as well as a schedule for meeting them. Cal. Code Regs. tit. 2, § 2291 *et seq.* (2008). [NWF]

Response: Ohio EPA has listed the three Lake Erie assessment units as impaired including, among others, exotic species as a major cause of impairment. While water body types within Ohio, such as inland lakes, reservoirs and wetlands, may contain one or more species of exotic flora and fauna, Ohio EPA has not yet established assessment procedures to determine the effect of exotics on the use attainment status of these systems. As monitoring and assessment procedures are refined and implemented over the next several years, it is anticipated that more recognition of the negative influence of exotics will be forthcoming in future IR assessment cycles.

Currently in Ohio, several state and federal agencies, including Ohio EPA, U.S. Fish and Wildlife Service and the Ohio Department of Natural Resources, work together to try to limit the spread of invasive exotic species already present. For example, two streams in northeastern Ohio are treated with 3-trifluoromethyl-4-nitrophenol (TFM) to control sea lamprey populations. To prevent the introduction of further invasive exotic species, legislation has been introduced in the Ohio legislature to control ballast water discharges. There is currently a great deal of activity at the national and international levels to develop regulations for ballast water discharges.

Copies of comment letters and emails, in order received.

Good Morning Ms. Mount,

I read the section on Recreational Water on Lake Erie and found it very helpful and interesting. I have noticed while going to both Mentor Headlands and Huntington Beaches the number of days signs were posted reflecting elevated bacteria levels in the water. However, I was a little concerned to see it was E. Coli. After studying the effects of E.Coli in school and seeing the number of people that have contracted it in the recent years, it is good to know that the EPA is taking this threat seriously. With so few days during the year to utilize the beaches it is important to monitor issues like this so that families can enjoy them throughout the summer months. It was nice to see the rivers are included as well in this study. These are important areas for wildlife to live and grow which adds beauty to the Ohio area. I am hoping that the areas still needing to submit their information will do it in a timely fashion so that you can act on these areas as well and ensure their usability for the 2008 summer season. While I have been aware of the levels it still helps to have this report which puts it into better perspective by listing the percentages of days with higher levels. Thank you again for providing this to the citizens of Ohio and for following up on this much needed issue.

Sincerely,

Ruth E. Ford

Ms. Mount,

After Reading several sections of the Integrated Water Quality report, I have some concerns. I would like to know if any fish were tested for microbe contaminants in addition to the chemical (Mercury, PCBs etc) . In addition to E. coli, does the OEPA test for Giardia, Cryptosporidium parvum or any other disease causing bacteria found in contaminated waters?

According to the Great Lakes Water Quality Agreement Act four of Ohio's rivers have been named Areas of Concern (Ashtabula, Black Cuyahoga, Maumee) What remedial action plans has the OEPA implemented? Although the report was very informative, I would like to know where I can find the actions the OEPA plans to take regarding the water pollution.

Respectfully yours,
Cindy Drozdowski-Breda

Hello:

My name is Deanna Rice. I am a nursing student at Cuyahoga Community College in Cleveland Ohio. Reading this report and commenting was part of an extra credit assignment for our microbiology class.

First I would like to start by saying that I am glad this assignment was offered because I have often wondered who keeps up with the conditions of our beaches and streams and how is it monitored. My comment pertains to section F of your report of "Integrated Water Systems" Section F, "Evaluating Beneficial Use: Recreation." I am a yearly visitor of one of the beaches

that was notated in your report - Maumee Bay State Park. I have taken my family camping there every summer for the past 4 years, which covers a good portion of the monitoring time in your report. We always camp during the last week in July and the summer is well underway by that time. I have noted that during the hotter, drier summers that Maumee Bay seemed more dirty with more algae floating along the edge of the beach than the couple of summers that it rained. There was never an advisory posted during the time we camped but there were times when I thought there should have been.

What struck me most was the amount of time that Maumee Bay exceeded the number of good recreational days. There were not many in comparison to some of the other beaches but there were some. I can remember thinking that Lake Erie was dirty but the beach was clean and because we always jet ski when we go camping there have been times that I did not participate because the water looked dirtier than was palatable for me at the time. There were other summers when the water seemed cleaner than others and those times did coincide with the weather now that I think about it. I will be especially interested to see your next set of tests for 2007 because there was a very bad rain storm during our whole weekend and I am anxious to see how that affected the bacterial levels in the beach.

Next, I would like to say that it is great to see how the information we are learning in Microbiology affects our everyday life. Because E. coli can cause serious and even fatal illnesses in people it is good to know that the beaches and streams are regularly monitored for elevated levels.

Thanks

Deanna M. Rice, Student
P.O. Box 13105
Fairlawn, Ohio 44334

Hello-

After reading Section F- Recreational Use in the report on the status of water quality in Ohio, I have a few questions/concerns.

In 2006 the E. coli criterion went to 235/100ml. During 2002-2005 they used 125/100ml. If the new criteria were used in previous years, would the number of acceptable days at the beach increase or decrease. How did the report take into account sampling after storms. It seems that after a good summer storm, bacteria levels are normally higher. With so many companies being on the lake (i.e. First Energy) that are consistently dumping into the water, should the same criteria be applied overall for all beaches, or should different criteria be used based on the amount of activity occurring in the area. On days that bacteria levels are "acceptable", could this still be harmful to small children? Is the fish safe to eat from the bacteria-infested waters?

Thank You,
Jamie Veri

Dear Ms. Mount,

I have a few questions about the Ohio draft 2008 Impaired Waters report.

1. It appears that Lake Erie is listed as impaired for PCBs, but not listed as impaired for mercury. I understand that Ohio health authorities advise eating no more than one meal of fish per week because of mercury concerns. Don't you have fish tissue data from Lake Erie for mercury? Can you explain why Lake Erie is not listed as impaired for mercury?
2. I did not see any mention that Lake Erie was designated as impaired for nutrients. Did you consider nutrient impairments in Lake Erie in your analysis? Why not list the nearshore areas of Lake Erie as impaired by nutrients, especially in the western and central basins where algae has been a concern?
3. Did you evaluate temperature impairments in your analysis? I believe that several facilities on Lake Erie have temperature variances--why not list these nearshore areas of Lake Erie as impaired for temperature?
4. Section I3 of the draft report states that Ohio does not intend to use the EPA 5(m) designation for the report: "While moving in this direction would be preferable as a way to focus on this important pollutant, Ohio EPA has decided that such a move is not possible for this report." Can you explain why Ohio such a move is not possible?
5. If you reduce Ohio's watershed assessment units to smaller areas as proposed in Section I4, will that create many new assessment units that will be missing fish tissue data and cause you to delist such segments? Ohio should retain areas currently listed as impaired on the list until new fish tissue data confirms that such areas are no longer impaired.

Thanks for the opportunity to ask questions about this draft report.

Sincerely,

Lyman Welch

Lyman C. Welch
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Hi Trinka: Just a quick editorial note for your draft review Section A:
An overview of Water Quality in Ohio: 2008. On page A-15, please change the reference to Cuyahoga Valley National Recreation Area to Cuyahoga Valley National Park. Our designation to "national park" was effective in 2000. Thanks and good luck with your report.

Meg Plona
Biologist
Cuyahoga Valley National Park
15610 Vaughn Road
Brecksville, OH 44141
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FAX: (330)657-2987

To whom this may concern: While reading this report all I could think about was, ok, we know that there is a problem with bacteria in the Lake Erie water, but what is being done to correct the problem. I think that it is absolutely disgusting that people are swimming in water that is infected with sewer overflow. I understand that there are warnings out on days when the bacteria levels are high, but that doesn't mean that there isn't still E. Coli bacteria in the water. I have grown up in the Maumee Bay area and I remember growing up hearing that the Bay was closed to swimmers due to bacteria, but I didn't know that it was from sewer overflow, I don't remember that information being told on the news. I think that people should be alerted not only that it is closed due to bacteria, but that even on days when the beach is open that there are still some levels of bacteria in the water from the sewer, just that the level isn't high enough to close the beach. I really want to know what can or is being done to decrease the source of the bacteria. I understand that not all things are preventable, like storm water, but there has to be a way to decrease the levels of bacteria from sewer overflow. I know for a fact that if there was stool in our bath water or pool water I wouldn't want to be in it, and I'm sure not many people would, so something should be done so people can feel safe swimming in the lake that they aren't bathing with stool. Thank you for your time, Jennifer L. Greear

Good Morning, I reviewed Section F and also Section A which I found most informative and interesting. I was not aware of the protocols or testing that is completed to ensure our safety in the various ecosystems. I believe we need to take a more active role in keeping our lakes and streams clean and safe. I have observed on numerous occasions testing of water at Edgewater Beach. At that time I didn't really understand the importance. I applaud your efforts to make people aware of the condition of our lakes and streams more important the steps that are taken to ensure the safety of our water for future generations.

Thank you
Pamela J. Harvey
Utilization Management Specialist

Hello,

I am currently taking a microbiology class and many things which I wasn't aware of this class has brought to my attention. I really never use public pools and throughout the summer I hear the most about the unsafe conditions at edgewater park. Here are a few comments on the report and they are as follows:

What time of the day are the samples taken, I wonder if there are times at which the levels of bacteria are higher and should there be a notice to the public as to when is the best time for them to swim.

Also when those taken the samples are these the same people taking the samples from the exact location they have been taken the samples from, because I have noticed those who are familiar with a certain technique and area they seem to have good results.

I noticed that the most severe beaches are located toward the middle of Ohio, such as Lakeshore and Edgewater, versus Conneaut and Geneva State Park. What do you think is causing the high levels of bacteria?

Are there classes offered to the public about the safety and prevention of recreational water. Because I believe if people are more educated about the risks of polluting the water and seriousness of waterborne illness they will perhaps take care of the waters.

What is being done to cut back on the number of insufficient data which is being collected? I know that there is going to be times at which you can't use data but it seems like there is a high number of samples which were taken and the data cannot be used to benefit the public.

This report didn't indicate improvement or decline for Ohio's beaches? What is your agency going to do to improve the waters, because a lot of money is going into obtaining, evaluating and reporting this information, but why isn't our water quality improving?

Thank you for your time in reading my comments on the report of Ohio's beaches.
Julia Sifford

Hello

I am not shocked after reading the Section F, "Evaluating Beneficial Use: Recreation" deals with bacterial contamination of Lake Erie beaches. This is the reason I do not go to public beaches. The chart in figure F-2 was quite informing. I don't quite understand how Edgewater in 2005 was much lower in bacteria than 2003 but much higher in 2006. What would cause the increase? If it was up to me I would close Edgewater, Lakeview, Villa Angela, Euclid, and Lakeshore until the bacteria is drastically decreased. People should not be allowed in those beaches and should be advised to go to other beaches. I know that the beaches can not be 100% free from bacteria but people should really be educated on what exactly they are swimming in and how it can be very harmful. I'm curious to see if Edgewater can ever have the numbers that South Bass and Kelly's Island have, what are those beaches doing to have low numbers of bacteria. Overall the beaches should be shut down.

Thank you
Michelle Williams

My name is Adria Snorton and I'm a nursing student at Cleveland State University. As part of an extra credit assignment for my microbiology class at Tri-C, we were to read and comment on your report of "Integrated Water Systems" Section F, "Evaluating Beneficial Use: Recreation."

I enjoyed reading this report because as a frequent visitor of the Cleveland area beaches, I have often wondered who kept up with the conditions and how they were monitored. My family and I visit the Headlands East beach most often and I had noticed that during the hotter, drier summers, the water seemed murkier with more algae floating along the edge of the beach than the summers that had received more rain. Sometimes on those hot summers, the water would be so cloudy that I wouldn't let my son get in for fear that it wasn't safe.

I was surprised at the seasonal geometric E. coli mean for Headlands East. Table F-1 indicated that the E. coli levels there were in the top 5 for all 5 years tested. I was also surprised to see that for all 5 years there was impairment of the recreational use due to the exceedance of the geometric mean on a seasonal basis. This report has made me aware of what research I need to do before my family and I decide to go play in the beach from now on. It is good to know that the Ohio Department of Health is monitoring the beaches, rivers, and streams on a more consistent basis for unhealthy levels bacteria and that their focus is on keeping the public safe.

Regards,
Adria Snorton

February 22, 2008

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

Ms. Mount:

The Northeast Ohio Regional Sewer District (NEORS) appreciates the opportunity to provide comments regarding the Ohio 2008 Integrated Water Quality Monitoring and Assessment Report. NEORS is pleased to see that the Ohio target of eighty percent of the state's large rivers meeting clean water goals by the year 2010 is within reach.

We are also pleased to see the Ohio EPA's consideration of revisions to the Ohio recreational use criteria and support making the state criteria more consistent with the Federal criteria. We gladly offer our expertise in this matter if we can be of any assistance during the drafting of these revisions.

We have one additional comment regarding the 2008 Integrated Report. According to OAC 3745-4-01(C)(3), level three credible data is necessary for the regulatory purposes specified in 6111.52 of the Ohio Revised Code. These purposes include, at 6111.52(C), developing a statewide water quality inventory or other water assessment report. Clearly, the biennial Integrated Reports prepared by the Ohio EPA fall under this category and therefore require all data obtained following the effective date of the Credible Data Rules to be level three credible. We understand that these rules did not go into effect until 2006, and therefore not all of the data used in the 2008 Integrated Report is required to be level three credible. However, we did find the draft report confusing in regard to which data was level three credible and which data was not. We would like to suggest that the Ohio EPA provide clarification of the credibility of the data used in the 2008 Integrated Report and consider a mechanism for indicating the credibility and the sources of the data in this and future reports.

If you have any questions concerning these comments, or would like to discuss this matter further, please do not hesitate to contact Elizabeth Toot-Levy of my staff at 216-641-6000 or toot-levye@neorsd.org.

Thank you for your consideration of these issues.

Sincerely,

Frank P. Greenland acting for

Frank P. Greenland
Director of Watershed Programs



Western Lake Erie Association/WATERKEEPER®
“Western Lake Erie - warm shallow & lots of fish”
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February 25, 2008

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

Sent via email: trinka.mount@epa.state.oh.us

Dear OEPA Reviewer:

In looking at the Field Monitoring and TMDL scheduling dates, I cannot help but reflect on the fact that if each river, lake, or stream was a person with cancer, they would more than likely be dead before any testing was done. I find the OEPA schedules for Field Monitoring and TMDL's to be far too long and failing to diagnose problems for the waters we drink and recreate in and the fish that we eat from them.

Here in the Western Basin of Lake Erie we have the most biologically productive waters in the Great Lakes and the most consumable fish anywhere in the Great Lakes. Why is it then that OEPA places such little value to testing the waters and fish?

With the above in mind I offer the following comments:

1. The chart for the Western basin of Lake Erie that is said to include Maumee and Sandusky Bay states that this basin is not a source for drinking water. This is simply not true. The Cities of Toledo, Oregon, Port Clinton, Sandusky and others draw their drinking water from this basin.
2. 2008 CLEAN WATER ACT SECTIONS 303(d), 305(b), AND 314 INTEGRATED REPORT DRAFT REPORT. on the draft Water Quality and Pollution Control in Ohio, 2008 Sections 303(d), 305(b), and 314 Integrated Report. Every two years, the OEPA prepares and submits an Integrated Report to the United States Environmental Protection Agency to satisfy the listing requirements of Section 303(d) and the reporting requirements of Sections 305(b) and 314 of the federal Clean Water Act. The Integrated Report describes the status of water quality in Ohio and includes a list of water bodies that are not attaining Ohio Water Quality Standards and require the establishment of pollutant Total Maximum Daily Loads. OEPA fails to correct its practice of not properly considering Ohio's narrative water quality standards for turbidity and nutrient impairments, leaving watercourses impaired by these pollutants as being unlisted and not impaired.

Ohioan has not adopted EPA's recommended standards for phosphorus and nitrates as nutrients. There is no evidence of Ohio considering that algae, slimes and other

objectionable aspects of narrative impaired waters affect OEPA's decisions as to water recreation uses, except for the presence of untreated sewage. OEPA acknowledges that algae/nutrient/phosphorus/eutrophication problems in the Western basin of Lake Erie are impacting water quality but OEPA fails to produce a finding that nutrient impairments and nuisance algae affect any impairment designation, other than for public water supply.

OEPA then fails to designate Maumee Bay and its surrounding phosphorus contributing watershed as being an impaired water body for nutrients. Although OEPA lists Lake Erie waters for dioxin and PCB fish contamination, there is no recognition that Lake Erie is impaired for nutrients.

3. Ohio health authorities advise eating no more than one meal of fish per week because of mercury concerns. There is no evaluation of the health effects of the algae problems that are plaguing the near shore areas of southern Maumee Bay and extending east in Lake Erie along the shoreline. There is a new algae – *lyngbya wollei* that is blanketing much of the southern shoreline of Maumee Bay and has been observed in the bay to be the size of a house. I have personally observed mounds of this algae that appear as dunes peaking out of the water. In the fall of 2007 a windsurfer crashed into a pile of *lyngbya*, fell off and his arm broke out in a rash. Yet there has been no testing of this new invasive, no information on rather it can be excavated and what its uses can be, and most importantly no impacts on human health and aquatic life.
4. OEPA should evaluate listing the nearshore areas of Lake Erie as impaired by nutrients, especially in the western and central basins where algae has been a concern. According to the 2006 Lake Erie LaMP report, "Long-term records relating to Lake Erie's nutrient status suggest a process of reduced nutrient status. U.S. EPA's water quality data show a downward trend of eutrophy (the Carlson Trophic State Index) for the period 1983-2000. Furthermore, concentrations of total phosphorus in the water, averaged over the whole year have been falling by about 0.2 mg/m³/yr. However, the amounts of nutrients present in the water in early spring have continued to rise, extending to eight years a trend that was first seen in 1995. Much of the among-year variation in the amount of phosphorus entering the lake over the last few years is due to the intensity and timing of storms, which cause flooding and erosion, rather than to municipal inputs. Data from the last several years indicate that more phosphorus is leaving Lake Erie in the waters of the Niagara River than is entering the Lake from the major tributaries....In summertime, light is penetrating deeper into the water - algae are now growing (and producing oxygen) in the deep layers of the central basin and on the western and central basin lake bottoms." Blooms of blue-green algae came back to Lake Erie in 1998, 2001, 2002 and 2003(and beyond) – the problem is getting worse.
5. Lake Erie has near shore temperature variances--these nearshore areas of Lake Erie should be listed as impaired for temperature. An example is the First Energy Bayshore Power plant where the water temperature in the outfall has been measured at 95 degrees Fahrenheit.
6. Section I3 of the draft report states that Ohio does not intend to use the EPA 5(m) designation for the report: "While moving in this direction would be preferable as a way to focus on this important pollutant, Ohio EPA has decided that such a move is not possible for this report." Ohio should use the 5(m) designation, and it is hoped that a more stringent plan for mercury action would be required.
7. . If Ohio reduces watershed assessment units to smaller areas as proposed in Section I4, that will create many new assessment units that will be missing fish tissue data and could cause Ohio to delist such segments. Ohio should retain areas currently listed as

impaired on the list until new fish tissue data confirms that such areas are no longer impaired.

8. The summary report states that the Maumee RAP has assessed Maumee Bay. The statement is incorrect. The RAP has not assessed Maumee Bay. In fact Maumee Bay does not get included in many of the maps and information. This estuary should have a HUC unit and be assessed for its own characteristics. Maumee Bay is important for aquatic habitat and there is a public beach on Maumee Bay. Additionally, the report fails to mention the studies on the Ottawa River by US Fish and wildlife that show contamination in the Ottawa River. The results of US Fish and Wildlife testing in the Ottawa River should be included in the report.

Sincerely,

Sandy Bihn
Western Lake Erie Waterkeeper



NATIONAL WILDLIFE FEDERATION®
Great Lakes Natural Resource Center®

February 25, 2008

VIA E-MAIL
Ms. Trinka Mount
TMDL Coordinator
Ohio Environmental Protection Agency
Division of Surface Water
Columbus, Ohio 43216-1049
trinka.mount@epa.state.oh.us

Re: Comments on the *Draft Ohio 2008 Integrated Water Quality Monitoring and Assessment Report*

Dear Ms. Mount:

On behalf of the National Wildlife Federation (“NWF”), I am writing to comment on the *Draft Ohio 2008 Integrated Water Quality Monitoring and Assessment Report* (“IR”). In particular, NWF wishes to address the issue of exotic species. (The term “exotic species” means any species that is not native to a particular ecosystem, including its seeds, eggs, spores, or other biological material capable of propagating that species. Exotic species which have invaded or been introduced in Ohio waters and established themselves there are “invasive species.”)

Many exotic species have invaded and become established in Ohio waters, and they have seriously impaired these waters. Additional invasions are expected to occur at an increasing rate unless effective safeguards are placed on the discharge of ballast water from oceangoing vessels. Thomas Johengen et al., *Assessment of Transoceanic NOBOB Vessels and Low-Salinity Ballast Water as Vectors for Non-indigenous Species Introductions to the Great Lakes 1-1* (“NOBOB Final Report”), <http://www.glerl.noaa.gov/res/projects/nobob/products/NOBOBFinalReport.pdf> (last visited Feb. 25, 2008); United States General Accounting Office, *Invasive Species: Clearer Focus and Greater Commitment Needed to Effectively Manage the Problem* (“Clearer Focus Report”), GAO-03-1, at 56 (Oct. 2002), <http://www.gao.gov/new.items/d031.pdf> (last visited Feb. 25, 2008). “[S]cientists have identified 17 species from the Ponto-Caspian region (Caspian, Black, and Azov Seas) of Eastern Europe alone that have a high invasion potential, are likely to survive an incomplete ballast-water exchange, and are considered probable future immigrants to the Great Lakes.” *Clearer Focus Report* at 56.

Despite the significant and detrimental effects of invasive species in the Great Lakes ecosystem, the IR fails to (1) include waters impaired or threatened by exotic species in the category of waters requiring a TMDL, (2) identify exotic species as a cause of the impairments or threats, and (3) develop TMDLs to address the impairments or threats caused by exotic species. The Ohio Environmental Protection Agency (“OEPA”) must revise the IR to correct these defects.

4. Exotic species are pollutants.

The federal Clean Water Act (“CWA”) defines the term “pollutant” to mean “biological materials...discharged into water.” 33 U.S.C. § 1362(6). The courts have interpreted this definition to include live animals, and exotic species in particular. *National Wildlife Federation v. Consumers Power Co.*, 862 F.2d 580, 583 (6th Cir. 1988) (fish and fish remains are pollutants because they constitute biological materials); *Northwest Env’tl. Advocates v. EPA* (“*NEA v. EPA*”), No. C 03-05760 SI, 2005 WL 756614, at *9 (N.D. Cal. Mar. 30, 2005) (a ballast water discharge is a discharge or addition of pollutants under the CWA because it introduces biological materials from outside sources); *United States Pub. Interest Research Group v. Atl. Salmon of Me., LLC*, 215 F. Supp. 2d 239, 247 (D. Me. 2002) (“Fish that do not naturally occur in the water, such as non-North American salmon, fall within the term ‘biological material’ and are therefore pollutants under the Act.”).

Therefore, the OEPA must identify those waters within the State’s boundaries for which effluent limitations and other pollution control requirements are insufficient to ensure compliance with any applicable water quality standard because of exotic species. 33 U.S.C. § 1313(d)(1)(A); 40 C.F.R. § 130.7(b)(1).

5. Exotic species are impairing or threatening Ohio waters.

A pollutant impairs a state’s waters when effluent limitations and other pollution control requirements are not stringent enough to implement any water quality standard applicable to such waters. 33 U.S.C. § 1313(d)(1)(A); 40 C.F.R. § 130.7(b)(1). A “water quality standard” (“WQS”) consists of the designated uses of the water involved, the water quality criteria based upon such uses (both numeric and narrative criteria), and antidegradation requirements. 33 U.S.C. § 1313(c)(2)(A); 40 C.F.R. §§ 130.2(d), 130.7(b)(3). Thus, impairments exist where effluent limitations and other pollution control requirements are not stringent enough to implement any one of the three components of a WQS, whether it be the designated uses, water quality criteria (numeric or narrative), or antidegradation requirements of the WQS. *Cf. PUD No. 1 v. Washington Dept. of Ecology*, 511 U.S. 700, 715 (1994) (“a project that does not comply with a designated use of the water does not comply with the applicable water quality standards”).

To compile Ohio’s list of impaired or threatened waters, the OEPA must draw on the wealth of “existing and readily available water quality-related data and information” relating to the designated uses which are impaired by exotic species. 40 C.F.R. § 130.7(b)(5). This includes extensive data and information amassed by various governmental agencies. Even a small sampling of such data and information reveals impairments and threats to the State’s designated uses. (The OEPA includes the following in its list of designated uses of Ohio waters: industrial and public water supply, recreation, and aquatic life uses. IR at D-4-5.) The exotic species found in Ohio waters include the zebra mussel, round goby, spiny water flea, fishhook flea, and Eurasian milfoil.

- Industrial and Public Water Supply

The fishhook flea causes problems with drinking water supplies and interferes with industrial water systems. U.S. Geological Survey Nonindigenous Aquatic Species Database, <http://nas.er.usgs.gov/queries/FactSheet.asp?speciesID=163> (last visited Feb. 22, 2008). The

zebra mussel has had “devastating economic impacts on municipal and residential drinking water delivery systems, power plant intakes, and industrial facilities that use raw surface water.” *Clearer Focus Report* at 55. “They colonize pipes constricting flow, therefore reducing the intake in heat exchangers, condensers, fire fighting equipment, and air conditioning and cooling systems.” U.S. Geological Survey Nonindigenous Aquatic Species Database, <http://nas.er.usgs.gov/queries/FactSheet.asp?speciesID=5> (last visited Feb. 22, 2008).

- Aquatic Life Uses

“[A]fter habitat destruction, alien invasive species is the second leading cause of extinction of native aquatic species.” Great Lakes Water Quality Board, Report to the International Joint Commission, *Alien Invasive Species and Biological Pollution of the Great Lakes Ecosystem*, May 2001, at 3 (“*Water Quality Board Report*”), <http://www.ijc.org/rel/pdf/ais.pdf> (last visited Feb. 25, 2008). For instance, zebra mussels interfere with the growth, feeding, movement, respiration, and reproduction of native species, and it has been predicted that zebra mussels will cause the extinction of up to 140 native mussel species by 2012. *Clearer Focus Report* at 55.

The effects of the zebra mussel’s massive consumption of phytoplankton may ripple through the food web to affect fish, potentially causing increased competition, decreased survival and decreased biomass of fish that eat plankton. U.S. Geological Survey Nonindigenous Aquatic Species Database, <http://nas.er.usgs.gov/queries/FactSheet.asp?speciesID=5> (last visited Feb. 22, 2008). Zebra mussels may also cause biomagnification of toxins into both fish and birds. U.S. Geological Survey Nonindigenous Aquatic Species Database, <http://nas.er.usgs.gov/queries/FactSheet.asp?speciesID=5> (last visited Feb. 22, 2008).

The round goby has caused declines in the numbers of native fish species because of competition for food and habitat. U.S. Geological Survey Nonindigenous Aquatic Species Database, <http://nas.er.usgs.gov/queries/FactSheet.asp?speciesID=713> (last visited Feb. 22, 2008). The round goby’s presence in Lake Erie led the State to shut down the smallmouth bass fishery to help prevent predation on smallmouth eggs. *Id.* The spiny water flea competes with larval fish for food. U.S. Geological Survey Nonindigenous Aquatic Species Database, <http://nas.er.usgs.gov/queries/FactSheet.asp?speciesID=162> (last visited Feb. 22, 2008). Eurasian milfoil “supports a lower abundance and diversity of invertebrates, organisms that serve as fish food,” and reduces foraging space available to large predator fish, making them less efficient at catching their prey. U.S. Geological Survey Nonindigenous Aquatic Species Database, <http://nas.er.usgs.gov/queries/FactSheet.asp?speciesID=237> (last visited Feb. 22, 2008). It also degrades water quality and depletes dissolved oxygen levels. *Id.*

- Recreation

The zebra mussel affects recreational boating and fishing by attaching to exposed surfaces, increasing drag, overheating engines, sinking navigational buoys, and fouling fishing gear. U.S. Geological Survey Nonindigenous Aquatic Species Database, <http://nas.er.usgs.gov/queries/FactSheet.asp?speciesID=5> (last visited Feb. 22, 2008). Similarly, the fishhook flea can “achieve high population densities, forming ‘clumps’ that can entangle the fishing lines of anglers.” U.S. Geological Survey Nonindigenous Aquatic Species Database, <http://nas.er.usgs.gov/queries/FactSheet.asp?speciesID=163> (last visited Feb. 22, 2008).) The spiny water flea also fouls fishing gear and competes with larval fish for food. U.S. Geological Survey Nonindigenous Aquatic Species Database, <http://nas.er.usgs.gov/queries/FactSheet.asp?speciesID=162> (last visited Feb. 22, 2008).

Eurasian milfoil forms dense beds which restrict swimming, fishing and boating, and its decaying mats foul lakeside beaches. U.S. Geological Survey Nonindigenous Aquatic Species Database, <http://nas.er.usgs.gov/queries/FactSheet.asp?speciesID=237> (last visited Feb. 22, 2008).

6. The OEPA must identify exotic species as a cause of impairments or threats to Ohio waters.

The OEPA not only must include Ohio waters which are impaired or threatened by exotic species in its list of impaired or threatened waters, it must also identify exotic species as the cause of the impairment or threat. 40 C.F.R. § 130.7(b)(4) (“The list required under § § 130.7(b)(1) and 130.7(b)(2) of this section...shall identify the pollutants causing or expected to cause violations of the applicable water quality standards.”)

4. The OEPA must develop TMDLs to address the impairments or threats caused by exotic species.

The CWA requires the OEPA to establish TMDLs for Ohio waters impaired or threatened by exotic species “at a level necessary to implement the applicable water quality standards.” 33 U.S.C. § 1313(d)(1)(c); see also 40 C.F.R. § 130.7(c)(1) (“TMDLs shall be established at levels necessary to attain and maintain the applicable narrative and numerical WQS.”) (emphasis added). This means that a TMDL must be established at levels necessary to attain and maintain not just narrative and numerical criteria, but all elements of a WQS, including designated uses, even where they are expressed in broad, narrative terms. Cf. *PUD No. 1 v. Washington Dept. of Ecology*, 511 U.S. 700, 715-16 (1994) (“pursuant to [CWA] § 401(d) the State may require that a permit applicant comply with both the designated uses and the water quality criteria of the state standards”).

Thus, the absence of numerical criteria for exotic species in Ohio WQS does not excuse the OEPA from establishing TMDLs to address them. Rather, the OEPA must base TMDLs for exotic species on the designated uses of Ohio waters.

Data and models are available to predict the likelihood of exotic species becoming invasive species, and may provide a basis for predicting an acceptable loading rate for point sources such as oceangoing vessels. See MacIsaac, H.J. *et al.*, *Modeling Biological Invasions of Lakes*, Freshwater Bioinvaders: Profiles, Distribution and Threats, F. Gherardi, ed. at 347-68 (2007), <http://web2.uwindsor.ca/courses/biology/macisaac/pages/publications.htm> (last visited Feb. 10, 2008); Thomas Johengen *et al.*, *Assessment of Transoceanic NOBOB Vessels as Vectors for Nonindigenous Species Introductions to the Great Lakes* (2004), http://www.research.noaa.gov/spotlite/archive/spot_nobob.html (last visited Feb. 10, 2008); Hugh J. MacIsaac *et al.*, *Modeling Ships' Ballast Water as Invasion Threats to the Great Lakes*, *Can. J. Fish. Aquat. Sci.* 59: 1245–1256 (2002), <http://www.math.ualberta.ca/~mathbio/publications/cjfas.pdf> (last visited Feb. 11, 2008). Yet, exotic species do not dissipate over time once they become established in the ecosystem, and the serious ecological, economic, and social harms caused by existing invasive species to the full range of designated uses justifies a highly cautionary approach.

The safest course would be to regard Ohio waters as unable to assimilate any random introductions of exotic species, which would mean a TMDL assigning quantitative zero allocations to point and nonpoint sources, both. In the absence of treatment technology or management practices capable of achieving zero, however, an alternative might be to establish

a qualitative zero load, one which requires zero detectable loadings using the best sampling equipment and methodologies available. See M. Falkner *et al.*, Cal. State Lands Comm'n, Report on Performance Standards for Ballast Water Discharges in California Waters at 21 (2006), <http://ucce.ucdavis.edu/files/filelibrary/5802/25917.pdf> (last visited Feb. 22, 2008). At the very least, a TMDL should be based on the most stringent performance standards, which would drive the development of treatment technologies and management practices to meet them, as well as the development of methodologies for evaluating their effectiveness. *Id.* To NWF's knowledge, California has adopted the most stringent set of performance standards to date, as well as a schedule for meeting them. Cal. Code Regs. tit. 2, § 2291 *et seq.* (2008).

Thank you for the opportunity to submit these comments. Please add me to your mailing list for responses to comments, the OEPA's finalization of the IR, and its submission of the final IR to EPA.

Yours truly,
/s

Neil S. Kagan
Senior Counsel

These comments were prepared with the assistance of University of Ohio Law students Stephanie Black, Patrick Chen, and Ralph Schofield.

Public Comment regarding Section F: Evaluating Beneficial Use: Recreation, 2008 Integrated Report.

In addition to experiencing all four seasons and having the Metro Parks to explore and enjoy, Ohio has 23 beaches – all part of the beauty of the north coast. These beaches and waterways provide days, hours, weeks and even months of quality family time for water lovers whether that be swimmers or anglers. It is comforting to know that the beaches are monitored for the safety of the residents of the state of Ohio that use them. It is however disturbing that the safe water level is such a problem for this area.

I live and often frequent the beaches between Headlands and Edgewater. It is disturbing that these are the beaches with the highest percentages “when Ohio Lake Erie public beaches exceeded Ohio’s single sample maximum E. coli criterion compared to the total number of days in the sampling period, 2002 – 2006” as listed on Table F-2 of the report. The report cited under section F3 (page F-4) that some of the reasons for the higher percentages in my area are due in part to “the close proximity of urban areas in Lorain and Cuyahoga counties where inputs of storm water runoff and combined sewer overflows are known sources of bacteria.”

It is my hope that these areas are looking to improve the storm water and sewer issues that are contributing to the increase in bacteria in the beaches in Cuyahoga County and the surrounding areas of Lake and Lorain Counties. Also mentioned in the report on page F-5 was the fact that the weather can play a factor in increasing or decreasing the bacteria levels. Drier recreational seasons have seen improvements whereas wetter seasons show an increase in bacteria levels.

Prior to reading this article I was unaware of the monitoring processes of Ohio's beaches. I also did not realize the many factors that can contribute to the increase or decrease of bacteria levels. While I think great progress has been made in the research and reporting processes since 2002, I would like to see additional testing done. The random testing and constant change of weather, water runoff and sewer overflow should be grounds for more routine and more frequent monitoring.

Section F2 Evaluation Method on page F-2 defines the "recreation season as May 1 – October 15 though Lake Erie beach monitoring typically commences in late May and concludes Labor Day weekend." This limited window of monitoring and research seems to leave many opportunities for "increasing the risk of contracting waterborne illness as a result of exposure to pathogens while recreating in the water" (page F-1 under section F2 Evaluation Method). With the winter months bringing the melted snow and debris to the waters of Lake Erie, I would hope that an earlier start to the "monitoring" season of the waterways be implemented as well as continuing this process later into the year.

Individuals can be protected from contaminants in a public pool because they are only open from Memorial Day to Labor Day, but after the many months of winter and cold that are part of the Ohio winters, many individuals attempt a trip to the beach (whether for a splash for themselves or their dogs) at the first sign of nice weather. The beauty of nature is that it is "always open." Beaches are no different – at least to the eager individual who lives in Ohio. Further, Labor Day weekend does not mean the end of "beach weather." People are going to continue to use the beaches as long as the weather allows.

This report reminded me of all the natural beauty that Ohio has to offer its residents and the many people and resources that keep it safe. The Ohio EPA provides many services to the people of Ohio that we sometimes take for granted. Without the efforts of the Ohio EPA, our 23 beaches along the north coast would be a memory. For the efforts of all those that keep us safe, we thank you.

Mary Grady

Good evening.

First and foremost, I would like to thank you for all your efforts in trying to figure out a way to make the beaches more swimmable for us. As I read the report, it angered me to know that we as a society could've prevented the degradation of our natural beaches, we had the capability of preventing our beaches from getting polluted. But it is also encouraging to know that measures are being taken to improve the water in order for us have more recreational use of our beaches. This not only helps our generation but also future generations to appreciate our environment.

Simmonette Reyes

February 29, 2008

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

Re: Draft Ohio 2008
Integrated Report Comments

Dear Ms. Mount:

The Nature Conservancy in Ohio (the Conservancy) has reviewed the January 23, 2008, draft of the Ohio "2008 Integrated Water Quality Monitoring and Assessment Report." We greatly appreciate the effort that went into producing this report, the extensive amount and high quality of work needed to create the data it is based on, and the opportunity for the Conservancy to provide input.

The report contains notable achievements and changes which the Conservancy would like to recognize. First, the improvements in stream quality show that persistent and extensive dedication to comprehensive water quality management actually will result in such improvements. We appreciate the Agency's leadership and its ability to quantify and explain causes and sources. Second, the attention to differences between impacts to large and small streams is greatly appreciated. We believe this should help recognize smaller streams' vulnerability and importance. Third, the attention to the impairments caused by land disturbance is critical, and should help to further understanding by the general public. Fourth, the coverage of wetlands is a significant step forward. Finally, as we stated in our comments on the 2006 draft, Ohio EPA's completion of the number of Total Maximum Daily Load Reports (TMDLs), such as for the Scioto River basin, and their comprehensive coverage of impairment causes and their sources is outstanding, and Ohio is making real progress in attainment of Clean Water Act goals through this process.

Below are the Conservancy's comments and recommendations. Page numbers below refer to the Agency's January 23 draft.

Executive Summary

In addition to Section A, which is long for many readers, include an Executive Summary. The information at the bottom of the page at http://www.epa.state.oh.us/dsw/tmdl/2008IntReport/2008OhioIntegratedReport_draft.html could be used for an Executive Summary and provided as part of the Integrated Report. An Executive Summary could be provided as a pdf file. Short portion of other sections of the report, such as the beginning of Section D, also might be used in an Executive Summary.

Section A: An Overview of Water Quality in Ohio: 2008

Page A-6 – We suggest specifically mentioning a large river success story here, such as the lower Scioto River's improvements.

Page A-7 – It would be helpful to preface this discussion of land disturbance with a brief statement on how the great improvements in control of point sources has allowed the effects of land disturbance to become more apparent.

This section could include a brief statement highlighting, and maybe providing some statistics for, the significant portion of some watersheds where land disturbance dominates and determines stream quality.

Page A-8 – The section on “organic enrichment” should clarify that this enrichment “is the addition of carbon-based materials from living organisms” beyond natural rates and amounts. This might help the public understand the contributions of natural organic matter to stream life, i.e., native vegetation - leaves and woody debris. In the later section on “nutrient enrichment,” it does state “excess contribution of materials,” which makes the point this is beyond natural rates.

The discussion of “siltation/sedimentation” should mention that sediment transports other pollutants.

Page A-9 – In the paragraph on row crop cultivation, we suggest the second sentence be modified to something such as: “Frequently, cultivated cropland involves surface (ditch construction and stream modification) and subsurface (tile) drainage, and a challenge is ...”

In the last sentence of this paragraph, we suggest “regularity of the stream channel, lack of in-stream cover and increased water temperature reduce biological diversity.

“Land development is the conversion of forest, wetlands or agriculture ...,” or it could just state “natural areas or agriculture.”

We also note that agricultural drainage has some of the same effects of land development, increasing flashiness and causing streams to become unstable. For a discussion, see: Baker, D.B., R. P. Richards, T.T. Loftus, and J.W. Kramer. 2004. A new flashiness index: Characteristics and applications to midwestern rivers and streams. *Journal of the American Water Resources Association* 40(2), 503–522. Concerning the sentence on page A-10, “The resultant channel is less able to assimilate nutrients and other pollution,” the same should be noted for row crop cultivation/agricultural drainage impacts in the preceding paragraph.

Page A-10 – In the discussion of stream temperatures in the first paragraph, we suggest a change to “when water runs over hot pavement and rooftops or sits in detention basins....”

Page A-13 – Under the discussion of the Rural Drainage Advisory Committee, should credit be given to ODNR, Division of Soil and Water Conservation for forming this committee?

We note that the report recommendations propose significant changes in use designations, determination of downstream impacts and depend on U.S. EPA approval, all of which are major undertakings or concerns.

Water quality in northwest Ohio

Page A-12 – It’s worth noting that improvements are needed, and opportunities are extensive, in agricultural BMPs related to water quality in this area, including those related to drainage.

Page A-13 - Considering the influence of agriculture on water quality in this part of Ohio, it is worth noting the Lake Erie Conservation Reserve Enhancement Program (CREP)
<http://www.dnr.state.oh.us/soilandwater/programs/crep/lecrep/tabid/8867/Default.aspx>

Water quality in central Ohio

Page A-23 -

“Species that once existed and were lost are reappearing and some species that have never been recorded have pioneered their way into some central Ohio streams. Examples include the spotted, bluebreast, verigate and tippecanoe darters in Walnut Creek, the clubshell and rayed bean mussels in Big Darby Creek, and the blue sucker in the Scioto River.”

We understand that while there might have been a limited number of clubshell and rayed bean mussels recorded recently in Big Darby Creek, we are not aware of evidence that the clubshell has a reproducing population in Big Darby Creek. The rayed bean might represent a continued population that escaped detection in other recent surveys, especially because they are small and hard to locate. We suggest modifying, as appropriate, the statement on page A-23, and refer you to Dr. Tom Watters at the Ohio State University Museum of Biological Diversity and Dr. Michael Hoggarth of Otterbein College.

The spelling should be “variegated” darter.

Page A-24 - Considering the influence of agriculture on water quality in this part of Ohio, it is worth noting the \$207 million/70,000 acre Scioto Conservation Reserve Enhancement Program (CREP)
<http://www.dnr.state.oh.us/soilandwater/programs/crep/sciotocrep/default/tabid/8870/Default.aspx>.

Section C: Managing Water Quality

C6. Economic Costs and Benefits of Pollution Controls

We appreciate the reference to the Clean Ohio Fund related to protecting water quality. The Agency might mention in the report that Governor Strickland supports continuation of this program, as referred to in his State of the State address of 2/6/08 (see <http://www.governor.ohio.gov/Default.aspx?tabid=835>):

“Through issuing bonds, the \$1.7 billion Building Ohio Jobs package will create more than 80,000 good-paying jobs in Ohio and lay the foundation for future economic prosperity by investing in the state’s energy economy, distribution infrastructure, biomedicine, bioproducts, public works, our downtown neighborhoods and the Clean Ohio fund.”

The Clean Ohio Fund is being offered as part of this comprehensive statewide ballot issue in November 2008.

Section I: Considerations for Future Lists

Wetlands

Section I states "it is natural for evaluation and reporting of water quality conditions to evolve." We applaud the inclusion of the coverage of wetlands in this section, and encourage other such excellent work in the future. Ohio EPA has advanced the understanding of wetlands, their water quality standards, and mitigation in the recent past, and significant advances such as this should be addressed and refined. An example of recent advancement is in the surveys and assessments of wetlands, such as the Wetland Ecology Group's reports at http://www.epa.state.oh.us/dsw/wetlands/WetlandEcologySection_reports.html.

Reporting at a Smaller Scale and Other Issues

Section I4 states:

"The proposal is to report on the next smaller size watershed to provide information on a finer scale and allow for better reporting of watershed improvements." We agree that the smaller HUCs can lead to better reporting, and also better ensure Ohio addresses missed problems, such as with headwater streams degradation, cumulative impacts, and the impact on downstream uses. We encourage Ohio EPA to continue these efforts, especially given the high quality database in place, and expand the number of reports prepared. Ohio EPA reports, such as that addressing the Headwater Habitat Evaluation Index, have added significantly to the understanding of Ohio stream health.

Mussels

We encourage the Agency to include coverage of the status of mussels in Ohio in its next Integrated Report. As you know, the health of many species of freshwater mussels is at risk throughout Ohio (e.g., see ODNR's listed species, available at <http://dnr.state.oh.us/tabid/5664/Default.aspx>, <http://ohiowatersheds.osu.edu/toolshed/mussels.html>) and North America. ODNR's listed mollusk species include 24 endangered mussel species, four threatened and nine species of concern. About 69% of freshwater mussel species are at risk in the U.S. (Stein, B.A., L.S. Kutner, and J.S. Adams (eds.) 2000. Precious heritage: The state of biodiversity in the United States. Oxford University Press. 399 pp.)

Because of their sensitivity to pollution and habitat alteration, freshwater mussels have been recommended as indicators of water quality (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/allabstracts.cfm/db/Anchorage2006abstracts/id/734>)

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/OFMA.htm>). Mussels can be good indicators of quality because they are stationary, must filter the water passing around them and integrate conditions over a long period of time. Given the digitization of and extensive stream data in Ohio, Ohio EPA is

well-equipped. 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. We encourage you to work with The Ohio State University and others to develop this information.

Stream flow

The Agency lists hydromodification among the top causes of impairment (pages A-7 and A-9). However, this is not addressed elsewhere in the report, in Chapter 3745-1 of the Ohio Administrative Code water quality criteria and values, or in this report's Section I: Considerations for Future Lists. As you know, many of the existing impairments, including organic and nutrient enrichment and contaminants, are exacerbated by hydromodification. Therefore, we suggest the next report in 2010 include work to: a) undertake a comprehensive statewide assessment of these impairments; b) address hydromodification in both the 'free from' and numeric water quality standards. Hydromodification standards would both address this impairment directly and also help meet existing water quality standards and TMDLs that are being developed. Such standards would provide a consistent level of environmental protection and improve the quality of regulatory decisions. They would also support ongoing efforts to pass and implement the anticipated Great Lakes Compact. Also, stream flow might be timely relative to increasing commodity prices and the response of the agricultural community toward more and larger irrigation systems, such as in the Scioto watershed.

The Conservancy encourages stream flow standards that: a) cover all rivers and streams (and ideally other waterbodies); b) is protective of aquatic life; c) is based on the natural variations of flows and water levels; and d) allows for reasonable other uses.

Additional issues that must be addressed include: a) a provision for sufficient water for other reasonable and necessary uses of water; b) specific numerical criteria, c) a determination of the maximum amount of water that can be safely withdrawn, diverted or used from ground or surface water while still being protective of aquatic life.

As mentioned elsewhere in these comments, we support the wetlands coverage in the Integrated Report. Please note that wetlands are dependent on intact hydrologic regimes – and many are affected by altered stream flow.

The Conservancy is willing to help provide technical assistance to the Agency and other stakeholders on the stream flow issue.

Stream crossings

Many of the stresses and impairments that Ohio streams are subject to are generally well-covered in Section A. We encourage the Agency to consider addressing stream crossings (i.e., culverts and bridges) in the report as another source of impact.

Below are some examples of how this issue is addressed elsewhere. Many states have or are considering establishing stream crossing standards, and we encourage Ohio to conduct a general review of these potential sources of impairment. Such an effort would not only help improve the quality of Ohio's streams, but also would help establish the degree of impact in

Ohio and provide clear and effective expectations for mitigation standards, 401 certifications, permits and other actions. The Conservancy supports establishment of improved standards for stream crossings in such actions as Nationwide Permits, 401 certifications and mitigation.

The Conservancy encourages Ohio EPA to build on the stream crossing (culvert) standards under the recently adopted Clean Water Act Section 401 Certifications for Nationwide Permits program. (http://www.epa.state.oh.us/dsw/401/NationwideCertification_final_jul07.html)

In 2007, the Conservancy provided comments to Ohio EPA on the above standards for culverts. The standards in the Agency's 2007 Nationwide Permit appear to recognize the issue and be based on similar standards established elsewhere, such as the State of Washington's "Design of Road Culverts for Fish Passage." This is a positive step, especially since there are limited standards elsewhere in Ohio EPA rules or permits for stream crossings. The need for and progress in stream crossing standards is very evident, and local governments (http://www.etowahhpc.org/research/documents/tech_rpt_stream_crossings_4-30-07.pdf (See attached draft document)), other states (e.g., attached Massachusetts poster; <http://streamcontinuity.org/>, <http://www.fishpassage.wsu.edu/related-links/>) and the federal government (e.g., U.S. Forest Service - <http://stream.fs.fed.us/fishxing/>, U.S. Department of Transportation <http://www.fhwa.dot.gov/engineering/hydraulics/envirohyd/fishback.cfm>) are advancing similar standards.

The Conservancy is willing to help provide technical assistance to the Agency and other stakeholders on both the stream crossing issue.

Pesticides; Pharmaceuticals below WWTPs

We appreciate the coverage of pesticides such as atrazine in Section H: Evaluating Beneficial Use: Public Drinking Water Supply. More samples in the May-June timeframe would be very helpful in pinning down the average concentration at that time of year.

Also of interest are the compounds we discharge through our wastewater treatment systems. We suggest a statewide screening analysis for pharmaceuticals and personal care products (PPCPs) in streams below Ohio wastewater treatment plants (WWTPs) (e.g., the Washington Department of Ecology report at <http://www.ecy.wa.gov/biblio/0403051.html>). As you know, the U.S. Geological Survey study on Tinker's Creek in the Cuyahoga River watershed provides some background on the issue (http://www.peoplelandandwater.gov/usgs/usgs_03-30-07_usgs-tests-new.cfm). USGS is considering an expanded study. Growing awareness of the issue could help clarify the level of influence of these chemicals in Ohio's waters.

Section K: Maps

Antidegradation map - We thank you for the attainment, Section 303(d) Reporting category and Ohio TMDL Program Progress maps in Section K. These are very helpful. In addition, we would appreciate inclusion of a map of antidegradation status for Ohio, showing the streams that are listed under antidegradation. This would be a good addition to the report, and also would be very useful to supplement the List of Special High Quality Waters contained in Ohio

Administrative Code 3745-1-05. A map could be included with Section K, or in Section C, Managing Water Quality.

We appreciate the extensive effort that went into this report. I apologize for the delay in getting these comments to you. Thank you for the opportunity to comment, and we look forward to the final version and to working with you in the future.

Sincerely,

Anthony Sasson
Freshwater Conservation Coordinator

cc: George Elmaraghy, DSW, Ohio EPA
John Stark/Denise King, The Nature Conservancy

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March 10, 2008

VIA U.S. MAIL & E-MAIL

Trinka Mount
Ohio Environmental Protection Agency
Division of Surface Water
P.O. Box 1049
Columbus, Ohio 43216-1049
trinka.mount@epa.state.oh.us

Re: 303(d) List and 2008 Integrated Water Quality Monitoring and Assessment
Report
File No. 043751

Dear Ms. Mount:

The following comments on the 2008 Integrated Water Quality Monitoring and Assessment Report and the 303(d) list ("Integrated Report") that the Ohio Environmental Protection Agency ("Ohio EPA") has proposed to submit to the United States Environmental Protection Agency ("U.S. EPA") are submitted on behalf of the Water Task Force of the Environmental Committee of the Ohio Electric Utility Institute and the following member companies (the "Utilities"):

Buckeye Power, Inc.
Columbus Southern Power Company (American Electric Power)
Dayton Power & Light Company
Duke Energy Ohio, Inc.
Ohio Power Company (American Electric Power)
Ohio Valley Electric Corporation

The Utilities appreciate the time and effort that the Ohio EPA has put into the Integrated Report, which is an extensive and detailed document. As such, the Utilities wish to thank the Ohio EPA for granting additional time to review and comment on the report. The Utilities believe that Ohio EPA has produced, in general, a technically sound approach to assessing the status of water bodies. However, because the Ohio EPA strives to ensure that each report is updated with the most accurate data and the most sound scientific techniques, the Utilities

provide these comments and hope that the Ohio EPA will consider these comments in the 2010 Integrated Report.

Section I3. Mercury Reduction at Ohio EPA

While the Utilities understand that implementing a voluntary, comprehensive mercury reduction program was not possible in this report, the Utilities recommend that Ohio EPA pursue developing a program for the 2010 Integrated Report so that Ohio EPA may designate waters impaired by atmospheric deposition under subcategory 5m. As recognized by the 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 the attached U.S. EPA memo from Craig Hooks to U.S. EPA Regions 1 – 10.

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 in addition to flexibility to develop programs to reduce mercury by tailoring the programs to address State-specific factors (e.g., economic feasibility, population exposure, economic impact, etc.). This proactive approach could lead to early reductions in mercury, which could ultimately reduce the number of mercury-impaired waters in Ohio. Moreover, by implementing the 5m impairment subcategory, Ohio EPA would be adequately protected against unfounded legal challenges that seek to compel the agency to implement reduction measures within the legal framework of environmental statutes other than the Clean Water Act.

The Utilities believe that the Ohio Projects outlined in Section I3.2, if accomplished, would satisfy the U.S. EPA’s recommended elements of a mercury reduction program. Further, in implementing these projects, the Utilities encourage 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. It is through such an approach that Ohio EPA can ensure the greatest reduction in mercury, which could result in the future delisting of mercury-impaired waters. Thus, the Utilities recommend that the Ohio EPA make it a priority to implement this program by 2010 in order to ensure early reductions in mercury.

Section I4. Reporting at a Smaller Scale and Other Issues: Preview of Potential 2010 Methodologies for All Uses

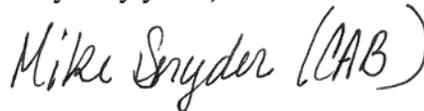
The Utilities support the modified evaluation method for determining impaired waters based on the human health water quality criteria because this evaluation strikes a balance between over-designating and under-designating waters as impaired. Under the current method, a water body is considered impaired if the weighted average of three or more samples of fish tissue are above the threshold for a given contaminant. The Utilities believe that this method leads to erroneous positive assessments of water bodies as impaired. For example, under this method, a significant number of water bodies are impaired for PCBs, an ubiquitous, recalcitrant class of organochlorine compounds that continue to persist in environment despite a manufacturing ban that has been in place for several decades. Under the modified evaluation, a

water body in which the geometric mean exceeds the threshold for **both** trophic levels 3 and 4 are considered impaired; if the geometric mean is below the threshold for **both** trophic levels, the water body is unimpaired. However, if the geometric mean exceeds the threshold for only one trophic level, a second analysis is conducted based on a modification of U.S. EPA's methodology for assessing methylmercury levels.¹ This method computes an average concentration based on the geometric means of trophic levels 3 and 4. If the average concentration exceeds the threshold, the water will be designated impaired.

The pilot data of two assessment watersheds, which were unimpaired for mercury but impaired for PCBs in the 2008 Integrated Report, indicate that, under the modified method, the water bodies are still unimpaired for mercury; however, only one water body is impaired for PCBs. The Utilities agree with Ohio EPA that this methodology better utilizes the data. The Utilities support this use of the most recent, scientifically defensible fish tissue level thresholds to determine water body-specific risk assessments and believe that the use of the geometric mean is appropriate to determine a central tendency measure for pollutants in fish tissue. Further, the overall effect of Ohio EPA's updated scientific assessment will likely decrease the number of water bodies assessed as impaired due to PCBs. This methodology allows Ohio EPA to utilize its resources to develop TMDLs for those bodies that are impaired while eliminating development of TMDLs for water bodies that were likely false positives under the current method.

The Utilities appreciate the opportunity to comment on these important issues and look forward to working with the Agency and other interested stakeholders to continue to improve the listing and de-listing process.

Very truly yours,



Michael A. Snyder

CAB

cc: Environmental Committee
Water Task Force

¹ See Draft Guidance for Implementing the Methylmercury Water Quality Standard (U.S. EPA 2001).