

Responses to: Region 5 Questions and Detailed Comments on Ohio EPA Monitoring Strategy

Strategy:

1. Referring to page 12, Section A.1.3, are any NAWQMN fixed station data used in the development of reasonable potential analyses and/or water quality-based effluent limitations? If so, what are the criteria for ensuring data used from a NAWQMN site is close enough to a point source to be useful for these purposes? [Yes, NAWQMN data may be used to determine upstream water quality in developing water quality based effluent limitations. The main criterion to ensure that the data is appropriate would be the lack of any significant source of pollutants between the ambient station and the point source to be evaluated, including other dischargers or tributaries coming in. The distance may vary by pollutants \(e.g. metals vs. BOD₅\), so it would be a case by case determination.](#)
2. On page 15 the following statement is made: "It is hoped that this training approach can be implemented in the spring of 2011." Was it implemented then? [Due to resource constraints, the concept of a web-based introductory PHWH training tool has not yet been pursued. The strategy text has been revised to indicate this is a goal we hope to pursue over the next few years.](#)
3. Referring to the ORSANCO discussion on page 21, how does the current ongoing bacteria TMDL effort, including the specialized tributary sampling to support the modeling effort, fit within Ohio's Monitoring Strategy? [Ohio EPA is participating in the Ohio River bacteria TMDL development and has shared data collected by Ohio EPA with ORSANCO, U.S. EPA, and the contractor. Likewise, Ohio EPA expects to use any data collected in tributaries as part of this project \(that meet Ohio's Credible Data Law requirements\) in future bacteria TMDLs for the tributaries. In fact, data collected by ORSANCO showing high levels of bacteria in Chickamauga Creek led to an investigation of sources and has already resulted in remedial action in that watershed.](#)
4. In several places of the Strategy (e.g. pp. 27 and 37), Ohio discusses the integral role that wetland monitoring will play in future watershed assessments, and that wetland monitoring data will be integrated into the TMDL process to evaluate overall watershed quality. Is Ohio EPA able to describe how wetland monitoring will be integrated into watershed-scale TMDL development/implementation? [The Ohio EPA Wetland Ecology Group is currently working on a USEPA Wetland Program Development Grant project to address this issue. This project involves a probabilistic survey of wetland condition conducted concurrently with the development of the middle Scioto River basin TMDL. The final wetland assessments associated with this grant will be completed during 2012. Additionally, it is anticipated that an evaluation of stream modeling procedures typically used in the TMDL process will be investigated to determine appropriate methods for incorporating wetland information that has been collected at the watershed scale. The final report for this project, which will include recommendations for future TMDL work, will be finalized by the spring of 2013.](#)
5. Page 29 at the bottom, it would be helpful if Ohio EPA could provide some examples of ongoing special studies or references to more information. [Examples of recent special studies](#)

that evaluated nutrient impacts of GW quality from septic and agricultural sources include: Report of Findings -Unsafe Water Supply Investigation, Wooster Township, Wayne County: http://www.epa.state.oh.us/portals/28/documents/gwqcp/scenic_hsts.pdf
Unsafe Water Supply Investigation - Putnam Community Water Association, Devola Washington County: http://www.epa.state.oh.us/portals/28/documents/gwqcp/devola-putnam_investigation.pdf.

Objectives:

1. Does Ohio envision that nutrients are key parameters in Ohio’s Lake Erie monitoring program (including the near shore)? Is there a measure against which Ohio can assess Lake Erie nutrient data? With our GLRI grant, we are now collecting additional harbor and near shore data with a goal of establishing a monitoring program and determining if an aquatic life use assessment methodology, developed in the 1990s and focused on fish community sampling, can be expanded upon. This issue is noted as a program deficiency in Table 6 of the strategy. A goal would certainly be to have the methodology capable of detecting nutrient impairments as well as other impairment types and it is likely that nutrients will play a major role in this given their prominence in the current debate surrounding Lake Erie basin water quality problems. As part of this effort, it is likely that new and revised nutrient measures/benchmarks will be necessary. In addition, at the present time, Ohio EPA uses the nitrate MCL for determining drinking water use status of the Lake Erie assessment units.

2. Please define what “conventional” treatment means on page 25 (section A.8) of the monitoring strategy, where it says: “Development of PDWS water quality standards are based on the objective of public water systems using only *conventional* treatment to meet the finished water standards established by the Safe Drinking Water Act.” Ohio EPA defines “conventional filtration treatment” as “a series of processes including coagulation, flocculation, sedimentation, and filtration resulting in substantial removal of particles” (OAC 3745-81-01 (T)). Examples of advanced treatment technologies that would not be considered conventional treatment include, but are not limited to, powdered activated carbon (PAC), granular activated carbon (GAC), reverse osmosis, and membrane filtration.

3. Referring to section B.1.3 on pages 32-33, EPA Region 5 agrees that the addition of criteria to determine impacts of harmful algal blooms would be a good addition to the monitoring and assessment program. No response needed.

4. Referring to the Lake Erie sampling programs described on pages 35-36, do any of these programs include monitoring of Lake Erie drinking water intake areas? No. Drinking water intake sampling is not conducted as part of any of the listed programs. If USEPA considers intake monitoring a priority perhaps those points could be added as part of the near shore monitoring program.

Design:

1. Under the new inland lakes sampling program described on pp. 16-17, 34-35 and elsewhere in the Strategy, does Ohio EPA include all inland lakes and reservoirs used as drinking water sources? These waterbodies (along with all public drinking water intakes) should be a priority

for sampling. The following list of criteria is used by Ohio EPA staff to identify potential lakes for sampling each field season:

- 1) Identify lakes within the watersheds where TMDL field sampling is occurring
- 2) Identify active public drinking water lakes or lakes with heavy recreation
- 3) Identify possible impaired lakes and
- 4) Identify lakes that need to be assessed for other programmatic needs.

2. On page 44 a discussion is presented concerning public drinking water supply (PDWS) use monitoring. Are all public drinking water intakes monitored for the PDWS use? Are these sites a part of the fixed stations networks described on page 12? Intakes are not part of the fixed station network, but source water chemistry data are collected at or near those sites if an intake is located within a basin being monitored.

3. On page 38, the first paragraph (section B.7) a statement is made that: “[Ambient Ground Water Quality Monitoring Program (AGWQMP)] sampling includes deeper, more productive aquifers used by public water systems. However these aquifers are not necessarily representative of the shallow, most vulnerable or sensitive portion of the major aquifers in the state.” The AGWQMP primarily use PWS wells as our monitoring wells and most of the wells sampled are not particularly sensitive.

Questions follow:

- a. On page 50, section C.7 a statement is made that the “AGWMP Operation Procedures Document, currently being updated, includes a section on the selection criteria for new wells.” Could this document be updated to include shallow, sensitive wells in the selection criteria? The OPD revision will refine the current criteria, but most PWS well are not as sensitive as shallow monitoring wells located in sensitive geologic settings. The AGWQMP does not have the resources to develop monitoring wells for the AGWQMP in selected sensitive settings.
- b. The “ground water probabilistic monitoring design” paragraph in section J.2.7 on page 101 says: “A strong case can be made to include more shallow wells located in sensitive aquifers by expanding the number of transient non-community (TNC) wells included in the AGWMP. A probabilistic design could be used in selecting the TNC wells using the statewide knowledge developed about sensitive aquifers.” Could the AGWMP operation procedures document be updated to include this recommendation as part of the selection criteria for new monitoring wells, or are there plans to implement this recommendation? The AGWQMP recognizes the need to incorporate shallower wells in the network; however, changing the criteria is just part of the solution. We believe a thorough review of the existing wells will allow sampling at some sites to be scheduled at longer intervals. This shift in sampling priorities will free up resources for including additional wells. The added PWS wells would target sampling sites in shallow aquifers considered to be sensitive, including both sand and gravel aquifer and shallow bedrock aquifers. The review we are considering will also incorporate the national monitoring framework that is being developed so that AGWQMP wells may be incorporated into the national network. Completion of current priority projects will dictate when this data review will occur.

- c. On page 50 again, it would be helpful to include a brief summary of the selection criteria for new wells in the monitoring strategy just for ease of understanding and then one can go to the referenced document for more detail. Considering that this document is currently being revised we understand that this may not be possible at this time. On page 50 in the Ohio Surface and Ground Water Monitoring Strategy, the text states that the “wells have been selected on a combination of geographic distribution, geologic setting, and practical considerations, including accessibility and the potential for long-term sampling”; these are the current criteria. The AGWQMP is also working to install dedicated pumps in several of the ODNR Observation wells that measure water levels. We are targeting shallow sand and gravel aquifers in order to evaluate seasonal variation in unconfined aquifers.

Indicators:

1. Referring to page 52, Table 3, for Primary Headwater Habitat Streams, does Ohio see a way to assess headwaters for nutrient impacts (e.g., through algal communities or biomass)? At this point with PHWH streams, Ohio EPA has developed a classification system to categorize this water body type based on existing quality of fish (if present), macroinvertebrates, and amphibians; a PHWH aquatic life use has been proposed for inclusion in the Ohio WQS. We are only now beginning to collect additional data with a goal of expanding data coverage of PHWH streams across Ohio and determining if an aquatic life use assessment methodology can be developed. This issue is noted as a program deficiency in Table 6 of the strategy. A goal would certainly be to have the methodology capable of detecting nutrient impairments as well as other impairment types but it has not been determined whether an algal indicator will be needed to do this.
2. Referring to section D.1.2.3 on page 54, EPA recommends that Ohio consider bromide as a supplemental indicator for PWS. ORSANCO is conducting a bromide study in the Ohio River. Without additional funding, bromide sampling at other locations will be limited to special investigations.
3. Referring to page 55, Table 4:
 - a. Inland lakes and reservoirs: Has Ohio considered including nutrients as core indicators, given that Ohio is planning on adopting nutrient criteria for inland lakes? It would certainly seem logical to add nutrients as a core indicator for lakes and reservoirs once Ohio has adopted said criteria into our Water Quality Standards. This should occur over the next couple of years and the revisions to the core indicator lists will be made in a future revision of the strategy.
 - b. Lake Erie, Open Lake, Nearshore, and Lacustuaries: Has Ohio considered including nutrients as core indicators, given the nutrient related impacts on Lake Erie? Ohio recently initiated a nearshore, harbor, and lacustuary monitoring program using GLRI funds. This project will be conducted through 2013 and hopefully longer if a secure funding source can be established. One of the objectives of the current monitoring will be to identify those parameters best suited to assess status of Lake Erie beneficial

uses. If nutrients or nutrient-related parameters are selected as part of the assessment methodology, these will be included as core indicators in a future revision of the strategy.

4. The lack of pesticide and nitrate data prevents the state from evaluating the public drinking water supply (PDWS) use of surface water bodies. For example:

- page 33 (section B.1.3) says: “The 2008 and 2010 PDWS assessments also identified a lack of pesticide data at or near public water supply intakes,”

- the last paragraph on page 44 (section C.1.5) says: “... until the lack of pesticide data is addressed, it will be difficult to fully evaluate Ohio waters for the PDWS beneficial use,” and;

- page 94 (section J.2.1.4) says: “As reported in Ohio’s 2010 Integrated Report, sufficient data were available to complete evaluation of the nitrate indicator in 34% of the assessment units and for the pesticide indicator in only 13% of the assessment units ... Without additional funding dedicated to collection of monitoring data at PDWS locations, it will be difficult to obtain the data necessary to complete assessments for all locations where the PDWS use applies.”

Does Ohio EPA use treatment and finished water quality data to try to help fill data gaps related to nitrate and/or pesticides? If the state is not using this information in the assessment of the PDWS use, how does the agency intend to address the lack of nitrate and pesticide data? Ohio EPA uses compliance monitoring data only if it is indicative of the raw water quality of the stream. Use of this data is dependent on the type of treatment utilized at the public water system. Since many surface water public water systems have advanced treatment, or selectively pump into an upground reservoir when water quality is good, using finished water quality data may not provide an accurate assessment of the source water quality. Most of the assessments that have been completed to date are based on compliance monitoring data. More information on Ohio EPA’s drinking water beneficial use assessment methodology can be found in Ohio’s 2006 Integrated Water Quality Report: http://www.epa.ohio.gov/portals/35/tmdl/2006IntReport/IR06_app_C_PDWSmethodology.pdf.

5. Does Ohio EPA require the use of procedures found in 40 CFR 136 where data are being collected for NPDES permit applications, reports required by NPDES permits, or 401 certifications? Yes.

Quality Assurance: no questions

Data Management:

1. On page 65, a new EA³ electronic monitoring and assessment database is described that will be web-based and can be shared externally. Does Ohio EPA intend to make this database available to the public online? If so, what is the timetable for developing this capability? If not, will data be made available to the public upon request? Is there presently a way for EPA Region 5 staff to access the EA³ database? Several interactive mapping applications are now

available online to access information from the EA³ database and other data bases currently in use (see link below). Several enhancements to the maps are proposed and these will become active as time and resources become available.

<http://www.epa.ohio.gov/dsw/gis/index.aspx>

2. How are effluent data (chemical, physical and WET) maintained by Ohio EPA? Currently, data are kept in various data bases in the central office and district offices. In an effort to consolidate and modernize, EA³ will soon (projected summer 2012) house all Ohio EPA chemical data (including effluent and that collected for WET testing); this should include a rudimentary chemical assessment module as well. In 2010, a new habitat module housing all physical habitat data used in the QHEI became an active EA³ application.

3. On page 66 of the Strategy is a statement that Ohio has begun development of a parallel database to EA³ to house ground water quality data, and that this database will be completed in 2011. Has this database been completed? The GWQCP database for GW quality data was not completed in 2011, but significant progress was made in the last half of 2011. We expect the GW quality database to be operational by the middle of 2012.

Data Analysis and Assessment:

1. For the comprehensive Lake Erie nearshore monitoring program that is being developed, will this program be implemented to assess for attainment with water quality standards for the lake? If so, what is the approximate timetable for this? Certainly a goal of the Lake Erie nearshore monitoring GLRI grant will be an assessment methodology for nearshore (not open water) beneficial uses. It is not likely that this will be totally accomplished with the first round of sampling as part of the current grant. Continued development of the nearshore monitoring program, either with or without new GLRI funding, is included in the deficiencies table of the monitoring strategy. A date certain for when this will be accomplished cannot be made at this time.

2. Has Ohio EPA considered using GLNPO or Environment Canada data for open waters of Lake Erie to assess for attainment with water quality standards? No. To date, Ohio EPA has not done beneficial use assessments of the open waters of Lake Erie.

3. Referring to section G.1.3. on page 68, will increased monitoring occur on "watch list" waters? Due to funding constraints, there are currently no plans to increase monitoring on "watch list" waters.

Reporting: no questions

Program Evaluation: no questions

General Support and Infrastructure Planning:

1. Pages 84 and 91: Region 5 encourages Ohio in developing an algal bio-indicator. As we have this as a monitoring program shortfall, Ohio shares your interest in developing an algal component to our monitoring program. However, as with most of these types of initiatives, funding and manpower are significant obstacles to overcome. In the short term, we will be using

analyses of chlorophyll as an algal community surrogate which will be included in the assessment methodologies for beneficial use attainment status in streams, rivers, lakes, and reservoirs.

2. Is Ohio EPA able to prioritize the list of deficiencies that is detailed in Table 6 of section J? Ohio EPA considers each deficiency as worthy of consideration and prefers to not try to artificially rank their importance to surface and ground water monitoring programs. The case could be made that, since several of these deficiencies have some ongoing activity, they should have a higher priority to complete. However, there could be just as reasonable a case to be made that, for those deficiencies where progress has yet to begin, these should be given a higher priority. Progress on any deficiency will likely be contingent on which need becomes most pressing (and therefore given a high priority) and for which adequate resources can be found to tackle it.

3. Referring to p. 86, did Ohio conduct inland lakes monitoring in 2011? Does the agency plan to conduct lake monitoring in 2012? Ohio conducted sampling at several lakes and reservoirs in 2011. This effort was partially supported by the FY09 106 supplemental grant which primarily funded our 2010 monitoring effort. Sampling in several Ohio lakes and reservoirs located in major watershed survey study areas is planned for 2012. A good source of information for the lakes program and lists of lakes sampled or to be sampled can be found at the following web site. http://www.epa.ohio.gov/dsw/inland_lakes/index.aspx

4. Referring again to p. 86, the lower right box states that a standardized approach to collecting phytoplankton and algal toxin samples would be completed in spring of 2011. Was this accomplished? Recognizing that Ohio has not yet developed indicators for phytoplankton and algal toxins, does the agency plan to collect phytoplankton and algal toxin samples using this standardized sampling methodology in the meantime? The State of Ohio Harmful Algal Bloom Response Strategy was completed in June, 2011. This document was intended to be a one-stop-shop for anyone who would collect phytoplankton or cyanotoxins in Ohio's lakes for the purpose of evaluating recreational and source waters, and finished drinking water. It also outlined an advisory posting process and thresholds for action. The Strategy outlined a standardized approach for collecting samples at beaches, open-water, and at intakes. It is currently being revised to focus just on recreational waters. The methodology for collecting phytoplankton and cyanotoxins, thresholds for several cyanotoxins and advisory postings will remain the same. Ohio intends to focus sampling at State Park beaches, and to encourage other public lake managers to use the same sampling methodology and advisory posting protocol to ensure consistency across the State. The state is currently reevaluating the strategy and will provide an update in 2012. It will be posted at www.ohioalgaefinfo.com.