



Maumee Watershed

NUTRIENT TMDL PROJECT

Frequently Asked Questions (April 2022)

This frequently asked questions (FAQ) document is a tool to help answer questions that stakeholders often ask Ohio Environmental Protection Agency (Ohio EPA) about the Maumee Watershed Nutrient Total Maximum Daily Load (TMDL). As the TMDL project progresses, Ohio EPA will update this FAQ document with new questions and answers, as well as refined answers to existing questions as new information is available and new management decisions are made. The FAQ document starts with background questions on TMDLs and water quality for individuals who would like more information on the need for and the development process of TMDLs in Ohio.

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Section A: Understanding Total Maximum Daily Loads (TMDLs) in Ohio

This section provides FAQs and answers about TMDL development in Ohio.

Question 1. What is a TMDL?

A TMDL is like a diet you might follow to improve your health. Where a diet might limit the total number of calories you consume, a TMDL establishes a budget for a pollutant entering a stream or other waterbody. Also, as a diet might budget calories to different major food groups, a TMDL provides a budget for different sources of pollution. For more detailed information on TMDLs you can visit Ohio EPA's *Guide to Total Maximum Daily Loads*

(https://epa.ohio.gov/static/Portals/35/tmdl/TMDL_Fact_Sheet_Feb_2020.pdf) and U.S. EPA's *TMDL FAQ* (<https://www.epa.gov/tmdl/overview-total-maximum-daily-loads-tmdls>).

Question 2. When are TMDLs developed?

When a waterbody isn't meeting water quality standards for a specific pollutant, a state is required to calculate a TMDL. See section B for more information on water quality standards and how Ohio EPA identifies waterbodies that do not meet them.

Question 3. Who develops TMDLs in Ohio?

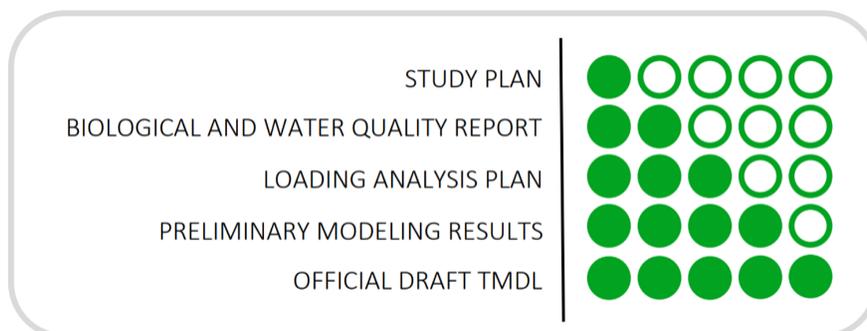
The federal Clean Water Act requires states to develop TMDLs. In Ohio this means Ohio EPA is responsible for leading TMDL development. Ohio EPA works with many partners, including federal and state agencies, local governments, non-profits, consultants, and local stakeholders.

Question 4. What is Ohio's TMDL development process?

Developing and implementing TMDLs is done as an iterative process in Ohio. The process starts with assessing a waterbody. Once a waterbody has been identified as needing a TMDL, a strategy is then developed and implemented. During implementation, the waterbody is re-evaluated, and then the strategy adapts to new information until the waterbody is restored.

To establish a TMDL Ohio law requires Ohio EPA to follow a 5-step process, with the steps identified in the figure below. Each step has a public comment period where stakeholders can provide feedback for Ohio EPA to improve the draft documents and the overall strategy. For more information on what these steps involve please see the Ohio EPA's *Guide to Total Maximum Daily Loads*:

https://epa.ohio.gov/static/Portals/35/tmdl/TMDL_Fact_Sheet_Feb_2020.pdf.



Question 5. How can I participate in the TMDL process?

Most importantly get involved! Restoration strategies are most effective when there is local support. Local governments, producers, community organizations, park districts, watershed groups, and more local resources offer opportunities to participate in restoration efforts.

Once you are involved consider subscribing to Ohio EPAs TMDL listservs to get updates on specific projects: ohioepa.custhelp.com/ci/documents/detail/2/subscriptionpage.

Question 6. Where can I find information about TMDLs for specific waterbodies in Ohio?

Ohio EPA provides information about TMDLs within a specific area of land that drains into a lake or stream called a watershed. To learn more about TMDLs in specific Ohio watersheds, you can visit Ohio EPA's TMDL Program website at <https://epa.ohio.gov/wps/portal/gov/epa/divisions-and-offices/surface-water/reports-data/total-maximum-daily-load-tmdl-program>. A clickable map of Ohio's watersheds will direct you to more information on the watershed, including any available TMDL reports.

Section B: Understanding Water Quality in Ohio

This section provides FAQs and answers related to understanding water quality in Ohio. This information clarifies what drives the need for the Maumee Watershed Nutrient TMDL.

Question 1. What are water quality standards?

Water quality standards are provisions that describe the desired condition of lakes, rivers, and other surface waters. They establish the legal basis for regulating pollutants entering surface water and are required by the federal Clean Water Act.

U.S. EPA provides more information about water quality standards at: epa.gov/standards-water-body-health/what-are-water-quality-standards.

Question 2. What are Ohio's water quality standards?

Ohio has adopted water quality standards to protect surface waters for use by humans and wildlife. There are four components to Ohio's water quality standards:

- 1) **Beneficial use designations** identify the desired condition for aquatic life, recreation, agriculture, industry, and the protection of public water supplies.
- 2) **Narrative "free-froms"** are general water quality criteria for all surface waters that state all waters shall be free from sludge, floating debris, oil and scum, color and odor producing materials, substances that are harmful to human, animal, or aquatic life, and nutrients in concentrations that may cause algal blooms.
- 3) **Numeric criteria** establish concentrations of chemicals and degree of aquatic life toxicity allowable in a water body without adversely impacting its beneficial uses.
- 4) **Antidegradation provisions** describe the conditions under which water quality may be lowered in surface waters and requires that existing beneficial uses are maintained and protected.

More information on Ohio EPA's Water Quality Standards Program is available at <https://epa.ohio.gov/wps/portal/gov/epa/divisions-and-offices/surface-water/reports-data/water-quality-standards-program>.

Question 3. How does Ohio EPA report which waterbodies do and do not meet water quality standards?

The federal Clean Water Act requires each state to publish a water quality monitoring and assessment report that identifies which waterbodies do or do not meet water quality standards. Waterbodies that do not meet water quality standards are referred to as impaired waterbodies.

Every two years, Ohio EPA publishes *Ohio's Integrated Water Quality Monitoring and Assessment Report*. This report identifies impaired waterbodies that require the development of TMDLs to help the waterbody meet its water quality standards over time.

You can find more information on *Ohio's Integrated Water Quality Monitoring and Assessment Report* at <https://epa.ohio.gov/wps/portal/gov/epa/divisions-and-offices/surface-water/reports-data/ohio-integrated-water-quality-monitoring-and-assessment-report>.

Section C: Maumee River Watershed Nutrient TMDL

This section provides FAQs and answers specifically related to the Maumee Watershed Nutrient TMDL.

C.1. Water Quality Impairment

This section provides FAQs and answers about impairments in the western basin of Lake Erie that have required the need for the Maumee Watershed Nutrient TMDL.

Question 1. Why is the western basin of Lake Erie impaired?

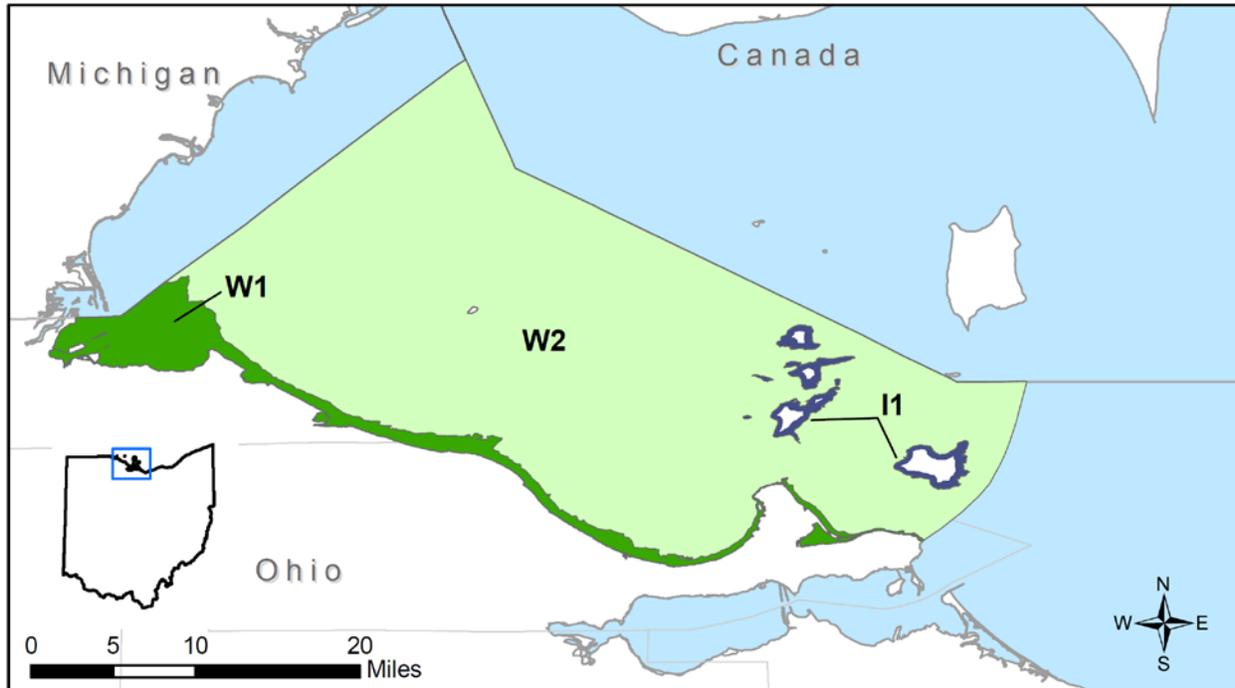
Large algal blooms and especially harmful algal blooms (HABs) associated with toxin producing cyanobacteria have degraded water quality in the western basin of Lake Erie. Ohio EPA has identified impacts to the use of the western basin of Lake Erie for recreation, drinking water, and sustaining diverse aquatic life.

Question 2. What causes HABs in the western basin of Lake Erie?

Excess nutrients, specifically phosphorus, cause HABs in the western basin of Lake Erie. Nutrients entering the western basin of Lake Erie come from a variety of sources and tributaries. The springtime phosphorus load from the Maumee River watershed is a primary contributor affecting HABs.

Question 3. Where are the HABs in the western basin of Lake Erie?

The size and location of HABs vary seasonally and year-to-year. However, Ohio EPA has documented impacts throughout the western basin of Lake Erie. The figure below shows the different areas within the western basin that Ohio EPA evaluates. All of these areas have been affected by HABs.



Western Lake Erie Assessment Units

-  W1 - Western Basin Shoreline ($\leq 3m$)
-  W2 - Western Basin Open Water ($>3m$)
-  I1 - Islands Shoreline ($\leq 3m$)



C.2. TMDL Geographic Scope

This section provides FAQs and answers about the geographic scope of the Maumee Watershed Nutrient TMDL.

Question 1. If this TMDL project is supposed to address HABs in the western basin of Lake Erie, why is it called the Maumee Watershed Nutrient TMDL?

The Maumee River watershed is connected to Lake Erie. Nutrients that run off the land throughout the Maumee River watershed drain to the western basin of Lake Erie. The Maumee River watershed land cover is predominantly comprised of cultivated crops with some urban development, hay and pasture lands, and forest. Excessive nutrients from these areas, specifically phosphorus in the springtime, travel to the western basin of Lake Erie and cause HABs. To reduce HABs in the western basin of Lake Erie, sources contributing excessive nutrient loading to the Maumee River must reduce their nutrient contributions. This is why the Maumee Watershed Nutrient TMDL is referred to by Ohio EPA as a *far-field* TMDL.

Question 2. What area does the Maumee River watershed include?

The Maumee River watershed is predominantly located in northwestern Ohio, with portions in Michigan and Indiana. It drains a total of 5,024 square miles in Ohio, including all or part of 18 counties. Major

municipalities in the watershed include Toledo, Defiance, Findlay, Lima, Van Wert, Napoleon, and Perrysburg. The Maumee River watershed drains to the Western Lake Erie Basin.

Question 3. How is a far-field TMDL for the Western Lake Erie Basin different from near-field TMDLs in the Maumee River watershed?

A *near-field* TMDL looks at local water quality impairments caused by nearby sources. For decades, Ohio EPA has developed near-field TMDLs to address local impairments across the state. There are many near-field TMDLs for local water quality impairments within the Maumee River watershed. You can find information on near-field TMDLs in the Maumee River watershed at epa.ohio.gov/wps/portal/gov/epa/divisions-and-offices/surface-water/reports-data/maumee-river-watershed.

The Maumee Watershed Nutrient TMDL focuses on limiting upstream sources of nutrients causing downstream impairments in the western basin of Lake Erie.

C.3. TMDL Process and Stakeholder Participation

This section provides FAQs and answers about stakeholder participation in the development and implementation of the Maumee Watershed Nutrient TMDL.

Question 1. How do I find out about the current status of the Maumee Watershed Nutrient TMDL?

Updated information about each step of the Maumee Watershed Nutrient TMDL can be found on the *TMDL Project Schedule* drop-down on the *Maumee Watershed Nutrient TMDL* tab at <https://epa.ohio.gov/wps/portal/gov/epa/divisions-and-offices/surface-water/reports-data/maumee-river-watershed>. Links to draft and final documents as well as information from outreach events will be posted on the site.

Question 2. What are the outreach modules on Ohio EPA's Maumee Watershed Nutrient TMDL website?

Public involvement and stakeholder outreach for the Maumee Watershed Nutrient TMDL began in October 2020. As part of the public involvement and stakeholder outreach, Ohio EPA developed three outreach module presentations to explain the progress of this TMDL.

- **Module 1** (Feb. 18, 2021): Overview of Ohio's TMDL Process and Near-field versus Far-field TMDLs
 - **Video:** <https://www.youtube.com/watch?v=sysR7nq9xkw>
 - **Presentation Slides:** <https://epa.ohio.gov/static/Portals/35/tmdl/MaumeeNutrient/Outreach-Event-Mod1.pdf>
- **Module 2** (June 4, 2021): Overview of the Study Plan and Technical Support Documents that Generally Compose TMDL Steps 1 and 2
 - **Video:** <https://youtu.be/mPM16l6Rf0>

➤ **Presentation Slides:**

<https://epa.ohio.gov/static/Portals/35/tmdl/MaumeeNutrient/Outreach-Event-Mod2.pdf>

- **Module 3** (Sept. 9, 2021): Synopsis of Ongoing Nutrient Reduction Efforts Across the Watershed.

➤ **Video:** <https://youtu.be/DmuGg7vISSg>

➤ **Presentation Slides:**

<https://epa.ohio.gov/static/Portals/35/tmdl/MaumeeNutrient/Outreach-Event-Mod3.pdf>

Question 3. Are other organizations or groups besides Ohio EPA working on the TMDL?

Ohio EPA is collaborating extensively with the Ohio Department of Agriculture (ODA), the Ohio Department of Natural Resources (ODNR), and the Ohio Lake Erie Commission as we develop the TMDL. Also, while Ohio EPA's Maumee River Watershed TMDL is Ohio-specific, state and other organizations in Michigan and Indiana are working on nutrient reductions in those parts of the watershed. Many other groups and organizations are involved in research and implementation efforts in the region. Ohio's state agencies have collaborated extensively in these efforts, and they will be considered as the TMDL is developed.

Question 4. Where can I access the list of references being used in the TMDL?

All documents published in response to the project will have a comprehensive list of references. Ohio EPA shared a reference list handout at the March 1, 2022, webinar which includes a list of sources being used as references in the TMDL. The webinar can be accessed at <https://epa.ohio.gov/divisions-and-offices/surface-water/reports-data/maumee-river-watershed>. Most of these references are publicly available through internet searches or by contacting university libraries.

Ohio EPA welcomes submittal of additional references or information on ongoing work by emailing EPATMDL@epa.ohio.gov.

C.4. Questions about Phosphorus

This section provides FAQs and answers about sources of phosphorus in the Maumee River watershed that contribute to HABs in Lake Erie.

Question 1. What is the difference between total phosphorus (TP) and dissolved reactive phosphorus (DRP)?

Total phosphorus is made up of dissolved phosphorus (the phosphorus that remains in water after that water has been filtered to remove particulate matter) and particulate phosphorus (phosphorus attached to the particulate matter). Dissolved phosphorus stays in the water column and is readily available to promote the growth of algal blooms. To learn more about the different types of phosphorus and the impact on Lake Erie algae, you can visit the National Center for Water Quality Research (NCWQR) website on Lake Erie algae at lakeeriealgae.com/different-types-of-phosphorus/.

Question 2. What sources in the Maumee River watershed contribute phosphorus?

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Two broad categories of sources in the Maumee River watershed contribute to the overall phosphorus load: point sources and nonpoint sources.

Point sources are regulated under the Clean Water Act through National Pollutant Discharge Elimination System (NPDES) permits. Point sources that contribute phosphorus in the Maumee River watershed include municipal wastewater treatment plants, industrial facilities, municipal separate storm sewer systems (MS4s), and combined sewer overflows (CSOs), as well as concentrated animal feeding operations (CAFOs).

Nonpoint sources, or NPS, are more diffuse sources of pollution that are associated with runoff and drainage from the landscape. Nonpoint sources that contribute phosphorus in the Maumee River watershed include agricultural runoff, urban or rural community runoff, channel and upland erosion, and natural sources.

To learn more about the sources of phosphorus you can watch the recording of the webinar from March 1, 2022, and access the slides from that event on the Maumee River TMDL webpage: epa.ohio.gov/divisions-and-offices/surface-water/reports-data/maumee-river-watershed.

Question 3. What is the most significant source of phosphorus in the Maumee River watershed?

The Maumee River Watershed Nutrient TMDL will consider all sources of phosphorus. A previous study, *Promoting Safe and Clean Drinking Water in Lake Erie: Ohio's Domestic Action Plan 2020 to Address Nutrients*, estimates that the nonpoint sources in the Maumee River watershed contribute 88 percent of the phosphorus load. As discussed in the previous response, nonpoint source is a broad category of sources originating diffusely from the landscape. In the Maumee River watershed, much of that landscape is utilized for agricultural production. Ohio's Domestic Action Plan and other efforts to promote phosphorus reduction in the Maumee River watershed have consistently emphasized the importance of addressing agricultural sources in the Maumee River watershed along with the other nonpoint source categories noted in Question 2 above.

To read the full Domestic Action Plan, you can go to <https://lakeerie.ohio.gov/wps/portal/gov/lec/planning-and-priorities/02-domestic-action-plan/02-domestic-action-plan>.

Question 4. How will Ohio EPA identify and evaluate Maumee River watershed nonpoint sources (NPS) in the TMDL analysis of sources contributing to the phosphorus load?

The diffuse nature of NPS loads makes monitoring the load directly more challenging than point sources. NPS resource managers utilize many tools to identify critical resource needs during planning efforts. Ohio EPA will rely on existing NPS data and information to identify and evaluate NPS categories at a broad scale by type of land use such as agriculture, urban or rural community, and natural sources. The data will inform implementation efforts but the TMDL will not provide specific allocations to discrete NPS. This approach will provide flexibility in identifying appropriate management practices to reduce

phosphorus from NPS. The evaluation tools are continuously improving and vary by the scale of the planning effort, so flexibility is needed to react to new information as it becomes available.

One approach that has been used in source assessment is the identification of Critical Source Areas (CSAs) where phosphorus loads are elevated. Methods for CSA identification include SWAT modeling, water quality monitoring, watershed surveys, and other studies. Depending on the approach taken and assumptions made to identify CSAs, different resource concerns might be highlighted. CSA analyses can help match resources to priority areas that will maximize the value of conservation practices.

Question 5. How will the Maumee Watershed Nutrient TMDL address phosphorus in the soils from past activities referred to as legacy phosphorus?

Legacy phosphorus does not have one definition in the watershed but generally it is used in reference to phosphorus in soils from past activities. Sometimes it refers to specific areas where past activities have resulted in a build-up of phosphorus in the soil beyond what is needed to optimize crop yields. Legacy phosphorus is considered under the nonpoint source category in the Maumee Watershed Nutrient TMDL. The source assessment that will be completed for the TMDL will evaluate the role of legacy phosphorus as part of the total nonpoint source load. Identifying legacy phosphorus and characterizing its role in watershed loading is complex because it is influenced not only by soil phosphorus levels but also by the movement of phosphorus from the surface and subsurface to tile drains, ditches, and streams.

The Maumee River watershed is a focal point of emerging research aimed at furthering the understanding of the role of legacy phosphorus. Researchers at The Ohio State University are engaged in a five year study on the subject: <https://news.osu.edu/new-study-will-track-ways-to-cut-runoff-from-elevated-phosphorus-fields/>.

C.5. TMDL Modeling Approach

This section provides FAQs and answers about the modeling approach chosen by Ohio EPA for the Maumee Watershed Nutrient TMDL.

Question 1. What does Ohio EPA consider when choosing the modeling approach for the Maumee Watershed Nutrient TMDL?

The ‘best’ modeling approach depends on the type of impairment, pollutant source, data availability, and how the pollutant travels through the watershed. Ohio EPA also takes into consideration ongoing efforts in the watershed, previous TMDL analyses, the questions to be answered by a model, and the amount of effort required to complete the model. After weighing the strengths and weaknesses of different modeling approaches, Ohio EPA selected a data-driven mass balance method for the Maumee Watershed Nutrient TMDL.

Question 2. What is a mass balance approach?

A mass balance approach is a data-driven approach to determine the total pollutant loading to a watershed from a variety of sources to help determine the most effective management approaches. Ohio EPA has conducted mass balance studies of nutrients draining to Lake Erie and the Ohio River from

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Ohio's watersheds. This data-driven approach for the Maumee Watershed Nutrient TMDL will incorporate extensive stream monitoring data and other data available to measure pollutant sources.