

## Mohican River Watershed Draft TMDL Report

The Clean Water Act requires Ohio EPA to prepare a cleanup plan for watersheds that do not meet water quality goals. The cleanup plan, known as a total maximum daily load (TMDL) report, specifies how much pollution must be reduced from various sources and recommends specific actions to achieve these reductions.

### Where is the Mohican River watershed?

The Mohican River watershed is located in north-central Ohio, extending from northern Richland County to northwest Coshocton County. This 1,004.6 square mile watershed area is home to more than 190,000 people and encompasses all or part of eighteen municipalities in Richland, Ashland, Wayne, Crawford, Morrow, Knox, Medina, Holmes and Coshocton counties. The watershed is primarily agricultural and forested with 11 percent being developed. The agricultural land uses are concentrated in the northern and eastern portions of the watershed, while the forested land is concentrated in the southern and western portion of the watershed. The developed lands are concentrated in the larger municipalities (Mansfield, Ontario, Ashland and Shelby).

The Mohican River and several of its larger tributaries are used frequently for recreation. Several canoe liveries are located along the river and streams, and the Mohican River State Park is located in the watershed. The park has a lodge and a campground available to its many visitors each year.

### How does Ohio EPA measure water quality?

Ohio is one of the few states to measure the health of its streams by examining the number and types of fish and aquatic insects in the water. An abundance of fish and insects that tolerate pollution is an indicator of an unhealthy stream. A large number of insects and fish that are sensitive to pollution indicate a healthy stream.

In 2007, comprehensive biological, chemical, and physical data were collected in the watershed by Ohio EPA scientists. The watershed's conditions were compared with state water quality goals to determine which streams are impaired, and how much needs to be done to restore good stream habitat and water quality.

### What is the condition of the Mohican River watershed?

Of the sites sampled for aquatic life use support, 74% were fully attaining goals, 14% were attaining some but not all of the goals (partial attainment) and 12% were not attaining any of the goals. Only 13% of the sites assessed for support of the recreation use supported the use.

The main causes of impairment were bacteria from failing home sewage treatment systems (HSTS) and agriculture; and nutrients, sediment and habitat alterations from agriculture, impoundments and urban land uses.



### Essential Facts

- Ohio EPA studied the watershed and found water quality problems at several locations.
- Water quality improvements can be made with practical, economical actions.
- You may review the work to date.
- Making water quality improvement depends on the participation of the watershed's residents.

### More Information or Comments

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## What are the problems?

**01**

**Causes:** habitat alterations, flow alterations, organic enrichment, nutrients, turbidity, dissolved oxygen, sedimentation and unknown

**Sources:** channelization, crop production, urban runoff/ storm sewers, manure runoff, unrestricted cattle access, dams or impoundments, industrial point sources, sediment resuspension

**06**

**Causes:** sedimentation and nutrients

**Sources:** channelization and municipal point source discharges

**05**

**Causes:** flow alteration, sedimentation, high flow regime, dissolved oxygen, biochemical oxygen demand

**Sources:** dams or impoundments, channelization

**02**

**Causes:** nutrients, flow alteration, dissolved oxygen, sedimentation, habitat alterations, turbidity, metals, high flow regime, organic enrichment, suspended algae, natural and unknown

**Sources:** urban runoff / storm sewers, crops with subsurface drainage, channelization, dams or impoundments, municipal point source, contaminated sediments and natural

**03**

**Causes:** habitat alterations, sedimentation

**Sources:** channelization

**04**

No aquatic life impairment.

**08**

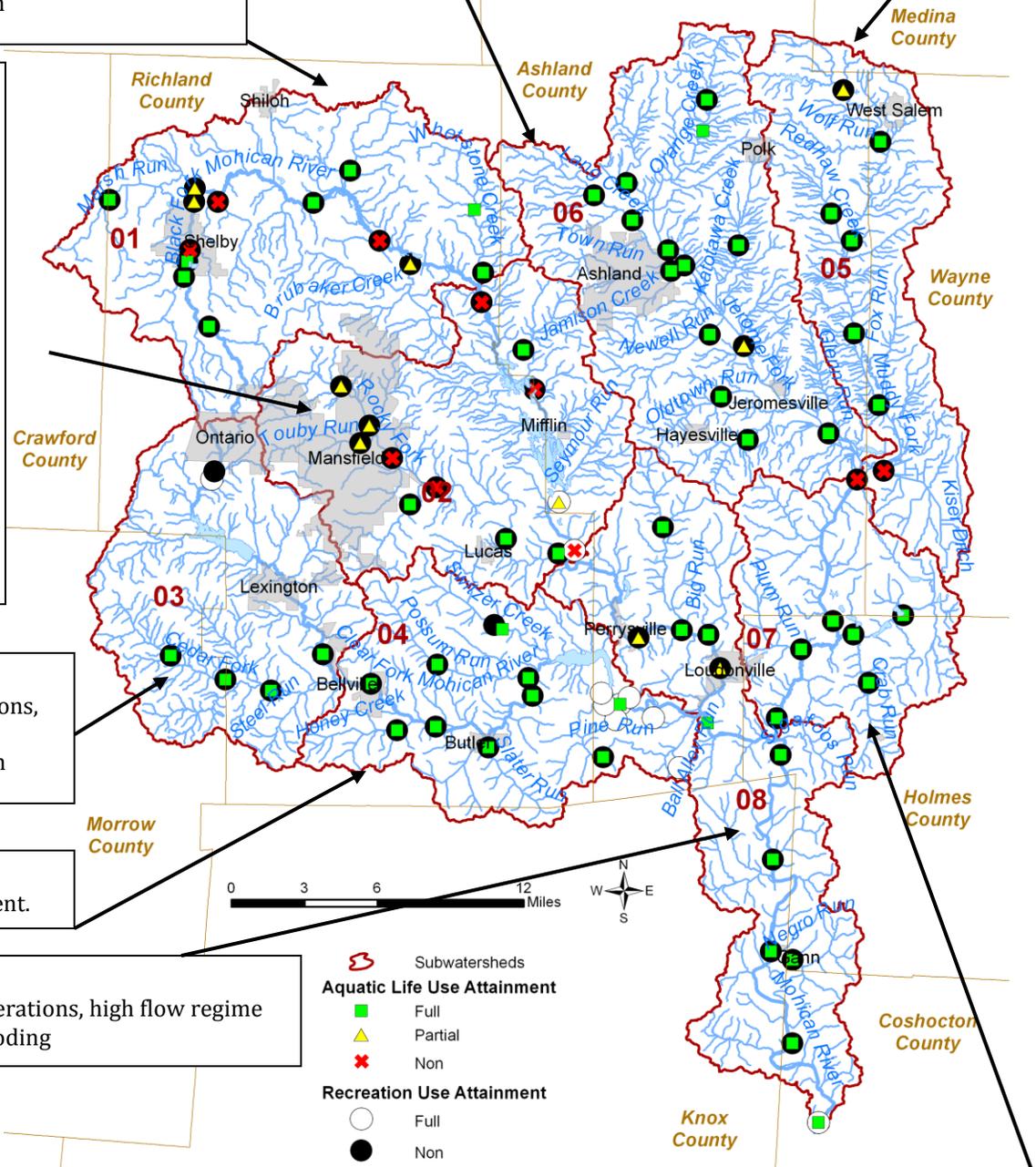
**Causes:** habitat alterations, high flow regime

**Sources:** major flooding

**07**

**Causes:** habitat alterations, flow alterations, dissolved oxygen, sedimentation, nutrients

**Sources:** dams or impoundments, channelization, crop production



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## How can the problems be fixed?

**01**

- Implement agricultural best management practices (BMPs) to address nutrients, bacteria and sediment in runoff
- Repair or replace failing home sewage treatment systems (HSTS)

**06**

- Implement agricultural BMPs to address manure runoff and livestock stream access
- Consider stream restoration to improve habitat
- Repair or replace failing HSTS
- Improve effluent at wastewater treatment plants

**05**

- Eliminate sewer bypasses in West Salem
- Repair or replace failing HSTS
- Consider stream or wetland restoration to improve habitat

**02**

- Implement agricultural BMPs
- Repair or replace failing HSTS
- Implement storm water BMPs

**03**

**03**

- Implement agricultural BMPs to address manure runoff and channelization
- Repair or replace failing HSTS
- Improve effluent at a wastewater treatment plant

**04**

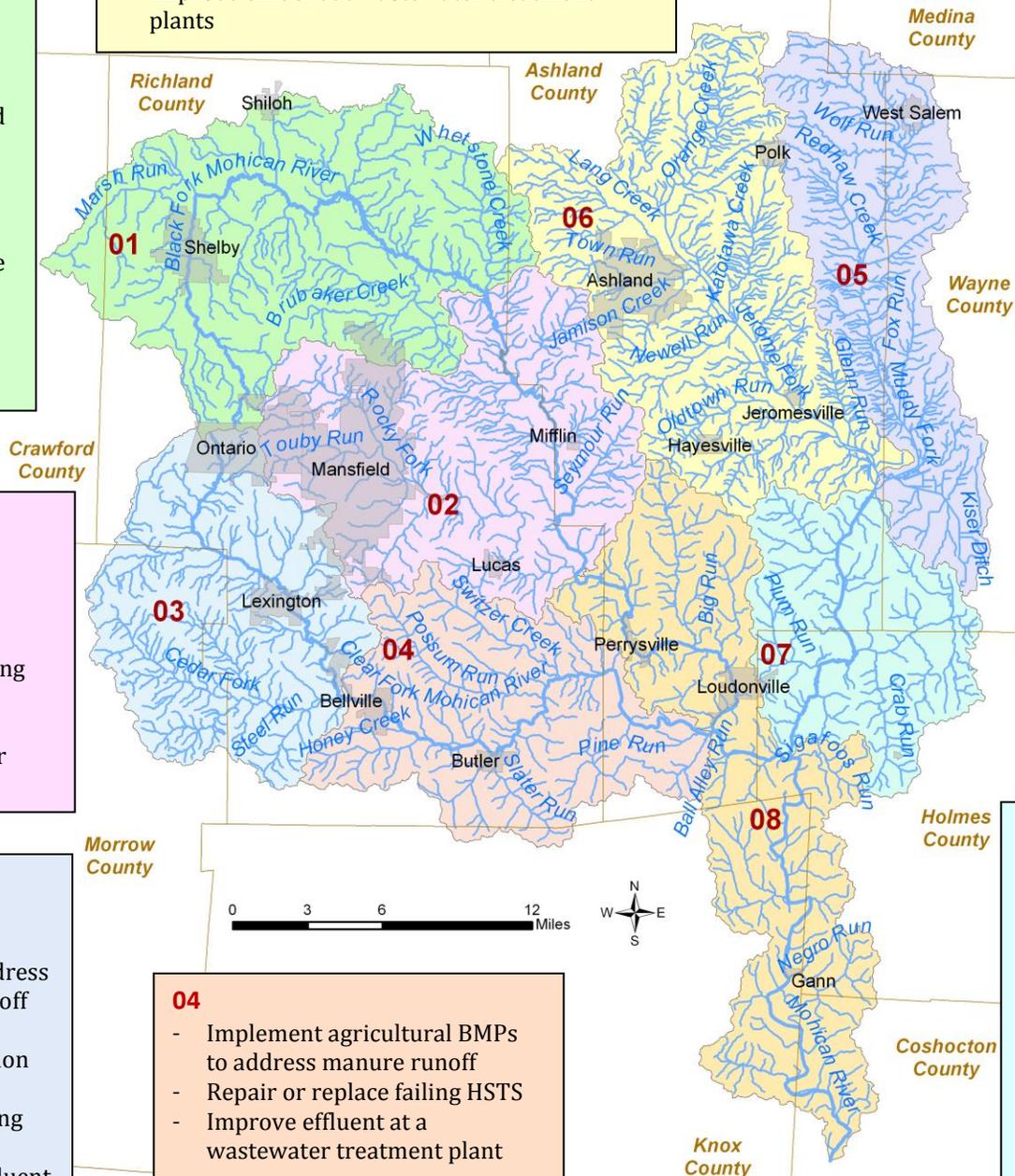
- Implement agricultural BMPs to address manure runoff
- Repair or replace failing HSTS
- Improve effluent at a wastewater treatment plant

**08**

- Implement agricultural BMPs to address manure runoff and livestock stream access
- Repair or replace failing HSTS

**07**

- Implement agricultural BMPs to address manure runoff and livestock stream access
- Repair or replace failing HSTS
- Consider stream restoration to improve habitat



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## What actions are needed to improve water quality?

There are a variety of reasons why streams in the Mohican River watershed fail to meet water quality goals, so several types of actions are needed to improve and protect the watershed.

The recommendations focus on reducing pollutant loads and/or increasing the capacity of the streams to better handle the remaining pollutant loads. Sources of water quality problems that should receive focus for water quality improvements include:

- Agricultural practices related to manure.
- Channelization and other habitat modifications.
- Failing home sewage treatment systems.

## Who can improve the situation?

Implementation of this report's recommendations will be accomplished by federal, state and local partners, including the voluntary efforts of landowners.

Ohio EPA will issue permits to point source dischargers (wastewater treatment plants) that are consistent with the findings of this TMDL report.

The Ohio Department of Natural Resources has programs dedicated to abating pollution from certain agricultural practices; promoting soil, water and wildlife conservation; and dealing with storm water and floodplain protection. County agencies often work with state and federal partners to administer federal and state assistance programs to people in their counties. Several such programs are available to address home septic system upgrades and agricultural and urban conservation practices.

The Muskingum Watershed Conservancy District (MWCD) is a political subdivision of the State of Ohio created in 1933 to develop and implement a plan to reduce the effects of flooding and conserve water for beneficial public uses. A 319 grant was given to the Ohio Department of Natural Resources in 2005 to develop a watershed action plan for the Mohican River watershed; a draft was completed in 2009. The watershed action plan is currently in draft form.

Additional funding may come available for agricultural conservation practices through provisions in the Farm Bill for buffer strips, wetlands and other land conservation practices.

## Where can I learn more?

The Ohio EPA report containing the findings of the watershed survey, as well as general information on TMDLs, water quality standards, 208 planning, permitting and other Ohio EPA programs, is available at [epa.ohio.gov/dsw/tmdl/index.aspx](http://epa.ohio.gov/dsw/tmdl/index.aspx).

## How can I comment on the draft report?

The draft TMDL report is available for public review at [epa.ohio.gov/dsw/tmdl/MuskingumRiver.aspx](http://epa.ohio.gov/dsw/tmdl/MuskingumRiver.aspx) from December 2, 2014 through January 5, 2015. Comments should be mailed or emailed to the contact information in the box on the first page. After considering comments, Ohio EPA will submit a final document to U.S. EPA for approval.

## What are the most important "fixes" in the watershed?

- ◆ **Reduce nutrients entering streams**
  - Implement agricultural best management practices to reduce runoff and fence livestock out of streams.
  - Improve effluent at several wastewater treatment plants.
- ◆ **Improve habitat for aquatic life.**
  - Restore stream banks where feasible to improve habitat.
  - Implement agricultural best management practices to reduce sediment-laden runoff and erosion of stream banks.
- ◆ **Improve recreation opportunities by reducing bacteria.**
  - Identify and repair or replace failing home sewage treatment systems.
  - Reduce manure-laden runoff from farm fields and pastures.