Division of Surface Water
October 2018

Draft Biological and Water Quality Report for the Lower Mahoning River Watershed

In 2011 and 2013, Ohio EPA conducted a biological and water quality survey in the lower Mahoning River watershed. This fact sheet summarizes the findings detailed in the biological and water quality report (BWQR).

Report Highlights

The results from the 2011 and 2013 surveys indicated considerable improvement in the watershed since its last assessment in 1994. A total of 96 sites and 27 streams were sampled throughout the lower Mahoning River watershed during these survey years. Figure 1 illustrates a comparison of the aquatic life use (ALU) attainment status of the lower Mahoning River mainstem from 1994 to present.

Along the lower 46 miles of the Mahoning River mainstem, 25 sites were assessed for the ALU beneficial use designation. Of the 25 sites, 11 were in full attainment of the warmwater habitat (WWH) ALU designation, 12 were in partial attainment, and only two sites were in non-attainment.

Of the 57 sites assessed for the ALU beneficial use designation on the 26 tributaries to the lower Mahoning River, 17 were in full attainment, 16 were in partial attainment, and 24 were in non-attainment.

Additional highlights include:

- Decline in pollution-tolerant species abundance in conjunction with an increase in pollution-sensitive native suckers and a noticeable increase in sport fish populations.
- Additions or increases in hornyhead chub and mountain brook lamprey near Warren; a sand darter upstream from Mill Creek; and black redhorse, rosyface shiner and banded darters near the city of Lowellville.
- The 2013 sampling efforts also revealed the body burden of contaminants in fish have declined significantly.
- Follow-up monitoring in 2016 also produced the first record of bigeye chub in the Mahoning River in more than 100 years.

Factors contributing to the recovery of the lower Mahoning River watershed include the elimination of pollution sources, improved wastewater treatment, removal of toxic discharges, improved chemical water quality and decreases in ammonia and phosphorus concentrations.

Stakeholder Input

The Agency is releasing the results from the lower Mahoning River watershed survey for review and comment and will accept feedback on any aspect of the report. The BWQR is the second step in the TMDL development process. The next step is the Loading Analysis Plan, which will additionally be available for review and comment.

Providing Feedback

Comments can be submitted by email to EPATMDL@epa.ohio.gov, faxed to (614) 644-2745 or sent by postal mail to:

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

All comments must be submitted to the Agency no later than 5:00 p.m. on November 1, 2018

Stay Involved

Subscribe to updates on TMDL projects at:
https://ohioepa.custhelp.com/app/utils/login_form/redir/redirect/account%252Fprofile

Contact Information

For more information, contact Bill Zawiski at William.Zawiski@epa.ohio.gov or (330) 963-1134.
Remaining Impairments

Although the 2013 survey documented many positive trends, use impairment still existed throughout the watershed. Of the eight percent of sites that were not meeting ALU expectations along the lower Mahoning River mainstem, impairment was attributed primarily to the presence of low-head dams upstream from the city of Youngstown. Additionally, combined sewer overflow (CSO) influences in combination with legacy pollutants and wastewater treatment plant (WWTP) discharges into Mill Creek have impacted the fish community just downstream of its confluence with the Mahoning River.

Of the 42 percent of sites that were not meeting ALU expectations in the tributaries to the lower Mahoning River, impairment was attributed primarily to sedimentation from channelization, natural wetland stream conditions, and altered hydrology and/or sedimentation from storm sewers.

Recreation use impairment was largely due to CSO discharges, urban runoff, WWTP plant bypasses, failing household sewage treatment systems (HSTs) and agricultural activities such as pasture land runoff, livestock with free access to streams and manure land application.

Other Beneficial Uses

Human Health/Fish Consumption—Fish tissue data collection support the removal of the do not eat PCB advisory for the Mahoning River which were in place for channel catfish 21" and greater and smallmouth bass 15" and greater. Additional adjustments to the Mahoning River advisories list as a result of the 2013 sampling include:

- One meal per month for smallmouth bass for all sizes due to PCBs and mercury.
- One meal per two months for channel catfish for all sizes due to PCBs.
- One meal per month advisories were added for northern pike, rock bass, and bluegill due to PCBs.
- Mercury was added as an additional cause for the existing walleye advisory.
- The largemouth bass advisory was removed.

No prior advisories were present for Lake Glacier and Meander Creek and none were added following the 2013 survey. There were no prior advisories for Mosquito Creek; however, three advisories were added as a result of the 2013 sampling. Updates to the list include:

- One meal per month for northern pike due to mercury.
- One meal per month for common carp due to PCBs.
- One meal per week for bluegill due to PCBs.

Recreation—Evaluation of Escherichia coli (E. coli) bacteria results revealed that 45 of the 49 sampling locations failed to attain the applicable geometric mean criterion and thus, did not meet their respective primary contact recreation (PCR) A or B use designations. Only four sites were in full attainment of their PCR use designations.¹

Public Water Supply—There are five public water supply (PWS) intakes within the study area. Evans Lake (Aqua Ohio-Struthers), Meander Creek Reservoir (Mahoning Valley Sanitary District), Lake Hamilton (City of Campbell), McKelvey Lake (City of Campbell) and Mosquito Creek Reservoir (City of Warren) were all verified for the PWS beneficial use designation.

¹ Water quality criteria were updated in 2016 as part of a routine OAC rule update. For this report, the streams were assessed using the criteria that were in place in 2013 at the time of the sampling.
Figure 3 — Map summarizing ALU attainment status in the lower Mahoning River watershed, 2011 and 2013.
Biological and Water Quality Surveys

A biological and water quality survey is a survey of the biological, chemical and physical properties of surface waters to determine the appropriate beneficial use designations (aquatic life, recreation, human health and water supply) assigned in Ohio Water Quality Standards, evaluate water quality trends and determine if the water body is meeting the goals of the federal Clean Water Act.

Each year, Ohio EPA conducts surveys in selected watersheds around the state. The results from each survey are detailed in biological and water quality reports (BWQR). These reports summarize major findings and provide results from individual sampling locations.

The survey findings and conclusions may factor into regulatory actions taken by Ohio EPA. For example, adjustments to National Pollutant Discharge Elimination System (NPDES) permits, mitigation requirements in Section 401 Water Quality Certifications and revisions to Ohio Water Quality Standards rules [Ohio Administrative Code Chapter 3745-1]. The findings are eventually incorporated into State Water Quality Management Plans, the biennial Integrated Water Quality Monitoring and Assessment Report (305[b] and 303[d]) and Total Maximum Daily Loads (TMDLs).

Lower Mahoning River Watershed Survey Specifics

The lower Mahoning River watershed is located in northeastern Ohio, with a small portion in western Pennsylvania (Figure 4). The watershed spans four counties in Ohio, including Ashtabula, Columbiana, Mahoning and Trumbull. The study included the Mahoning River mainstem from just upstream from the Leavittsburg Dam at RM 45.73, downstream to the confluence with the Beaver River in Pennsylvania.

In 2011 and 2013, Ohio EPA evaluated 27 streams in the lower Mahoning River watershed for aquatic life, recreation and human health beneficial uses. Figure 3 depicts the ALU attainment status in the watershed.

Beneficial Use Designations and Recommendations

Based on the data collected during the 2011 and 2013 surveys, Ohio EPA recommended the following revisions, which were adopted by the Agency on October 4, 2016, and became effective January 2, 2017.

- WWH use designation is recommended for six previously unlisted streams, including: the unnamed tributary to the Mahoning River at RM 40.89, Youngs Run, the unnamed tributary to Mud Creek at RM 0.84, the unnamed tributary to Mosquito Creek at RM 25.18, the unnamed tributary to Meander Creek at RM 16.15 and North Fork Creek.
- WWH use designation is recommended for 11 previously unverified streams, including: Duck Creek, Mud Creek, Morrison Run, West Branch Meander Creek, Squaw Creek, Fourmile Run, Sawmill Creek, Cranberry Run, Turkey Creek, Crab Creek and Burgess Run.
- The PCR, agricultural water supply (AWS) and industrial water supply (IWS) uses are appropriate for all study area streams.

Where can I learn more?

- The full study report is available at [epa ohio.gov/dsw/wq](http://epa.ohio.gov/dsw/wq).
- More information is available at [epa.ohio.gov/dsw/tmdl/MahoningRiver#119893133-mahoning-river-lower](http://epa.ohio.gov/dsw/tmdl/MahoningRiver#119893133-mahoning-river-lower).
- For more information about biological, chemical and physical monitoring, please see the Water Quality Monitoring webpage at [epa.ohio.gov/dsw/bioassess/ohstrat.aspx](http://epa.ohio.gov/dsw/bioassess/ohstrat.aspx).