OhioEPA
State of Ohio Environmental Protection Agency

Fact Sheet

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Leading Creek Watershed TMDL Report

What are the essential facts?

- *Ohio EPA and other groups studied the Leading Creek watershed and found water quality problems at several of the locations measured.*
- *The watershed can make progress towards restoration with practical, economical actions.*
- *Improving the streams depends on the participation of the watershed's residents.*

What is the significance of this report? *The Leading Creek Watershed TMDL Report is a tool that includes local ideas from the endorsed watershed management plan and the improvement plan to help improve and maintain water quality and habitat in the watershed.*

What is a watershed? *A watershed is the land area from which surface runoff drains into a specific body of water.*

Where is the Leading Creek watershed?

The Leading Creek watershed is located in southeastern Ohio in portions of Meigs, Athens and Gallia counties. Leading Creek empties into the Ohio River near Middleport.

The watershed drains about 150 square miles and lies within the unglaciated Western Allegheny Plateau ecoregion. The ecoregion is characterized by extensively forested rolling hills with small pockets of dairy, livestock, farming, and residential development. Its underlying bedrock primarily consists of sandstones, shales, limestones, and coal.

An estimated 7,000 to 7,500 citizens reside in the Leading Creek watershed. The largest community entirely within the watershed is Rutland, which has a population of approximately 400 people. The communities of Albany and Middleport are located in the headwaters and at the mouth, respectively.

Overall, the land use in the Leading Creek watershed is 76 percent deciduous forest, 20 percent pasture and hay, 1 percent row crops, and 1 percent residential.

Recreational opportunities in the watershed include camping, fishing, boating and hunting.

The Leading Creek watershed has a long history of coal mining, both underground and at the surface. Over 2,000 acres of surface mines have been abandoned and left unreclaimed within the Leading Creek watershed. In a few of these areas, the stream hydrology has been disrupted and water loss has

Leading Creek about 10 miles upstream from its mouth.

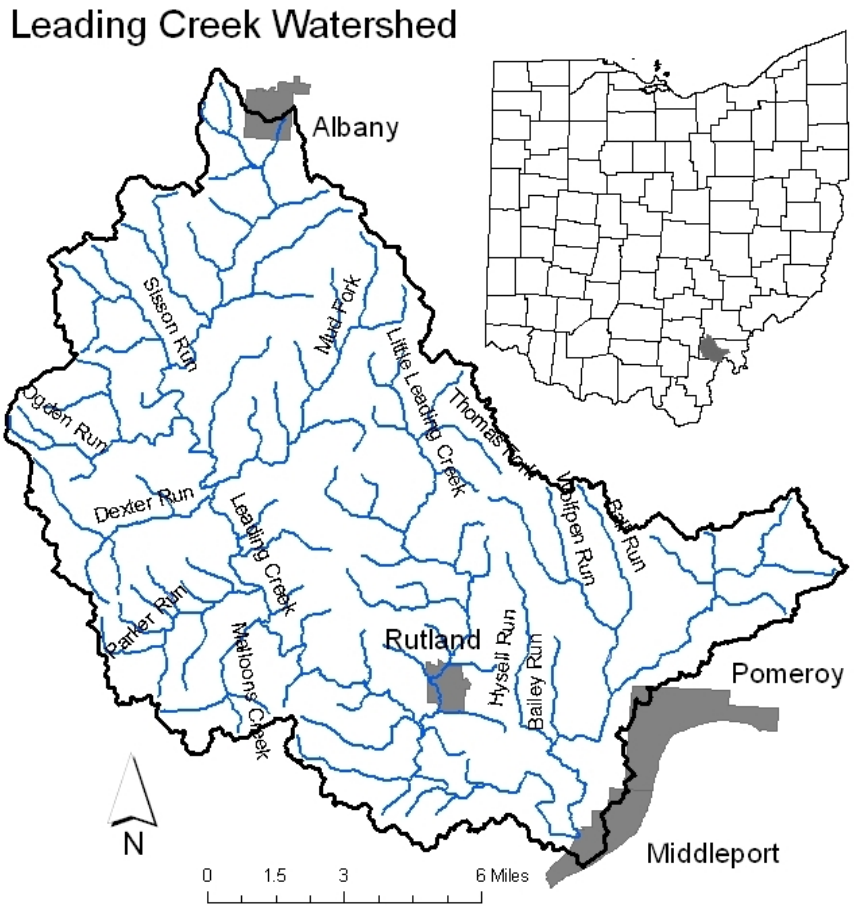
occurred. In 1993, an emergency discharge of contaminated water from the Meigs #31 Mine destroyed habitat and caused a large fish kill in Parker Run and downstream into segments of Leading Creek.

This report builds on several previous studies of the Leading Creek watershed, including the Watershed Management Plan, the Acid Mine Drainage Abatement and Treatment (AMDAT) Plan, and the Leading Creek Improvement Plan. Data collected by the Leading Creek Improvement Committee (2003-2006) and for the Leading Creek Improvement Plan (1996, 1997) were used for analyses in the TMDL report.

How does Ohio EPA measure water quality?

Ohio is one of the few states that measures 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 indicates a healthy stream. Such samples were collected by the Improvement Committee from 2003 through 2006 and by a group from the Virginia Polytechnic Institute in 1996 and 1997.

The watershed's conditions were compared with state water quality goals to determine which stream segments are impaired, and how much needs to be done to restore good stream habitat and water quality. The results were published in the Leading Creek Watershed Management Plan, the AMDAT Plan, and the Leading Creek Improvement Plan. Those results were then used for calculations in the TMDL report.



What is the condition of the Leading Creek watershed?

Results from 25 sites on 18 streams in the watershed indicate that load reductions are needed in total dissolved solids (TDS), total suspended solids (TSS), and chlorides at numerous locations throughout the watershed. For fecal coliform, pH, and nutrients, not enough data were available to calculate load reductions, but a qualitative analysis and discussion is included.

Many small streams such as Sisson Run, Ogden Run, Mud Fork, Prairie, Little Leading Creek, Titus and Parker Runs and Thomas Fork, which drain into Leading Creek, and Leading Creek downstream of Ogden Run, are impaired because of physical changes to the land.

There are acidity impairments in Mud Fork, Grass Run, Lasher Run, Little Leading Creek, Titus Run, Paulins Hill Run, and Thomas Fork. These impairments primarily result from acid mine drainage.

Unrestricted livestock access, poor grazing land management and acid mine effects have degraded the streams. Practices such as allowing livestock animals to walk through the stream and poor grazing land management, increase erosion and contribute excess soil to the stream. Excess soil in the stream destroys the habitat that fish and other aquatic life need to remain healthy and to reproduce.

Natural vegetation along stream banks acts as a filter to nutrients and sediments flowing

toward the water. When trees and taller grasses along the stream banks are removed, sediment and nutrients flow freely into the streams.

While agricultural practices can contribute to sediment pollution in some of the Leading Creek subwatersheds, Little Leading Creek and Leading Creek (downstream of Little Leading Creek) are impaired by large sediment loads that likely result from strip mining practices in the Little Leading Creek subwatershed.

Cows in the streams and untreated sewage flowing from failing home septic systems and small communities without any wastewater collection or treatment contribute elevated fecal coliform to the stream system.

How will water quality get better?

The Leading Creek watershed is included on Ohio's list of impaired waters. Under the Clean Water Act, a cleanup plan is required for each impaired watershed. This cleanup plan, known as a Total Maximum Daily Load (TMDL) report, calculates the maximum amount of pollutants a water body can receive and still meet standards (goals). The TMDL report specifies how much pollution must be reduced from various sources and recommends specific actions to achieve these reductions.

The TMDL report provides specific numeric goals for reducing pollutants, including pathogens, phosphorus, sediment, and for improving habitat. Ohio EPA can address some of the Leading Creek problems directly through regulatory actions, such as permits for dischargers. Other actions, such as reducing the impacts of acid mine drainage and improving home sewage systems, will be up to local residents and local, state and federal agencies.

What actions are needed to improve water quality?

Because there are many reasons why streams in the Leading Creek watershed fail to meet water quality goals, several actions are required to improve the current condition and protect the watershed in the future. The recommendations should focus on reducing pollutant loads and/or increasing the capacity of the streams to handle the remaining pollutant loads.

Maintaining a natural flow regime is important for protecting water quality and aquatic biological communities. The basic principles of providing floodplain connectivity, stable stream morphology and watershed hydrology that approximates natural conditions are applicable to all areas of the watershed. Likewise, stream buffers are appropriate for all land use types in the watershed. Other actions include the following:

- It is highly recommended that the Meigs Mine #31 facility sample their wastewater for chlorides to confirm load concentrations and allow for the calculation of an appropriate reduction amount.

- The amount of total dissolved solids behing discharged from the Meigs Mine #31 facility should be reduced, especially during periods of low stream flow.

Measuring water quality in a tributary to Leading Creek. The "yellow boy" sediments are common in areas affected by acid mine drainage.

- Failing home sewage treatment systems (HSTSs) should be addressed in rural and developing areas by the county health departments.

- Sediment flowing into streams is a concern in both agricultural and former mining areas. Controls include reducing erosion with cover crops or conservation tillage; providing buffers along stream banks; managing grazing lands to prevent severe erosion and implementing site-specific practices to reduce sources of sediment and nutrient load, and adopting measures that maintain stream stability during land disturbance activities such as construction.

- Further investigation of nutrient loading in the watershed is recommended. Loading from livestock operations and agriculture chemicals would be abated by conservation and management practices promoted by the USDA Natural Resource Conservation Service. Grazing land protection, conservation tillage, and fencing livestock out of streams would all reduce the amount of nutrients in streams.

- Livestock producers are encouraged to provide improved fencing to keep cattle out of the streams. Unrestricted access of cattle increases the erosion and therefore the sediment in the streams, and also provides a direct source of nutrient input to the streams.

Who is responsible for taking action?

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

Locally, discussion of actions to restore the watershed has occurred as diverse partners have worked to develop watershed action plans. The Leading Creek Improvement Committee has written and received state endorsement for a Leading Creek Watershed Management Plan and an AMDAT Plan. This endorsement, as well as the TMDL when approved, enhance the likelihood of grants or other funding being approved for projects that improve water quality.

The Leading Creek Improvement Committee and its partners in three counties are serving as community advocates for the watershed, and have become important forces to maintain momentum and sponsor improvement efforts.

Are any actions already underway?

In addition to the watershed action plans discussed above, several factors indicate a high likelihood that water quality in the watershed can improve:

- Throughout the work that has been done in the watershed, the Leading Creek Improvement Committee has involved local stakeholders through public meetings and discussions.

- The Leading Creek Improvement Committee is applying for funding to install a limestone doser at the tributary most impaired for pH due to acid mine drainage.

- Through the development of various planning documents, a variety of restoration actions were considered and prioritized for funding.

- Natural Resources Damage Assessment Funds, managed by the U.S. Fish and Wildlife Service, are available to "restore, rehabilitate, replace, or acquire the equivalent" of natural resources damaged in the 1993 Meigs #31 Mine release.

Where can I learn more? *Several of the reports referred to in this study are being made available at http://www.epa.state.oh.us/dsw/index.html. General information on TMDLs, water quality standards, permitting and other Ohio EPA programs is also available on this site.*

The draft Leading Creek TMDL report was available for public comment from July 12 through August 13, 2007. The final TMDL report was approved by the U.S. EPA on January 9, 2008. The final report is available at http://www.epa.state.oh.us/dsw/tmdl/LeadingCreekTMDL.html.

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