

Black River Watershed TMDL Report

What are the essential facts?

- *Ohio EPA studied the Black River and found water quality problems at more than 50% of the locations measured.*
- *The river can be restored and protected with prudent, reasonable actions.*
- *You may review the work to date.*
- *Improving and preserving the river depends on the participation of the watershed's residents.*

What is the significance of this report? *The Black River Watershed TMDL Report is a tool that can help to protect and maintain the Black River watershed.*

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

Where is the Black River watershed?

The Black River is located in northern Ohio, west of the greater Cleveland metropolitan area. The mainstem of the Black River is formed from the confluence of its two major tributary streams, the West Branch and the East Branch. The headwaters of the Black River watershed are located in southern Lorain County and northern Medina County. From its headwater areas to the river mouth at Lake Erie in the City of Lorain, the Black River watershed drains 467 square miles in Lorain, Huron, Medina, Ashland, and Cuyahoga counties.

An estimated 180,000 citizens reside in the Black River watershed. The river provides drinking water for two communities and high-quality aquatic habitat for four State-listed endangered, threatened or special concern aquatic animal species, including the recently sighted river otter and up to twelve state threatened and/or protected plant species.

Overall, the land use in the Black River watershed is 44% cropland, 18% residential or urban development, 25% forested, and

8% pasture. However, the sub-basins of the greater Black River watershed exhibit distinctly different characters:

- The Black River mainstem area, including the major cities of Elyria and Lorain, is urban and industrial in nature, with many areas nearly built out.
 - In the French Creek sub-basin and the eastern areas of the northern East Branch, rapid suburban development is altering the formerly agricultural landscape. Because of extensive development and associated land use impacts to water quality, the French Creek

sub-watershed has been designated by the Ohio EPA as one of only 12 rapidly developing watersheds in the state.

- The southern regions of the watershed, especially below US Route 20, remain predominantly rural and agricultural, although extensive development has occurred in and around the Lodi area.

To focus its work, Ohio EPA divided the watershed into four areas: the mainstem and French Creek watersheds area, the West Branch watershed area, the northern East Branch area and the



The Black River between Elyria and Lorain

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southern East Branch area (see map).

How does Ohio EPA measure water quality?

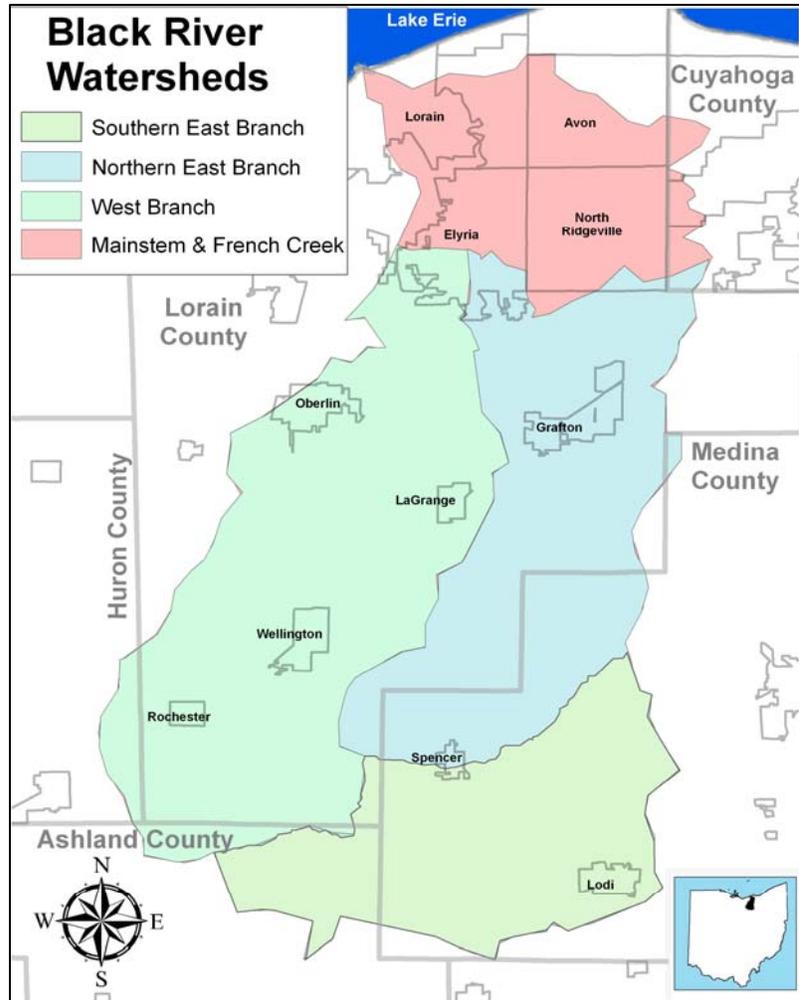
Ohio is one of the few states that measure the health of its streams by examining the number and types of fish and aquatic insects in the water. An abundance of fish and insects that tolerate pollution is an indicator of an unhealthy stream. A large number of insects and fish that are sensitive to pollution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

In 1996, 1997 and 2001, comprehensive biological, chemical, and physical data were collected by Ohio EPA scientists. The conditions of the watershed 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.

What is the condition of the Black River watershed?

Because of a legacy of environmental impacts to water and habitat quality, the Black River was designated as a Great Lakes Area of Concern (AOC). AOCs are severely degraded areas within the Great Lakes Basin. The United States and Canada committed to develop Remedial Action Plans for each AOC. The Black River RAP consists of state, federal and local public agencies; industries; private commercial groups; and local citizens united in efforts to restore the Black River watershed.

Unique and diverse communities of fish, mussels and aquatic insects live in the streams of the Black River watershed, but the recent studies confirm degraded water quality and stream



habitat. Point source pollution (discharged from pipes), runoff from urban areas and agricultural land, failing home sewage treatment and poor stream bank land management are degrading some stream segments. Among the most visible threats to the Black River is the conversion of farm, forest and stream bank acreage to suburban and commercial uses.

Ohio EPA's study of 81 sites sampled throughout the watershed showed that 37% sites were meeting water quality goals, 30% were partially meeting the goals, and 38% were not meeting the goals.

In the agricultural upper watershed areas, the modification of stream channels (for drainage

improvement), failing home sewage treatment facilities, row crop and livestock production have resulted in habitat degradation, sedimentation, and high nutrient and pathogen loadings.

In the mainstem and French Creek watershed area, major municipal and industrial discharges, combined sewer overflows, and urban runoff result in high nutrient and organic loads, poor habitat quality, siltation, and low dissolved oxygen concentrations.

How will water quality get better?

The Black River watershed is included on Ohio's list of impaired waters. Under the Clean Water Act, a cleanup plan is required for

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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 and goals to achieve these reductions and therefore restore the Black River watershed.

Ohio EPA can address some of the Black River's problems through regulatory actions, such as permits for wastewater and storm water dischargers. Other actions, such as committing to adequately-sized stream corridors and flood plains, will be up to local authorities and private property owners.

What actions are needed to improve water quality?

Because there are many reasons why streams in the Black River 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 focus on reducing pollutants loads and/or increasing the capacity of the

What are the four most important "fixes" in the Black River?

◆ **Restore stream habitat in agricultural areas**

- establish and protect riparian buffers
- construct over-wide or two-stage ditches
- apply natural channel design when appropriate
- restore eroding stream banks and reconnect streams to the floodplains

◆ **Eliminate pervasive bacteria problems**

- reduce home sewage treatment system failures
- eliminate combined sewer overflows

◆ **Reduce impacts from permitted discharges**

◆ **Manage storm water quantity & quality in developing areas**

- preserve natural stream function through channel and riparian corridor protection
- store or detain storm water on the land where the rain falls rather than concentrating it into centralized systems

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:

- Nutrient (Phosphorus and Nitrate) loading should be reduced

at sewage treatment facilities in the Black River watershed.

- Home Sewage Treatment Systems (HSTs) must be addressed in rural, urban, and developing areas by the county health departments.

- Sediment flowing into streams is a concern in both agricultural and rapidly developing areas. Controls include reducing erosion with cover crops or conservation tillage, providing buffers along stream banks, and adopting measures that maintain stream stability during land disturbance activities such as construction.



A lack of woody riparian corridors and stream bank erosion are major problems in the watershed

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- Nutrient loading from livestock operations and agriculture chemicals would be abated by conservation and management practices promoted by the Natural Resource Conservation Service (NRCS, part of the U.S. Department of Agriculture).
- Residential, commercial and other urban areas can reduce overland loading by reducing the application rate of fertilizers and better timing of application.
- Reduction in runoff volume through onsite storm water management will reduce loading from urban areas and improve watershed hydrology and stream stability.

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.

The Black River RAP continues to be a catalyst to advance the watershed approach for ecosystem remediation and restoration, and it continues to make progress towards the restoration and protection of the Black River Watershed Area of Concern.

A RAP initiative designed to tackle impaired areas of the watershed on a sub-watershed

basis has led to the formation of two watershed groups (West Branch and French Creek), under the Lorain County and Ohio DNR funded watershed coordinator position, these two groups are in the process of developing watershed action plans for submittal to the Ohio EPA.

For the Black River mainstem in the City of Lorain, the Black River RAP is looking to develop a master plan. This master plan will help identify, restore and protect critical habitat areas as well as develop a long range strategy to enhance and protect aquatic resources while the City enters a period of urban renewal and brownfield development.

Are any actions already underway?

Several successful activities indicate the recuperative nature of the Black River watershed and have initiated an elevated interest in restoring and protecting the watershed:

- Responding to remedial dredging, fish tumors in the Black River declined to such an extent, the Black River RAP, in 2004, designated the fish tumor beneficial use impairment from Impaired to In Recovery Stage. At the same time, the Ohio Department of Health lifted a 21-year contact advisory in the lower river.

- Along the banks of the Black River in Lorain, a shallow water habitat shelf was constructed by the Lorain Port Authority. The widely acclaimed Lorain Fish Habitat Shelf has been remarkably successful in luring resident and transient fish species to the lower river and has served as an example for other watersheds in the Great Lakes.

- Upgrades to the Elyria wastewater collection system and the Grafton treatment plant have allowed for the recovery of the community of small stream invertebrates (benthos) in the East Branch watershed. With this recovery, the Black River RAP became the first RAP on the U.S. side of the Great Lakes to delist impairment.

- A habitat restoration project near the Village of Lodi successfully reconnected stream segments to their natural floodplains and restored critical riparian habitat. This area is now nearing attainment of water quality criteria.

- With financial assistance made possible by the Ohio EPA, the Black River RAP and the Lorain County General Health District are producing a short DVD-formatted video on home sewage treatment issues. To increase awareness of the required maintenance of these systems, a copy of this video will be given to every system owner at the time of system inspection.

Where can I learn more? General information on TMDLs, water quality standards, 208 planning, permitting, and other Ohio EPA Surface Water programs are available on the Web at: <http://www.epa.state.oh.us/dsw/>.

The draft Black River TMDL report was available for public comment from February 15 through March 17, 2008. The final TMDL report was approved by U.S. EPA on August 20, 2008. The final report is available at <http://www.epa.state.oh.us/dsw/tmdl/BlackRiverTMDL.html>.

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