

April 2005

Huron River Watershed TMDL Program

Where is the Huron River watershed?

The Huron River is located in north central Ohio along the Lake Erie shoreline. The mainstem of the river is approximately 60 miles long and drains 403 square miles or 261,000 acres. Land use in the watershed is mostly agriculture, with 74 percent cropland, 15 percent forest and 11 percent urban or other use.

There are three cities, Willard, Norwalk and Huron, and 10 villages in the Huron watershed. The state manages two wildlife areas within the watershed, Willard Marsh Wildlife Area and Milan Wildlife Area. The upstream segments of the river and the Marsh Run subwatershed are characterized by dark, highly erodible "muck" soils and vegetable crop production. The Megginson Creek, Slate Run and Frink Run subwatersheds are dotted with sinkholes, a geological formation that makes ground water highly susceptible to contamination from surface runoff.

How did Ohio EPA collect water quality data?

Comprehensive biological, chemical, and physical data were collected by Ohio EPA scientists in 1998 and 2002 along 220 miles of the Huron River and its tributaries. Samples from 63 sites were evaluated, including monitoring the abundance and diversity of fish and aquatic insect communities, measuring the physical habitat of the stream and adjacent land use, and analysis of water samples to determine the chemical quality of the water and sediments.

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. There is an emphasis on protection of public drinking water supplies for several communities in the watershed. This evaluation is done as part of Ohio EPA's Total Maximum Daily Load (TMDL) program.

How does your stream "measure up?"

Citizens in Norwalk and Monroeville get their drinking water from the East Branch Huron River and the West Branch Huron River, respectively.

All streams are designated Warm Water Habitat (the water will support plant and animal species accustomed to warm water), including the lake-affected lower 10 miles of the river. Of the 220 miles evaluated, 140 meet the quality level of their use designation. Eighty-three percent of the impaired streams are in areas that drain less than 20 square miles.

Several streams are being re-evaluated for a possible change to Modified Warm Water Habitat due to persistent habitat or channel modification. They include an upstream

segment of Clayton Ditch, tributary to Frink Run, portions of Marsh Run, tributary to Marsh Run and Shiloh Ditch.

Is the Huron River polluted?

Yes and no. Much of the Huron River and its two major branches have good water quality and populations of fish and other aquatic life.

The Huron River upstream from lake-affected area meets the water quality standards, as do the West Branch Huron River from Monroeville to the mouth and the East Branch Huron River from Bronson Township to the mouth.

Other streams that are meeting water quality standards include Rattlesnake Creek, Village Creek, Walnut Creek, upper Slate Run, Frink Run, Megginson Creek, Seymour Creek, Cole Creek, tributaries to Cole Creek and Norwalk Creek and Clayton Ditch.

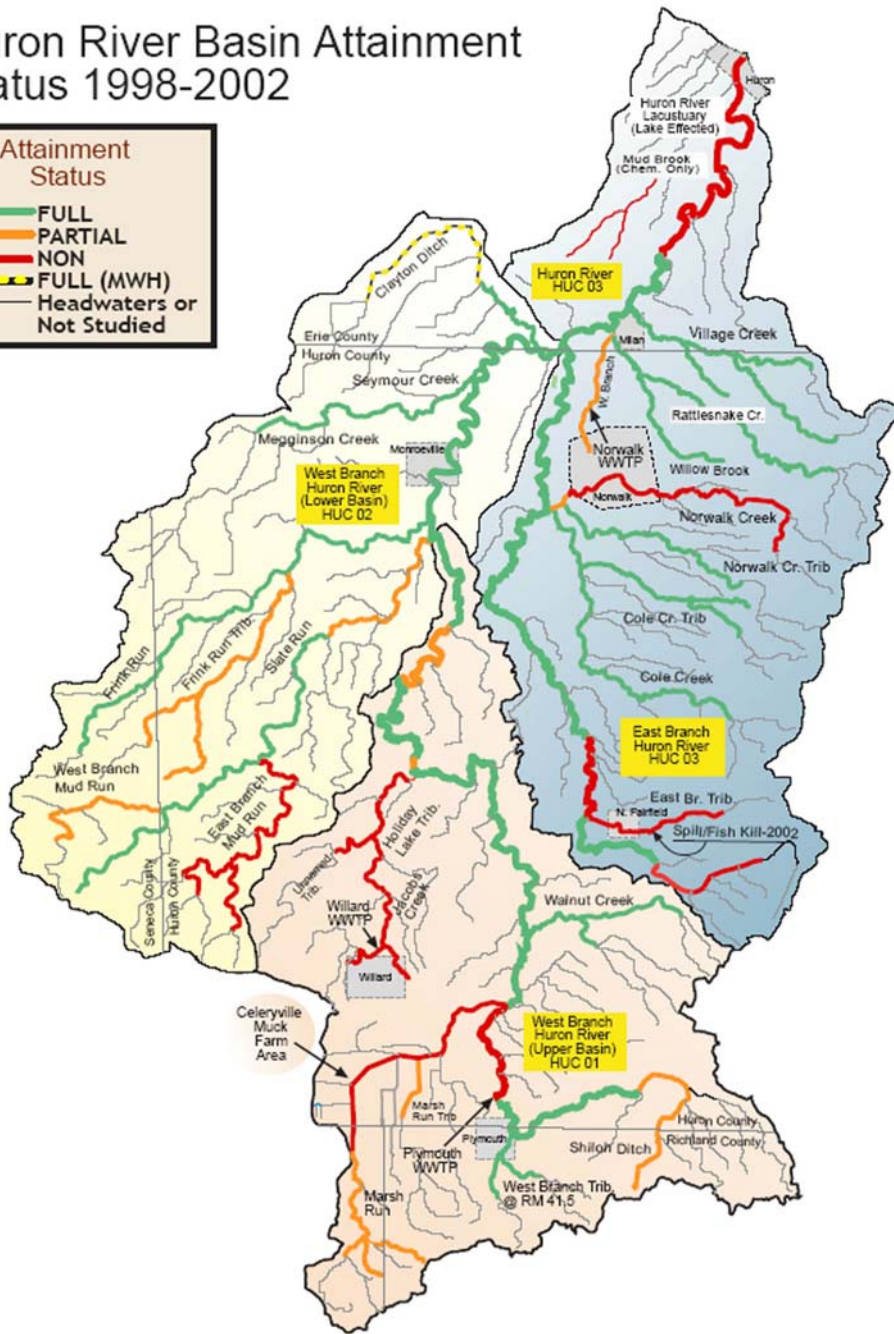
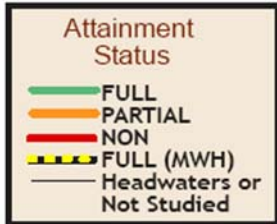
Some areas of the watershed do not currently meet water quality standards. The West Branch Rattlesnake Creek and Norwalk Creek near Norwalk, Jacobs Creek near Willard, West Branch Huron River near Plymouth, the headwaters of Mud Brook and its tributaries south of Huron and the mouth of the Huron River are impaired by municipal sewage.

Communities with combined sanitary and storm sewer systems may have untreated human and industrial waste overflowing to the river during heavy rainstorms. Fuel leaks and pesticide spills have been a problem in Jacobs Creek and the tributary to East Branch Huron River near North Fairfield, respectively. Rapid development along the US 250 corridor north of the Ohio Turnpike resulted in a high number of package plants (pre-manufactured



Huron River Watershed TMDL Program

Huron River Basin Attainment Status 1998-2002



Map of Huron River Watershed

wastewater treatment facilities for small communities or individual property), some seasonal and poorly maintained, discharging to the low flowing headwaters of Mud Brook.

The lower 10 miles of the Huron River are impaired by excessive nutrients and siltation deposits from upstream, and are further degraded by harbor and marina development.

What else degrades the Huron River?

Many small streams and the headwater segments of the three main rivers (East Branch, West Branch and Mainstem of the Huron) are impaired by physical changes to the land. Stream channelization, tiles and loss of floodplains and streamside vegetation have impaired portions of the East Branch Huron River, West Branch Huron River, Mud Run, Shiloh Ditch, Marsh Run and tributaries to Marsh Run and Frink Run.

When streams are widened and deepened for agricultural drainage, they contribute excess soil to the stream which destroys habitat for fish and other aquatic life. Soil carried through ditches degrades the Huron Harbor and Lake Erie.

When trees are removed from along the stream banks, the lack of shade allows the water temperature to increase, decreasing the amount of dissolved oxygen for aquatic organisms. This is made worse by manure runoff and untreated sewage flowing from failing home septic systems.

Huron River Watershed TMDL Program

Excessive nutrients or siltation from agricultural lands also contributed to impairment in many of the same streams, including the headwaters of the two Huron River branches, Mud Run, Shiloh Ditch, Marsh Run, upper Norwalk Creek and tributaries to Marsh and Frink Run.

Lack of water in the small headwater streams, especially in the summer, makes it hard for pollutants to be absorbed and treated by the natural stream biology. Natural drought, along with drainage tiles and crop irrigation withdrawals, contribute to uneven water flow in the streams. While recognizing the value and function of drainage in an agricultural watershed, it should be noted that low water makes it harder for these small streams to support good aquatic communities.

Drought conditions in 2002 contributed to impairment in Slate Run, East Branch Huron River headwaters and segments of West Branch Huron River. The Holiday Lakes Tributary is impaired by a dam, which results in low concentrations of dissolved oxygen and is a barrier to fish movement.

What is being done to improve the water resource?

The community is taking steps toward reducing pollution in the Huron River basin. In the late 1980s, large municipal wastewater treatment plants modernized and water quality improved as a result.

Many conservation measures such as no-till farming, crop residue manage-

ment (leaving soybean stubble and corn husks on the field after harvest), planting winter cover crops, and creating buffer strips (small areas or strips of land in permanent vegetation) have been adopted to reduce soil erosion.

The TMDL program identifies measures to reduce pollution further. Some actions are already occurring. Two previous state/federal grants provided cost share for agricultural conservation practices, home septic system replacements, livestock exclusion fencing and farm chemical containment structures in targeted areas of the watershed. Programs funded through the U.S. Department of Agriculture have helped provide animal waste storage facilities and additional erosion control buffer practices.

The City of Norwalk is required to address combined sewer overflow events by developing a long-term plan to control combined storm water and sewage overflows to the streams during rainfall. The Huron Basin wastewater treatment plant in Erie County is working to eliminate sewage bypasses and reduce discharge of ammonia by July 2006.

How much pollution load must be reduced?

Due to the large percentage of land in crop production in Ohio's agricultural watersheds, including the Huron River, sediment and excessive nutrients are the most pervasive pollutants that need to be controlled. Improvements in stream habitat and reductions in organic

enrichment are also needed in the Huron River watershed. Estimates of the existing pollutant load of sediment and nutrients (nitrate+nitrite and phosphorus) show that reductions are needed throughout the watershed in order to alleviate water quality impairments. (See Table 1) While the results in Table 1 show overall percentage reductions are necessary for these large watershed areas, the need for reductions in some of the small drainage areas severely impacted by agriculture is even greater.

What additional steps must be taken to reduce pollutant loads?

To reduce pollutant loadings and the severity of their impact, Ohio EPA recommends an approach that directs resources to improve the overall habitat and physical stability of streams throughout the watershed. Traditional best management practices and land management measures such as riparian buffer initiatives, agricultural conservation practices, and manure management plans should be targeted at the stream segments most vulnerable to erosion during high-flow storm events. Recommendations also include better management of urban storm water, sanitary waste from unsewered communities, septic systems, and agricultural drainage, and a number of loan and grant opportunities that support conservation and water quality-related improvements.

Table 1: Percentage Reductions Needed to Meet Water Quality Targets

Assessment Unit	Pollutant		
	Sediment	Nitrite+Nitrate	Phosphorus
Upper West Branch Huron River	49%	31%	25%
Lower West Branch Huron River	49%	27%	43%
East Branch Huron River and Huron River Mainstem	65%	32%	5%