



Huron River Watershed Council

Protecting the river since 1965

Norton Creekshed Report

www.hrwc.org/norton

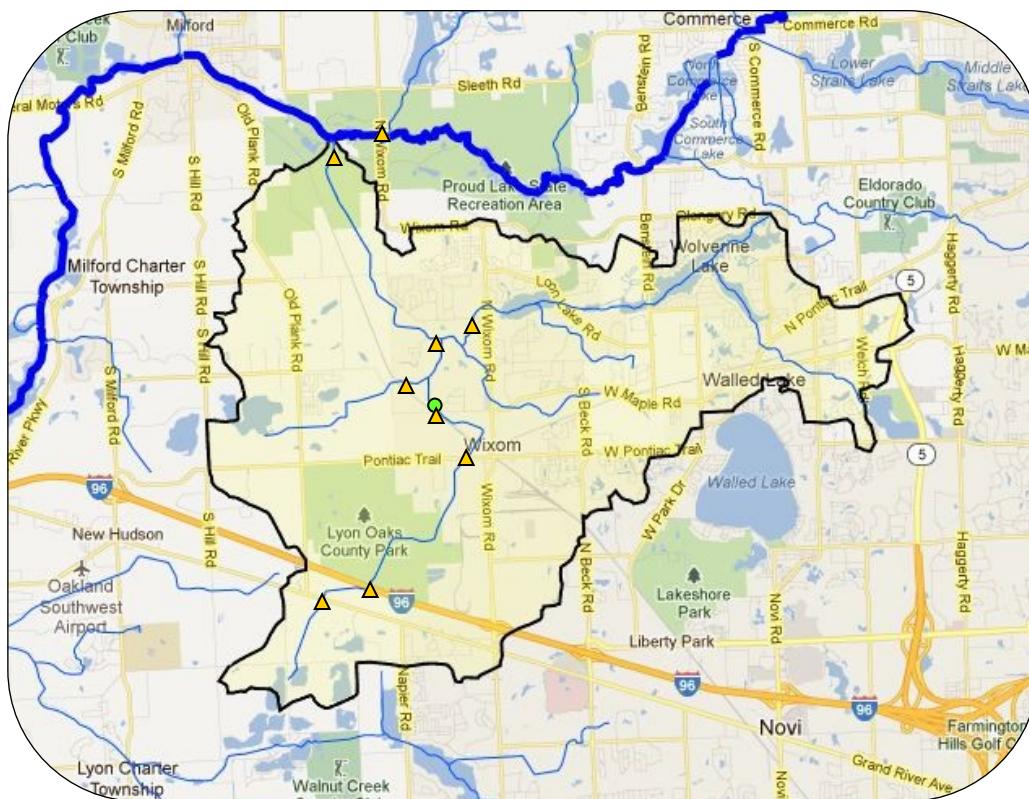
Creekshed Profile

Once a rural community with vacation homes on its lakes, Norton Creek has become a growing Detroit suburb and industrial hub. Norton Creek historically suffered from numerous impairments, and has seen little improvement as the area has become increasingly suburbanized. While stormwater retrofit projects at Sarah Banks Middle School and Wildwood Subdivision helped to decrease phosphorous loading downstream, several water quality impairments still exist.

The Norton creekshed is located in the southwest corner of Oakland County. The county government, portions of Commerce, Lyon, and Milford Townships, the cities of Novi, Walled Lake, Wixom, and the Village of Wolverine Lake are all major decision makers and landowners in the creekshed. The condition of Norton Creek can also be directly impacted by the residential landowners of the area.

Norton Creek has 110 miles of branching stream channels, and it drains 24 square miles of land. From the highest headwater to the mouth, the creek's elevation drops 115 feet. The average slope is 17.5 feet per mile, which is on par for the Huron River as a whole (about the same as Fleming Creek). There are 17 lakes (open water > 5 acres) in the Norton creekshed. The biggest, Wolverine Lake, is 286 acres. The creekshed contains 72 ponds (open water < 5 acres).

Wolverine Lake is a major feature in the Norton creekshed. It was created in the 1920s through a private damming and inundation project that raised the water level eight feet and united six small lakes and several marshes.



● Monitoring sites for Aquatic Insects, Stream Habitat, and Stream Temperature

For more details on these parameters, please see inside.

▲ Michigan DEQ biota or conductivity 2007-2008 study stations

Creekshed Status and Trends



Trees and shrubs cover the banks of Norton Creek in mid-August. Credit: Ron Fadoir

Creekshed Land Use

Extensive impervious surface

Total creekshed Size: 24 square miles
Agriculture: 5%, 1 square mile
Residential & urban: 62%, 15 square miles
Forest: 5%, 1 square mile
Open: 12%, 3 square miles
Wetland: 13%, 3 square miles
Water: 4%, 1 square mile

Total impervious surface: 27%, 5.5 square miles

Numerous studies have shown that fish and insect communities are less diverse when the amount of impervious surface exceeds 10-12% of the total watershed area. 27% of the Norton creekshed is currently impervious. This means that high amounts of rain are running off directly into the creek, washing pollutants off of roads and parking lots, and causing unstable water flow.

Stream Habitat

Slightly degraded

The habitat at the one site monitored on Norton Creek is slightly degraded. Over 50% of the stream substrate is sand and silt, which can limit the amount of living spaces for fish and insects. However, the riparian zone at this location is wide and full, and there is a diversity of different stream microhabitats like riffles, pools, undercut bank, and runs. This one site monitored in Norton Creek is in a city park and may not reflect conditions throughout the creekshed.

Creekshed Natural Areas

Many natural lands yet unprotected

The creekshed's forests, wetlands, and grasslands soak up rainwater and runoff, filter pollutants from the creek, and provide wildlife habitat and beautiful places for us all to enjoy. About 25% of the creekshed still consists of intact natural areas. Only a small fraction of these areas are protected from development (about 10% of the creekshed; notably a portion of Proud Lake State Recreation Area, Lyon Oaks County Park, and Wixom Habitat Park). It is important to keep these lands natural, so that the creek does not degrade further.

Dams and Impoundments

Wolverine Lake

While dams provide recreational benefits, they greatly alter a stream's hydrology, and degrade fish and insect habitat. One known dam blocks Norton Creek— Wolverine Lake Dam, which creates and controls the 286 acre Wolverine Lake. Wolverine Lake is surrounded by hundreds of homes and is a major feature in the Norton creekshed.

Fish Community

A cool and warm water fish community

No fish samples have been taken from Norton Creek. Based on the habitat, stream size, and water temperature, the creek most likely holds cool and warm water fish. These would include small fish like bluntnose minnows, central stonerollers, blacknose dace, as well as small populations of centrarchids like green sunfish, bluegill, and smallmouth bass.

Aquatic Insect Community

Extremely poor

Michigan DEQ lists Norton Creek as impaired for aquatic life, as measured by a lack of aquatic insect diversity. HRWC finds an average of 6.5 insect families per sampling event at the one sample site in Norton Creek, which is very poor. This site is among the worst of the 80 sites that HRWC monitors in the Huron River watershed.

Stream Water Temperature

Cool water

Norton Creek receives a mix of cold ground water and warmer surface runoff. Much of the stream is shaded by natural riparian areas. Temperature measurements show that the water temperature of Norton Creek rarely gets above 70 °F and rarely drops below 55°F during July and August. This is a normal water temperature for a creek with these properties and in this area of Michigan.

Sediments and Oxygen

Impaired

Michigan DEQ designated Norton Creek as impaired due to excess sediments and low dissolved oxygen (DO). In 2009, they issued a pollution budget that requires an 84% reduction in sediment loading. Sources targeted for reduction include industrial and municipal stormwater and general surface runoff. Streambank erosion due to altered flows is also a likely contributing factor.

Phosphorus

Impaired as determined by computer models

Phosphorus is the limiting nutrient in most freshwater systems, and too much phosphorus can cause algal blooms and water quality problems. While HRWC does not have empirical data on Norton Creek, DEQ has designated downstream Kent Lake as impaired for excessive phosphorus. Also, HRWC computer models showed that Norton Creek contributes high amounts of phosphorus to the

Stream Flow

No data, but most likely it is a flashy creek.

Stream flow is an important underlying factor for determining likely erosion rates, stream habitat quality, and aquatic community diversity. An important measure is “flashiness” or the rate a stream rises and falls through a storm event. HRWC does not have enough flow data to evaluate Norton Creek. However, it is a highly urbanized creek with many altered channels, and other creeks with similar characteristics are quite flashy.

Color Coded Ranking

Excellent

Fair

Poor

Unknown

E. coli

Unknown

E. coli bacteria is a useful water quality indicator for the presence of fecal contamination. HRWC does not have sufficient data to evaluate Norton Creek for bacteria. State monitoring has not detected a bacteria impairment.

Conductivity/TDS

Impaired

Conductivity is a measurement of the amount of ions (also known as salts) dissolved in water. Conductivity is a quick and easy measurement to make, and is useful as an indicator of potential problems, since conductivity is highly correlated with total dissolved solids (TDS). Conductivity levels in Norton Creek are very high and have been high since monitoring began in 2001. The DEQ declared Norton Creek to be impaired for TDS and will



HRWC staff and volunteers install native wetland plants at the Sarah Banks Middle School in the Norton creekshed. Credit: HRWC

Successes & Challenges

Successes

- In 2007 Sarah Banks Middle School & the Wildwood Subdivision's existing detention basins were upgraded to more modern stormwater ponds, providing water quality treatment and reducing sediment and nutrient loading downstream.
- Starting in January 2012 a new Michigan Law, Public Act 299 of 2010, took effect. It prohibits the application of fertilizers containing phosphorus to turf grass (with some exceptions). As Norton Creek has high phosphorus levels, this law has the potential of being particularly helpful in this creekshed.
- The City of Wixom has preserved 292 acres of critical wetland and upland, now known as Wixom Habitat Park. A section of Norton Creek flows through the park.

Challenges

- Norton Creek is facing several water quality impairments identified by the State of Michigan. Fish and aquatic insects are heavily impacted by low oxygen and high phosphorus and dissolved solids. Local stormwater runoff and other sources need to be better identified and a plan established for remediation.
- Norton creekshed's communities and residents must promote compact development and preserve natural areas and open spaces. It is extremely important to limit increases of impervious surface in order to maintain the creek's integrity.
- Residential development, agriculture, and historical channelization have taken their toll on the creek. Restoring natural stream banks and returning the creek to more natural flows will increase habitat diversity and make the creek more inviting to a wider variety of aquatic wildlife.
- A lack of empirical water quality and biological data hinder the ability to properly assess this creekshed.



Norton Creek, as it approaches its mouth near the Huron River, becomes very slow and mucky. Credit: HRWC

What you can do!

At home

- Minimize your turf lawn; put in deep rooted native plants that do not need to be fertilized or watered.
- Have your septic system checked regularly. Leaking septic systems can be a large source of phosphorus and *E. coli*.
- If you own property with a natural area, work with a land conservancy to establish an easement to protect it from future development.

In your community

- Learn to identify environmental impairments like algal growth in waterways and erosion on land—and follow up with HRWC when you see something wrong.
- Volunteer with HRWC and come learn about the river and land that drains to the Huron River.
- Join a local board or commission.