

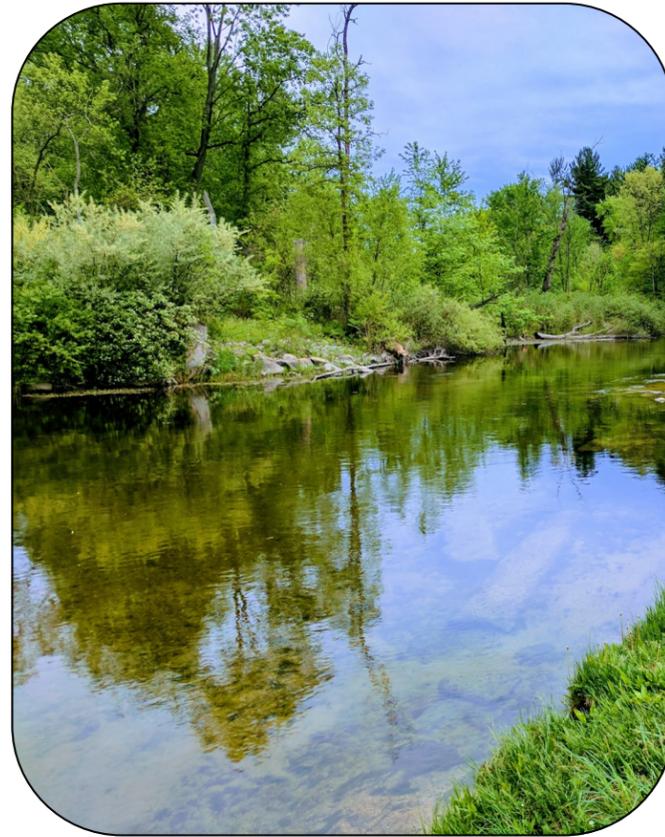
Successes & Challenges

Successes

- The nationally-designated Huron River Water Trail creates linkages from city to village; improves recreational access; adds interpretive, way-finding, and historical signage; and creates economic development opportunities along the entire stretch of the Huron.
- HRWC's RiverUp program has improved paddling access sites at Kent Lake Dam.
- Wildlife Habitats of Oakland County (<https://detroitzoo.org/who/>) works with residents, parks, and businesses to create wildlife-friendly habitats on their properties.
- A substantial percentage of land on the edge of the Huron River is in protected lands, which keeps the riparian land undeveloped (Proud Lake State Park, Highland Recreation Area and Kensington and Indian Springs metroparks).
- The Eastern Massasauga Rattlesnake is a federally-listed threatened species. It is found in the Upper Huron River Watershed.
- In 2018, Oakland County provided funding to enroll lake monitoring volunteers into the State's Cooperative Lakes Monitoring Program (CLMP, micorps.org), and volunteers collected lake data which greatly enhanced our knowledge of the lake water quality in this region.

Challenges

- The Huron River (from North Wixom Road at Milford and downstream) is under a "Do Not Eat Fish" advisory due to elevated levels of PFAS, a carcinogenic set of chemicals. Learn more at the HRWC website: <https://www.hrwc.org/our-watershed/threats/pfas-and-the-huron-river/>
- Lake residents need to improve lakeshore habitat quality. Fertilized lawns, removal of native aquatic vegetation, and shoreline hardening such as riprap and seawalls all detract from the water and habitat quality of a lake. This is not a problem limited to this area however; lake residents across the country deal with this issue.
- New development continues to appear along the river and lakeshores and throughout the watershed, clearing trees, shrubs, and other native vegetation so vital to its health. Communities need to ensure new development is designed to minimize vegetation clearing and impervious surfaces, especially near the river.



The Huron River at Proud Lake Metropark. Credit: Larry Scheer

- There are too many dams in this region. Dams alter river hydrology, remove river habitat, raise water temperatures, and often have no current purpose.

What you can do!

At home

- Get a copy of *Waterfront Wisdom* (<https://www.hrwc.org/take-action/at-home/riverfront-lakeshore-properties/>) It contains 7 areas of great tips for waterfront homeowners to protect water resources.
- If you live on a lake, volunteer with the CLMP! Collect monitoring data and learn more about limnology, the study of lakes! Go to micorps.net to learn more.
- Minimize your turf lawn. Instead, install a raingarden and plant deep rooted native plants, in order to reduce runoff from your property.
- Become a Change Maker! Change Makers learn about the Huron River and its watershed, the impacts of development on clean water, and how to navigate local governments' decision-making processes to encourage local river-friendly policies that protect clean water. hrwc.org/changemakers.



The Huron River Data Report

Upper Huron Headwaters

Creekshed Profile

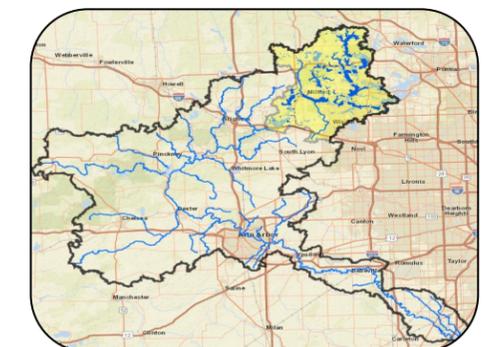
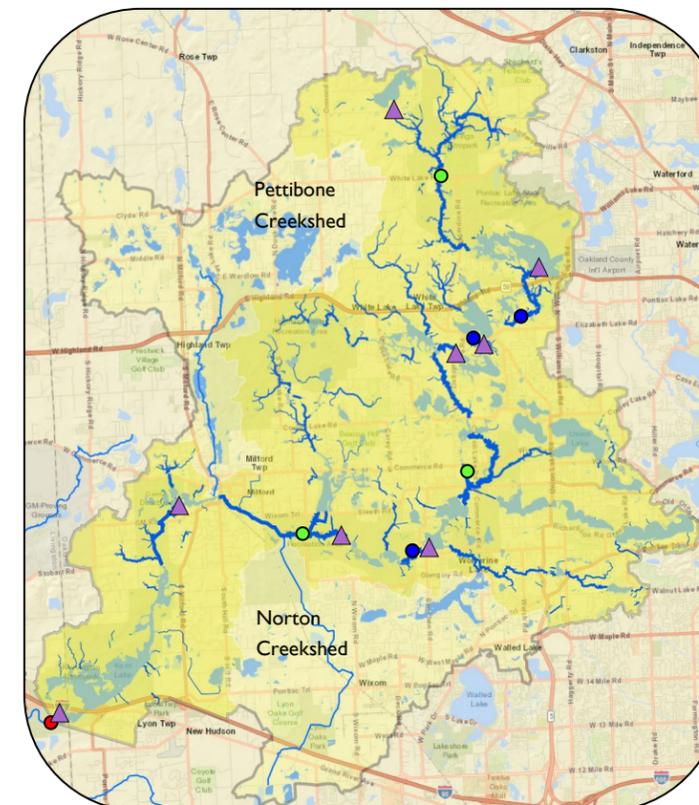
The Huron River flows 125 miles from its headwaters at Big Lake, near Pontiac in Oakland County, to its mouth at Lake Erie in Monroe County. HRWC divides the river into five sections based on its geology, ecology, and hydrology. This report is based on the section that runs between Big Lake and Kent Lake. The land immediately around the Huron River in this section (darker yellow, map below) is the focus of this report.

The glacial hills that create the source of the Huron were once predominantly oak barrens, with tamarack and hardwood swamps growing in the low areas connecting the lakes. Oak barrens are now considered a critically imperiled ecosystem in the state by the Michigan Natural Features Inventory due to massive clearing for agriculture during European settlement and continued development. Tamarack and hardwood swamps have also been much reduced throughout the Huron River watershed.

The main branch in this section is 38 miles; 24 miles are flowing river and 14 are lakes. The river section has a gradient of 5 feet per mile, which is about average for the main branch. There are many small tributaries that are also in this area, totaling another 124 miles in length!

The underlying sandy and gravel geology of the upper Huron River watershed results in many lakes in this region. There are both kettle lakes, which are not connected to the river through surface water, and drainage lakes, which are directly on the river and its tributaries. There are 218 ponds (<5 acres of open water) and 110 lakes (>5 acres of open water).

A river ecosystem is only as healthy as the quality of the water flowing into it. Both Norton Creek and Pettibone Creek flow into the Huron River in this area (lighter yellow on the map). Reports exist for both of these sections (<https://www.hrwc.org/our-watershed/features/>)



- Monitoring sites for Aquatic Insects, Stream Habitat, and Stream Temperature
- Monitoring site for Stream Flow, Phosphorus, Total Suspended Solids, and *E. coli*
- Stream Flow only
- ▲ Dams (main branch only)

Watershed Status and Trends



Upstream of Pontiac Lake, the Huron River is just a small creek!
Credit: Dick Chase

Watershed Land Use

Impacted by polluted runoff

Total watershed size: 107 square miles)

Land use based on the year 2000:

Agriculture: 6%, 6 square miles
Residential & urban: 44%, 46 square miles
Forest: 12%, 13 square miles
Open: 16%, 17 square miles
Wetland: 14%, 15 square miles

Total impervious surface: 12%, 13 square miles

Fish and insect communities are less diverse when impervious surface exceeds 10-12% of the total watershed area. 12% of this area is impervious; therefore much of the system is at the tipping point of losing much of its biological diversity.

Watershed Natural Areas

Many natural lands yet unprotected

The watershed's forests, wetlands, and grasslands soak up rainwater and runoff, filter pollutants from runoff, and provide wildlife habitat and beautiful places for us all to enjoy. About 29% of this stretch remains as intact natural areas. 60% of these areas are protected from development (in Proud Lake State Park, Highland Recreation Area and Kensington and Indian Springs metroparks). Without designated protection, the rest of these natural areas face an uncertain future. It will be important to keep these lands natural, so they can continue to help keep the upper watershed healthy.

River Habitat

Primarily healthy habitat

This section of the Huron River has substrate favorable for river life; a mix of boulders, rocks, sand, and gravel in fast flowing areas and sand and muck in slow-water areas. Plenty of fallen trees line the banks and provide habitat for fish, turtles, and birds. Most of the riparian areas are full of large trees, which provide shade for the river and stability for the streambanks. There are some channelized sections of the river near inline lakes that have reduced habitat quality.

Dams

A high density of lake level control structures

There are many dams in this area of the Huron River. Eight dams or water control structures stop water flow on the main branch, and there are another 12 structures on tributaries. Nutrients settle in these quiet waters, and the impoundments are regularly overrun with aquatic plants and algae. The impounded water is exposed to the sun away from the river banks, which increases water temperature and lowers dissolved oxygen levels.

Fish Community

Warm-water lake communities

Lakes in this section support warm-water fish communities. Sunfish and bass are common, as are suckers, carp, and catfish. Northern pike are known to get quite large in the vegetated margins of the lakes. In the flowing parts of this section, anglers enjoy fishing a healthy smallmouth bass population. At Proud Lake Metropark, the DNR stock rainbow trout every spring to the delight of the angling community.

Aquatic Insect Community

Average to high insect diversity and abundance

This large section of the Huron River has a wide range in the quality of macroinvertebrate communities. In the forest of Indian Springs Metropark, the Huron River holds a community that is more diverse and abundant than anywhere else in the entire Huron River system. However, there are areas that hold a community reflecting slightly degraded habitat and water quality conditions.

Stream Water Temperature

Slightly elevated temperatures

The Huron River receives a mix of cold groundwater and warmer surface runoff and is an average of about 75°F during July and August, reaching 85°F on the hottest days. The lakes in this region, and immediate downstream river sections, get warmer at the surface, given their exposure to the sun. These temperatures are warmer than natural conditions and likely the result of the dams impounding water.

Phosphorus

Phosphorus impairments

HRWC does not monitor phosphorus in this section of the Huron River. Studies conducted on Kent Lake by the Michigan Department of Environment, Great Lakes, and Energy (EGLE) indicate phosphorus impairments in the Upper Huron. Due to these impairments, Kent Lake has a Total Maximum Daily Load of 30 ug/L aimed at reducing excess nonpoint source phosphorus in the subwatershed. Water quality studies performed by EGLE also indicate excessive nutrient loading in Norton Creek, Wolverine Lake, and Lake Sherwood.

E. Coli

Elevated levels at many beaches

E. coli bacteria is a useful water quality indicator for the presence of fecal contamination. Annual monitoring by the Oakland County Health Department indicates routine issues with *E. coli* levels at about one third of the 86 beach locations within Oakland County. Largely, these higher concentrations occur after heavy rain events. Throughout this area, *E. coli* is normally present in concentrations below state standards.

Conductivity

Normal

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. Conductivity levels in this section of the Huron River are at normal background levels and do not indicate the presence of unknown pollutants.

Color Coded Ranking

Excellent

Fair

Poor

Stream Flow

Stable flows

Stream flow is an important underlying factor for determining likely erosion rates, stream habitat quality, and aquatic community diversity. In this subwatershed, flow conditions have remained relatively similar over the last 60 years due to the large number of lakes, wetlands, and impoundments that control flood and stormwater.

Lake Water Quality

Mesotrophic and highly developed

Many lakeside residents in this subwatershed test lake water quality through Michigan's Cooperative Lakes Monitoring Program. These include, but are not limited to, Middle Straights, Upper Straights, Green, Brendel, Cedar Island, Neva, Oxbow, Tull, and Cranberry lakes. Reports for each can be found here: <https://micorps.net/lake-monitoring/individual-lake-reports/>.

While every lake is different, the average lake in the area is mesotrophic, meaning there is a moderate amount of nutrients, water transparency between ten and fifteen feet, and a lack of oxygen in the bottom waters during the hottest summer months. Mesotrophic lakes do not regularly experience algae blooms but are not crystal clear, either, and are the most common type of lake in Michigan. Lakes in Oakland County also tend to be highly developed, with many houses and seawalls, which degrade the lakeshore habitat quality and remove living places for young fish, reptiles such as turtles, and amphibians.