Huron River Watershed Council

Protecting the river since 1965

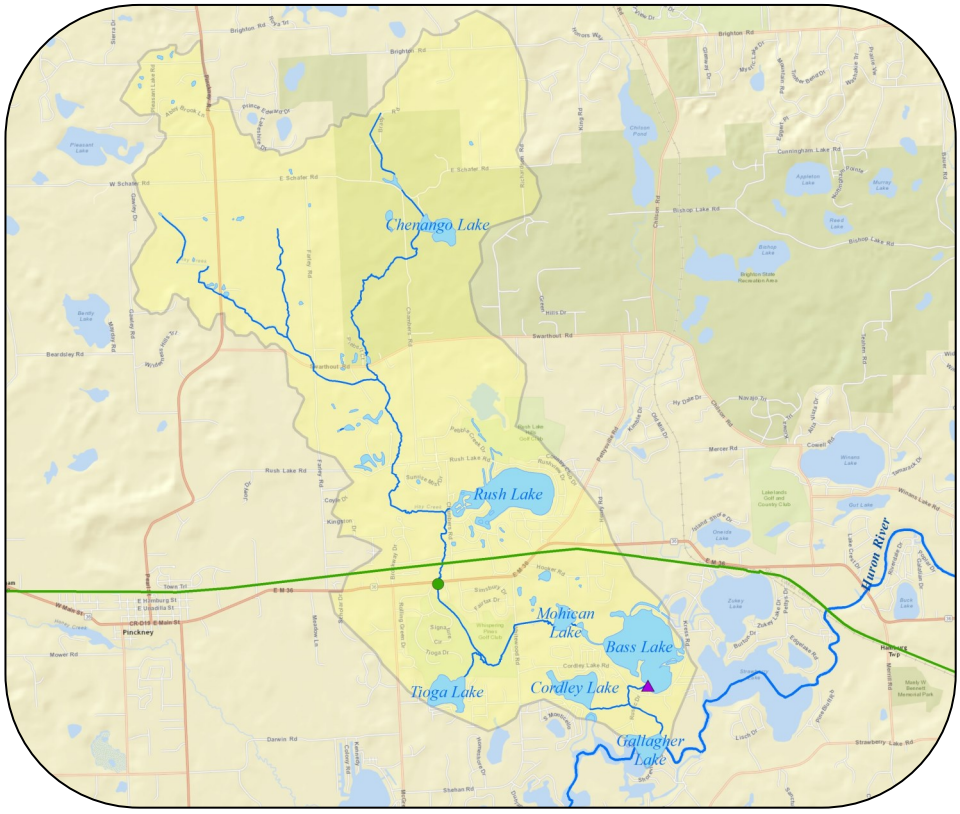
Hay Creekshed Report

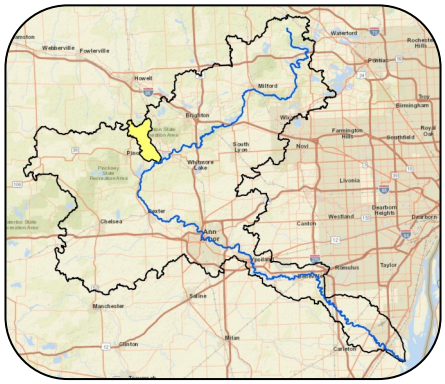
www.hrwc.org/hay

Creekshed Profile

Hay Creek flows through land enriched by glaciers with deep deposits of sand and gravel. What was once oak-hickory forests and oak barrens on higher ground and inland wet prairie in low lying areas and along the creek was first converted to farm fields and today is mostly single family homes spread out throughout the landscape and clustered around the lakes, M-36, and Swarthout Road. There are 8 lakes (open water > 5 acres) in the creekshed, the biggest being Bass Lake at 172 acres and Rush Lake at 139 acres. Hay Creek eventually empties into Gallagher Lake, part of the Chain of Lakes of the Huron River. The creekshed also contains 17 ponds (open water < 5 acres).

The Hay creekshed is one of the smaller major drainages in the Huron River, draining only 12 square miles, 8 of which is considered the main branch. The creek's slope (averaging 14 feet per mile) is average for the Huron watershed. The majority of the creekshed is in Hamburg Township, Livingston County, with only the tips of a couple tributaries in Putnam and Genoa townships.





Monitoring sites for Aquatic Insects, Stream Habitat, and Stream Temperature For more details on these parameters, please see inside.

Dams

Lakelands Trail

Huron River Watershed Council, 1100 North Main Street, Ann Arbor, MI 48104, (734) 769-5123, **Updated 2017**

Creekshed Status and Trends

At M-36, Hay Creek flows through a wetland, but several large residential developments are only a stone's throw away. Credit: John Lloyd

Creekshed Land Use

Habitat for a healthy ecosystem

Total creekshed size: 13.4 square miles
Land use based on the year 2000:
Agriculture: 8%, 1.0 square miles
Residential & urban: 35%, 4.6 square miles
Forest: 17%, 2.2 square miles
Open: 18%, 2.4 square miles
Wetland: 16%, 2.2 square miles

Total impervious surface: 7%, 1 square mile

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. Only 7% of the creekshed is currently impervious, and so the creek enjoys the benefits of the natural water cycle.

Creekshed Natural Areas

Many natural lands yet unprotected

The creekshed'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 30% of the creekshed remains as intact natural areas, much of which is in the Brighton State Recreation Area. 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 creek healthy.

Stream Habitat

Excellent riparian zones, but poor substrate

Much of Hay Creek runs through a wide forested and wetland riparian zone, and the creek has bends and meanders, woody debris, and in-stream vegetation that provide a variety of habitat conditions. However, the stream does have a substantial amount of sand and fine sediment covering the stream bottom, at least at the one location where it is measured (the intersection of M-36). The creek is not very steep at this location (10 ft/mi) and water moves slowly, so this may be the creek's natural substrate.

Dams and Impoundments

Present, but does not dominate system

While dams provide recreational benefits, they greatly alter a stream's hydrology and degrade fish and insect habitat. The only dam on Hay Creek is a small lake level control structure on Bass Lake. This dam has minimal effects on the hydrology and sediment movement in the creek, but it does block fish passage from the Huron River, essentially isolating the fish community of Hay Creek from the rest of the Huron River watershed.

Aquatic Insect Community

Healthy, but declining slightly

Hay Creek has one of the more diverse aquatic insect communities as compared to the rest of the Huron River watershed. Stoneflies are always found during the January Stonefly Search, and other pollution-sensitive families are found during the other times of year as well. Since the 1990s, the population has declined slightly yet statistically significantly, but we do not know specifically why this has happened.

Stream Water Temperature

Cool water

Hay Creek receives a mix of cold groundwater and warmer surface runoff. Much of the stream is shaded by natural riparian areas. Temperature measurements show that the water temperature of Hay Creek rarely gets above 75 °F and rarely drops below 60 °F during July and August. This is a normal water temperature for a creek with these properties and in this area of Michigan.

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 Hay are at natural background levels and do not indicate the presence of unknown pollutants.

Water Quality

Unknown

Beyond conductivity, water quality measurements (such as phosphorus, bacteria, nitrogen, and total suspended solids) have not been made in Hay Creek by HRWC or any other known organization or individual.

Fish Community

Unknown

No known fish surveys have been conducted in Hay Creek. It is probable that the creek has a coolwater fish community, consisting of smallmouth bass, largemouth bass and northern pike (especially in the lakes), various kinds of sunfish, and a wide array of suckers, minnows, and darters.

Color Coded Ranking

Excellent | Fair | Poor

Hay is a meandering creek mostly surrounded by woodlands and wetland riparian areas. Credit: Rob Goodspeed

An HRWC intern explores Hay Creek with the Creekwalking Program. Credit: HRWC

Successes & Challenges

Successes

• Brighton State Recreation Area is nearly 5000 acres and full of trails for mountain biking, skiing, hiking, and horse riding. This natural area is very important for maintaining the water quality of the creek and for the Huron River itself.

• The Lakelands Trail is a 20 mile long paved/gravel biking and walking trail that partially runs through Hay creekshed in Hamburg Township. The trail is one of 4 linear state parks in the Michigan State Park system that have been converted from abandoned railroad corridors. Trails provide non-motorized transportation and wildlife corridors.

• Hamburg Township passed an ordinance in 2016 prohibiting the application of coal-tar based driveway sealants, a substance known to cause cancer in humans and reduce water quality.

• The Livingston Watershed Advisory Group developed a homeowner guidance called Waterfront Wisdom and distributed it to lakeshore residents. The booklet provides tips to improve lake water quality.

• Hay Creek stream channels are mostly natural in dimension and pattern, with only one dam altering flow. Natural channels promote diverse habitat, aquatic life, and overall stream quality.

Challenges

• Hamburg Township and the residents of Hay creekshed must promote compact development and preserve natural areas and open spaces. It is extremely important to prevent the creation of more impervious surface in order to maintain the creek's integrity.

• Many of the existing natural areas in the creekshed are under private ownership and designated for some kind of development. If the creekshed loses these wetlands and forests, it will lose the ecosystem services they currently provide.

• There is a scarcity of data on Hay Creek. HRWC has one sample site on Hay Creek for monitoring the insect community, water temperature and habitat, and also has information that can be pulled from GIS and aerial imagery. DEQ and DNR have not done any monitoring of the creek. Given this lack of state involvement, the local government needs to invest more in water quality monitoring on Hay Creek.

An HRWC volunteer skips through a beautiful section of Hay Creek. Credit: John Lloyd

What you can do!

At home

• Have your septic system checked regularly. Leaking septic systems can be a large source of phosphorus and *E. coli*.

• Maintain a 25 foot vegetated buffer, ideally made of native plants, from all waterways: ditches, creeks, lakes, and wetlands.

• 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

• Advocate for ordinances related to stormwater, natural lands, and land preservation.

• Volunteer with HRWC and come learn about the river and land that drains to the Huron River.