

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 Chilson 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.
- 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 worked with Michigan Natural Shoreline Partnership on a demonstration shoreline restoration at Bishop Lake. The restoration was completed by volunteers and educated residents.

Challenges

- The dams on Chilson Creek are the primary cause of the poor habitat, high fine sediment levels, and poor summer flows. Five dams along such a small stretch of water is excessive. The dams have no purpose beyond creating ponds and lakes for recreational reasons, and need to be removed before conditions on Chilson Creek can improve.
- It will be important for the three golf courses in the creekshed to reduce nutrient runoff, maintain buffers, and use organic turf management. The Audubon Cooperative Sanctuary Program or Michigan Turfgrass Environmental Stewardship Program offer certification programs for golf courses.
- Hamburg and Genoa townships and the residents of Chilson 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.
- Nearly all 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.



Volunteers installed natural shoreline protection at two sites along Bishop Lake in the Chilson creekshed. Credit: Michigan DEQ.

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.



Chilson Creekshed Report

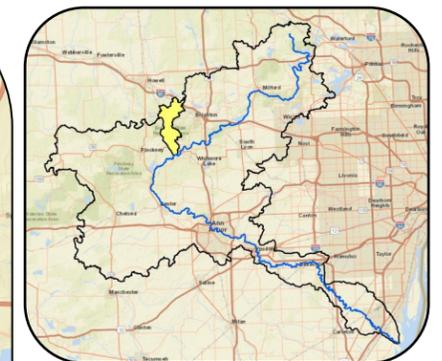
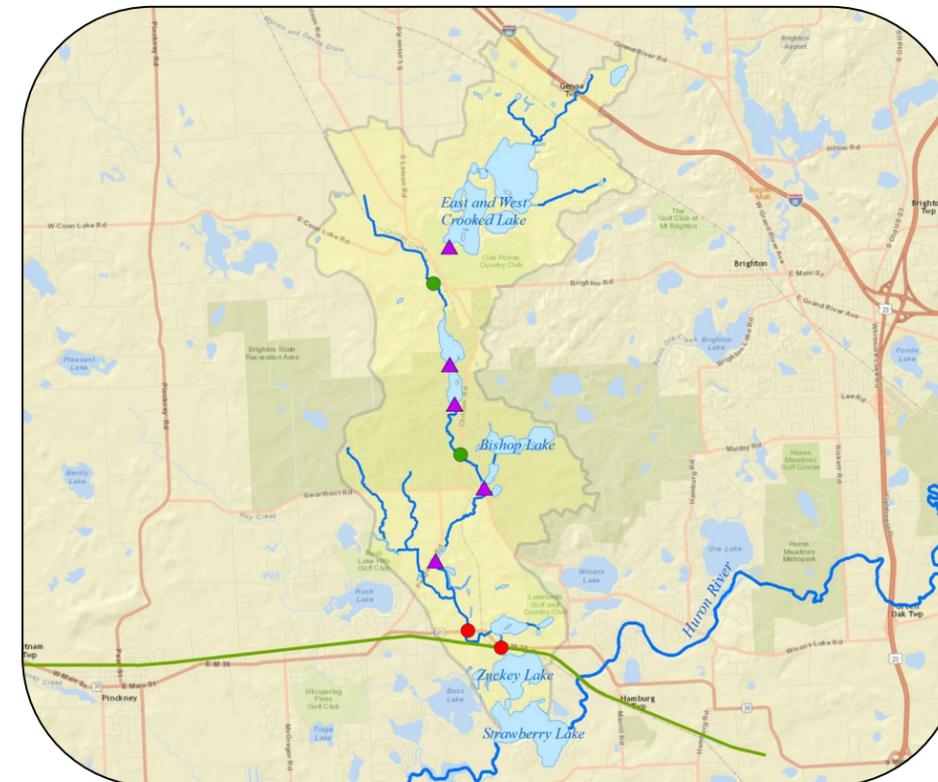
www.hrwc.org/chilson

Creekshed Profile

Chilson Creek flows through land enriched by glaciers with deep deposits of sand and gravel, and is part of the lake belt that stretches through Livingston and Oakland Counties. 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. There are 13 lakes (open water > 5 acres) in the creekshed, including the residential East and West Crooked Lake, the dammed Lower and Upper Chilson Ponds, and the forested Bishop Lake which is located in Brighton Recreation Area. Chilson Creek eventually empties into Zukey Lake, which opens into Strawberry Lake, part of the Chain of Lakes of the Huron River. The creekshed also contains 22 ponds (open water < 5 acres).

The two dams creating Lower and Upper Chilson Pond were both constructed in 1961 and are large earthen embankments running 100 feet long and 6 feet tall, and 150 feet long and 10 feet tall, respectively. The dams were built in the Brighton Recreation Area to create shallow lake habitat suitable for waterfowl hunting.

The Chilson creekshed is one of the smaller major drainages in the Huron River, draining only 17 square miles. The creek's slope (averaging 14 feet per mile) is average for the Huron watershed. The entire creekshed lies in Hamburg and Genoa Townships, Livingston County.



- Monitoring sites for Aquatic Insects, Stream Habitat, and Stream Temperature For more details on these parameters, please see inside.
- Monitoring site for Stream Flow, Phosphorus, Total Suspended Solids, and *E. coli*
- ▲ Dams
- Lakelands Trail

Creekshed Status and Trends



Lower Chilson Pond, one of the impoundments on Chilson Creek, is located in Brighton Recreation Area. Credit: HRWC

Creekshed Land Use

Habitat for a healthy ecosystem

Total creekshed Size: 17 square miles
Land use based on the year 2000:
Agriculture: 8%, 1.3 square miles
Residential & urban: 36%, 6.0 square miles
Forest: 12%, 2.0 square miles
Open: 21%, 4.0 square miles
Wetland: 13%, 2.3 square miles

Total impervious surface: 7% , 1.2 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. 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 22% of the creekshed remains as intact natural areas, about half 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

Fair

Much of Chilson 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 is filled with muck and silt in areas affected by the creek's many dams and even the more quickly flowing areas have a large amount of sand. Fine sediment clogs the living spaces for aquatic creatures and reduces their diversity and abundance.

Dams and Impoundments

Dominate the system

While dams provide recreational benefits, they greatly alter a stream's hydrology and degrade fish and insect habitat. Five dams are in the Chilson creekshed, and 3 of them are lake-level control structures which have been reported to cause extremely low flows as they hold back water during dry weather. These dams are likely the cause of the silty substrate found upstream, which reduces available habitat for fish and macroinvertebrates.

Fish Community

Unknown

The fish community in Chilson Creek is likely limited due to the number of dams that block fish passage through the system. However, no known fish surveys have been conducted in Chilson. 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.

Aquatic Insect Community

Fair to poor

The mucky upstream sample location on Chilson Creek has a very sparse insect community, with only the most common and tolerant insects found. Downstream of the 2 upper Chilson impoundments, the insect community is significantly better. The insects here are moderately diverse; it has an average diversity compared to sampling across the entire Huron River watershed.

Stream Water Temperature

Cool water

Chilson 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 Chilson 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.

Phosphorus

Low

Phosphorus is the limiting nutrient in most freshwater systems, and too much phosphorus can cause algal blooms and water quality problems. The target for area streams is < 30 µg/l. Chilson Creek's mean total phosphorus (TP) is 20 µg/l.

Total Suspended Solids

Low

Total suspended solids (TSS) is a measurement of the amount of sediment and organic material held by the stream. A high TSS indicates high turbidity and erosion problems. Good TSS values during rain storms are below 80 mg/l; Chilson Creek's is 3 mg/l.

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

Color Coded Ranking

Excellent

Fair

Poor

E. coli

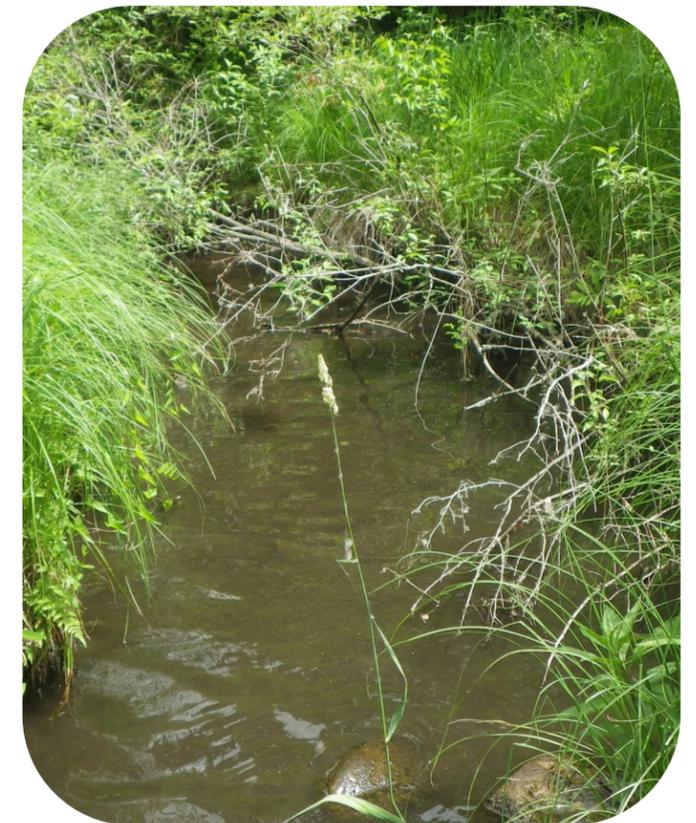
Unknown

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

Stream Flow

Unknown

Stream flow is an important underlying factor for determining likely erosion rates, stream habitat quality, and aquatic community diversity. There has been no data collected on stream flow in Chilson Creek.



This section of Chilson Creek, downstream of the Brighton Recreation Area, is narrow and shallow with a gravel streambed. Credit: HRWC