

Hay Creek at M-36

Adopt-a-Stream Site Report, updated January 2012

Overall Condition: **Good/Fair**

Hay Creek has hovered between the good/fair categories for many years. The habitat here is slightly below average with some bare stream banks and a silty stream bed. However, the insect life is quite healthy despite these problems, with an average number of insect families, but several of these families are considered sensitive.

Measuring Stream Quality

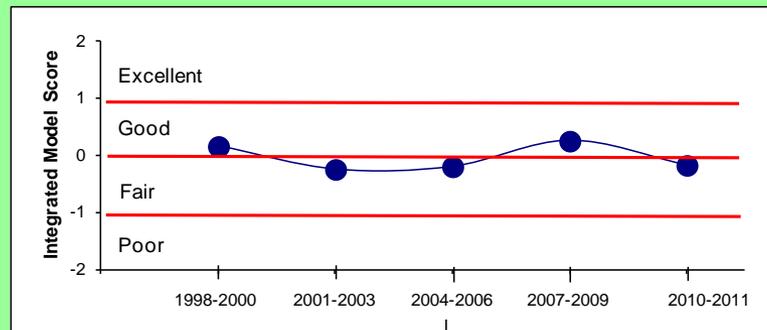
We use the bugs living in the creek to measure stream quality for two reasons. When the stream is rich in habitat variety it will have many diverse kinds of bugs (called families). Also, some bugs (called sensitive) can live only in good quality streams; they die in a poor quality stream. Any stream with sensitive families has the clean water and good habitat required by those bugs to survive.

Monitoring Data

These data come from HRWC volunteers who have monitored this site 34 times, starting in 1996. This includes Stonefly Search, River Roundup, Habitat, and Temperature events.

This site on Hay Creek is 12.5 feet wide and shallow (less than a foot). In 2009 we found disappointing habitat here: a partially mucky bottom, one-quarter of the banks were bare and unstable and the rocks in the swift water (riffles) were clogged with sand. It has clean water that warms up in the summer to 80°F.

There is very good diversity of bugs here for such a small watershed. In the spring and fall we typically find 11 different families including 2 sensitive families. Given the creek's small size, finding this number of families is normal but finding 2 sensitive families is quite good. Stoneflies are very sensitive insects that are only found in clean water. Two kinds of "winter stoneflies" grow only in winter and are dormant the rest of the year. Both families of stoneflies live at this site, confirming the ability of this stream to hold sensitive organisms.



To determine the overall condition rating, HRWC uses an integrative model that compares this site to all of HRWC's other monitoring sites in the Huron watershed. The model uses insect, habitat, temperature, and stream size data.



Photo credit: John Lijod

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Background Information

Site History

Hay Creek flows out of the Brighton State Recreation Area (5000 acres of irregular hills interspersed with many attractive lakes and trails) a couple of miles upstream of this location. Undeveloped public land in the upper portions of the watershed is one of the main reasons the Huron River remains clean and healthy throughout much of its run and is probably the primary reason this site has consistently supported sensitive insect families.

However, as this watershed becomes developed as a residential area for commuters, the quality of the creek could decline if runoff is not retained on the developed properties.

How is the Creek affected by land use here?

The area of land draining to this site on Hay Creek is small, receiving water from only 10 square miles of land, one third of which is urban (residential).

This part of the Huron watershed is a rural area transforming to urban, according to data from 2000. At that time, 29% of the Hay Creek watershed was developed while 11% was still used for agriculture. 8% of the land was covered by impervious surface.

Impervious surface is hard on streams because it prevents rain from being filtered and cleaned through the soil and, instead, delivers it quickly to the stream, carrying pollutants and causing surging flows that damage the stream habitat and biotic community.

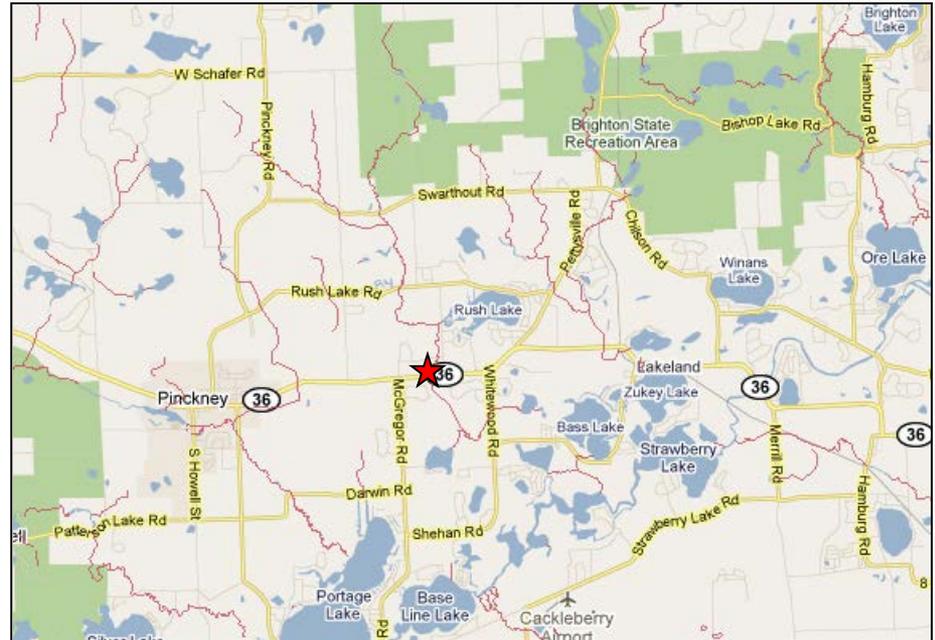
Creeks tend to start degrading once the watershed is more than 8% impervious and become badly degraded by 25%. [The most urbanized Huron River watershed that we study (draining into Millers Creek at Baxter Road) is 51% impervious.]

Since the watershed of this creek has 8% impervious surface, it is very important that it does not become more developed or degradation of the habitat and insect community will become more pronounced.

Watershed land use in year 2000: 11% Agriculture, 29% Urban, 20% Forest, 20% Open, 20% Wetland.

What You Can Do

Help us improve Hay Creek! Residents that live in Hay Creekshed have septic systems, which are often maintained poorly. Leaking septic systems can contribute phosphorus and other pollution out to the watershed. Strive to have septic systems checked every five years! Go to www.hrwc.org/take-action for other ways to give Hay Creek a helping hand!



Google 2011

Insects found in at least two sampling events from 2009-2011:

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| *Brachycentridae — humpless case makers caddisfly | Chironomidae — midge |
| *Capniidae — slender winter stonefly | Elmidae — riffle beetle |
| *Nemouridae — Nemourid broadback | Helicopsychidae — snail-case caddisfly |
| *Perlodidae — Perlodid stonefly | Heptageniidae — flathead mayfly |
| *Taeniopterygidae — broad-back winter stonefly | Hydropsychidae — common net-spinner caddisfly |
| Aeshnidae — damer dragonfly | Limnephilidae — northern caddisfly |
| Baetidae — small minnow mayfly | Simuliidae — black fly |
| Calopterygidae — broad-winged damselfly | Tipulidae — crane fly |
| *Sensitive Family | |