Huron River Watershed Council

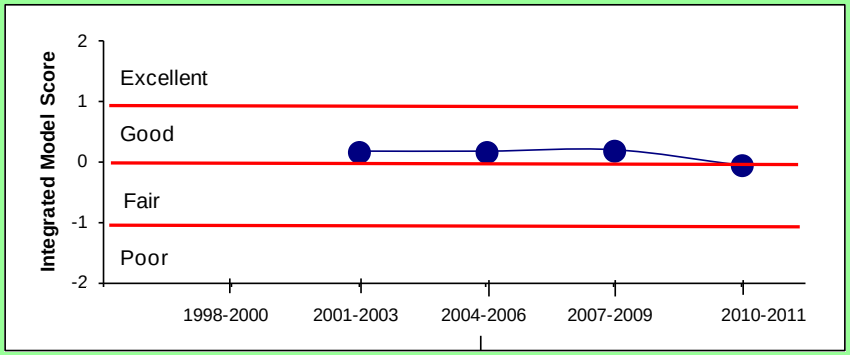
Protecting the river since 1965

Pettibone Creek at Livingston Road

Adopt-a-Stream Site Report, updated January 2012

Overall Condition: Fair/Good

At this site there are an average number of bugs to be found, but the sensitive families are lacking. The water seems to be clean and the stream banks, streambed, and streamside vegetation are excellent here. Based on the habitat, we would expect to find a great insect population. This incongruity is very odd and implies there is something happening here that we do not know about.



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.

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 17 times, starting in 2001. This includes Stonefly Search, River Roundup, Habitat, and Temperature events.

This site on Pettibone Creek is 13 feet wide and shallow (less than a foot). In 2007 we found excellent habitat here, including nice, stable banks. It has clean, cool water (seldom over 76°F). However, the extent of development (13% impervious surface) creates urban runoff that is likely to already be degrading the stream.

There is poor diversity of bugs here, even for such a small stream. In the spring we typically find ten different families and one or two are sensitive families that require a good quality stream. But in the fall, while we still find an average of nine or ten families, there are no sensitive ones. Stoneflies are very sensitive insects that are only found in clean water. In the winter we have never found the two kinds of "winter stoneflies" that grow only in winter and are dormant the rest of the year. This suggests a pollution problem here since streams that are not polluted should have these sensitive families in the winter.

Photo credit: Max Bromley

Huron River Watershed Council, 1100 N. Main Street, Ann Arbor, MI, 48104, (734) 769-5123 x 601. Please contact psteen@hrwc.org or go to www.hrwc.org for more information.

Pettibone Creek at Livingston Road

Background Information

Site History

This creek was named after Samuel Pettibone, an early (1840's) geologist for the state of Michigan.

The creek flows from Highland Township south through many small lakes to enter the Huron River in Milford. Much of the land contributing to the Creek at this site is in the Highland State Recreation Area and the surrounding residential areas.

How is the Creek affected by land use here?

The area of land draining to this site is small, receiving water from only eight square miles of land.

This is a highly developed area in the Huron watershed, according to data from 2000. Nearly 50% of the watershed for this site is developed while only 13% is still used for agriculture. At that time, 13% of the land was already covered by impervious surface.

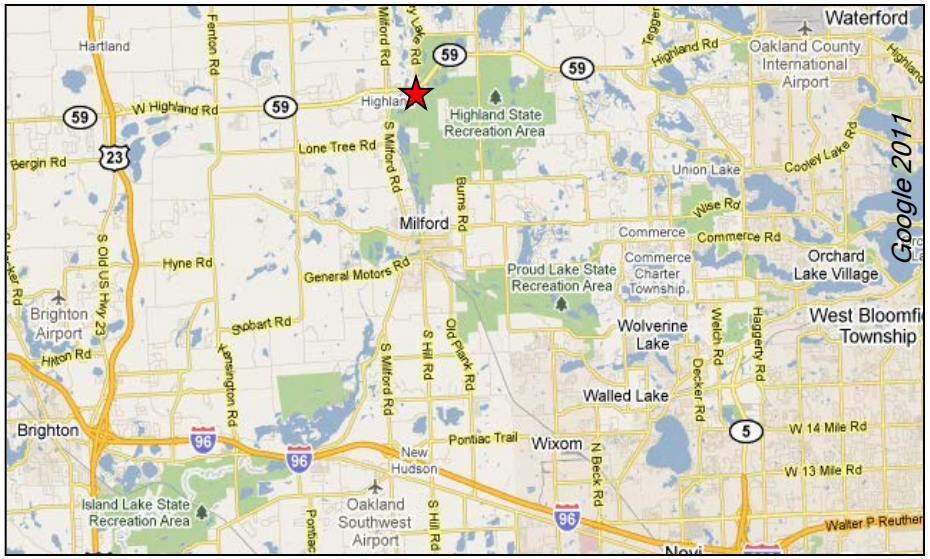
Impervious surface is hard on streams because it prevents rain from being filtered and cleaned through the soil and, instead, delivers it quickly to the stream, carrying pollutants and causing surging flows that damage the stream habitat and biotic community.

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.]

Watershed land use in 2000: 13% Agriculture, 46% Urban, 9% Forest, 13% Open, 19% Wetland.

What You Can Do

Help us improve Pettibone Creek! Plant trees and deep-rooted plants in low areas on your property to help the rain infiltrate into the earth so it can be cleansed and cooled. Go to **www.hrwc.org/take-action** for ways to keep the rain at home so that it doesn't wash pollutants into the stream and cause flooding from the sudden increase in flow volume.



Insects found in at least two sampling events from 2008-2010:

Aeshnidae — darner dragonfly
Baetidae — small minnow mayfly
Calopterygidae — broad-winged damselfly
Chironomidae — midge
Elmidae — riffle beetle
Hydropsychidae — common net-spinner caddisfly
Limnephilidae — northern caddisfly
Philopotamidae — finger-net caddisfly
Simuliidae — black fly
Tipulidae — crane fly