

Pettibone Creek at Commerce Road

Adopt-a-Stream Site Report, updated January 2012

Overall Condition: *Fair*

At this site there are several kinds of insects, but few to none sensitive families are found. The stream banks and streambed provide slightly degraded habitat as this site is downstream of a dam and squashed against a parking lot. Overall the stream has been given a "fair" condition rating.

Measuring Stream Quality

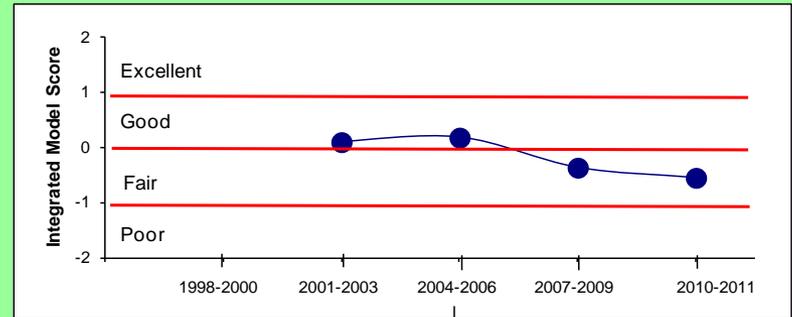
We use the bugs living in the creek to measure stream quality for two reasons. When the stream is rich in habitat variety it will have many diverse kinds of bugs (called families). Also, some bugs (called sensitive) can live only in good quality streams; they die in a poor quality stream. Any stream 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 24 times, starting in 2001. This includes Stonefly Search, River Roundup, Habitat, and Temperature events.

This site on Pettibone Creek is 18 feet wide and shallow (less than a foot). In 2008 we found only fair habitat here with areas of bare banks and the rocks in the swift water (riffles) were somewhat clogged with silt. It has almost clean water that gets quite warm (averaging a high of 81°F) in the summer. We expect the creek to be affected by the urban run-off from 14% watershed impervious surface.

There is average diversity of bugs here but very few are sensitive. In the spring we typically find 13 different families and occasionally one is a sensitive family that requires a good quality stream. In the fall an average of 12 families are typically found, but none are sensitive. 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. It is possible that they can live in streams that do not support sensitive families in the summer and fall due to low flow and warm temperatures. However, stoneflies have never been found at this site, indicating a year-round water quality problem.



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: Amy Muldoon

Pettibone Creek at Commerce Road

Background Information

Site History

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

Pettibone Creek has great potential to be a healthy place for aquatic life, but is severely hampered by the amount of dams on the creek. On the main branch of Pettibone there are five dams, each of which heats the water and interferes with the natural flow of the creek. These dams were historically used for milling and electrical production but do not serve any function at this point. To learn more about the effects of dams, go to: www.hrwc.org/the-watershed/threats/dams.

How is the Creek affected by land use here?

The area of land draining to this site is small, receiving water from only 12 square miles of land, mostly urban and residential.

According to data from 2000, nearly half of this Pettibone Creek sub-watershed is developed while one-tenth is used for agriculture. At that time, 14% of the land was covered by impervious surface.

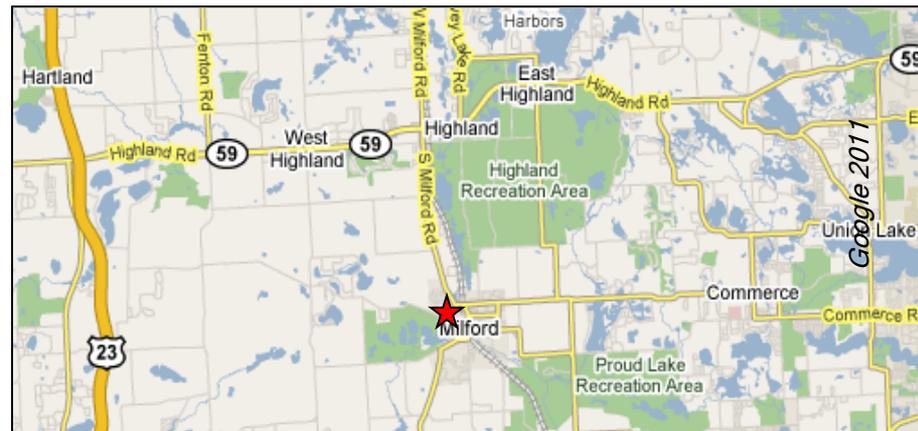
Impervious surface is hard on streams because it prevents rain from being filtered and cleaned through the soil and, instead, delivers it quickly to the stream, carrying pollutants and causing surging flows that damage the stream habitat and biotic community.

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.]

Watershed land use in 2000: 11% Agriculture, 46% Urban, 10% Forest, 15% Open, 17% 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 2009-2011:

- | | |
|---|--|
| Baetidae — small minnow mayfly | Calopterygidae — broad-winged damselfly |
| Heptageniidae — flathead mayfly | Coenagrionidae — narrow-winged damselfly |
| Helicopsychidae — snail-case caddisfly | Elmidae — riffle beetle |
| Hydropsychidae — common net-spinner caddisfly | Scirtidae — marsh beetle |
| Philopotamidae — finger-net caddisfly | Chironomidae — midge |
| Aeshnidae — damner dragonfly | Simuliidae — black fly |

**Sensitive Family*