

# Mill Creek at Fletcher Road

Adopt-a-Stream Site Report, updated January 2012

## Overall Condition: *Fair*

At this site there are many kinds of insects, including an interesting mix of beetle and true bugs like water boatman. The water drains from agricultural fields and can get warm. The stream banks, streambed, and streamside vegetation are average here. However, this stream has certainly improved over the past 10 years. From 2001 to 2009 the site quality went from poor to fair. In 2010-2011 we found signs that the stream had improved even further.

### Measuring Stream Quality

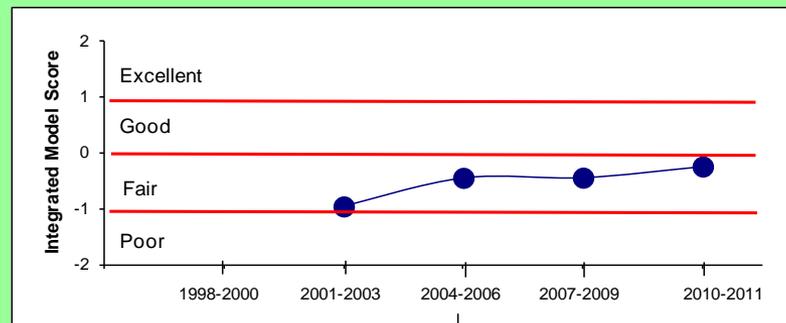
We use the bugs living in the creek to measure stream quality for two reasons. When the stream is rich in habitat variety it will have many diverse kinds of bugs (called families). Also, some bugs (called sensitive) can live only in good quality streams; they die in a poor quality stream. Any stream 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 32 times, starting in 1993. This includes Stonefly Search, River Roundup, Habitat, and Temperature events.

This site on Mill Creek is 21 feet wide and shallow (about 1 ½ feet) with 2 ½-foot deep pools. In 2010 we found average habitat here with clean rocks in the swift water (riffles) and stable banks. It has clean, warm water (often 76°F in the summer). The impervious surface is only 7% and most of that is in Chelsea which is several miles upstream. We expect the creek not to be much impacted by urban runoff, but is certainly affected by agriculture.

There is an higher than average diversity of bugs here for such a stream of this size. In the spring we typically find 10 different families and one to two are sensitive families that require a good quality stream. In the fall an average of 15 families are typically found, but no sensitive ones. Stoneflies are very sensitive insects that are only found in clean water. Many kinds of stoneflies are found at this site, another indication of good stream quality.



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: Lydia Austin

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## Background Information

### Site History

This site is on the north branch of Mill Creek, downstream from two other study sites, one on Ivey Road and one in Vet's Park (flowing under M-52) in Chelsea. The watershed flowing into this site is urban and rural with protected land and many active farms. Inputs include Four Mile Lake (a marl aka calcium carbonate lake) and the City of Chelsea's wastewater treatment plant.

In the 1960's, the Huron-Clinton Metropark Authority and the US Dept. of the Interior conducted studies of Mill Creek as a potential site for an impoundment in order to create a lake for recreational purposes. Lima Township residents formed the Mill Creek Research Council (MCRC) to fight the damming of Mill Creek in their community. They were successful and the dam was never constructed.

### How is the Creek affected by land use here?

The area of land draining to this site is a small portion of the entire Mill Creek watershed, receiving water from only 38 square miles of land, mostly farms but also fairly developed.

According to data from 2000, one-quarter of the Mill Creek watershed is developed while nearly one-third is used for agriculture. At that time, only 7% 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: 30% Agriculture, 23% Urban, 11% Forest, 12% Open, 25% Wetland.*

### What You Can Do

Help us improve Mill 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](http://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:

- |                                                |                                               |
|------------------------------------------------|-----------------------------------------------|
| *Capniidae — slender winter stonefly           | Dytiscidae — predacious diving beetle         |
| *Perlodidae — Perlodid stonefly                | Gyrinidae — whirligig beetle                  |
| *Taeniopterygidae — broad-back winter stonefly | Heptageniidae — flathead mayfly               |
| Aeshnidae — damner dragonfly                   | Hydropsychidae — common net-spinner caddisfly |
| Baetidae — small minnow mayfly                 | Limnephiliidae — northern caddisfly           |
| Belostomatidae — giant water bug               | Mesoveliidae — water treaders                 |
| Caenidae — square gilled mayfly                | Simuliidae — black fly                        |
| Calopterygidae — broad-winged damselfly        |                                               |
| Chironomidae — midge                           |                                               |
| Corixidae — water boatman                      | *Sensitive Family                             |