

Mill Creek at M-52 (Manchester)

Adopt-a-Stream Site Report, updated January 2012

Overall Condition: **Good**

This site has been improving steadily since 2003. There are many kinds of bugs and several of them are sensitive. The water is clean, although it gets warm in the summer. The banks are healthy and there is stable habitat here. The good habitat and diverse insect life result in the stream receiving an overall rating of "good", which means that this creek is above average when compared to other creeks of it's size in the Huron River Watershed.

Measuring Stream Quality

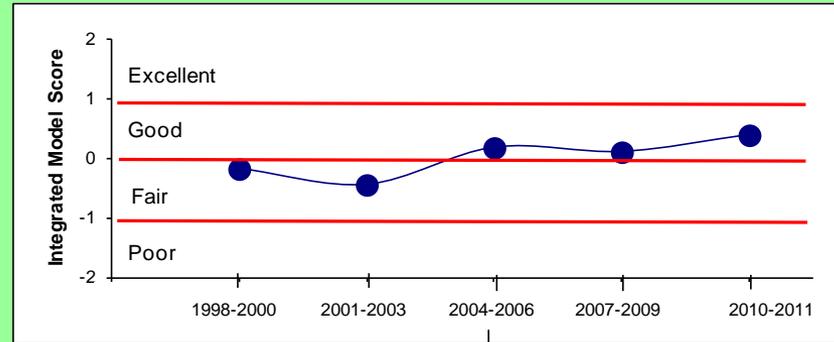
We use the bugs living in the creek to measure stream quality for two reasons. When the stream is rich in habitat variety it will have many diverse kinds of bugs (called families). Also, some bugs (called sensitive) can live only in good quality streams; they die in a poor quality stream. Any stream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

This site on Mill Creek is 15 feet wide and shallow (less than a foot). In 2010 we found average habitat here. Rocks in the swift water (riffles) were somewhat clogged with silt, but the banks were stable. It has clean water that often reaches 76°F in the summer. It has so little urban run-off (from only 3% impervious surface) that we expect the creek to be in very good shape.

There is very good diversity of bugs here for such a small stream. In the spring we typically find 13 different families and three are sensitive families that require a good quality stream. In the fall an average of 16 families are typically found, again with three sensitive ones. This is a high amount of sensitive insects when compared to other Huron River watershed streams of this size. Stoneflies are very sensitive insects that are only found in clean water and we find them here in the spring, fall and winter (including one of the "winter stoneflies" that grow only in winter and are dormant the rest of the year).



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 the furthest upstream that we study on the main branch of Mill Creek. The Creek meanders through the area around Sylvan and Grass Lake Roads, including the south tip of the Chrysler Proving Grounds. (The rest of the Proving Grounds drain to the north branch of Mill Creek.) The land contributing to this site has been farmed for many years and is much less developed than much of the Huron River watershed. Low lying parts of the Mill Creek watershed were swampy, so the early settlers drained them to grow a diversity of crops on the rich soil. Unfortunately, the draining of the wetlands has negatively impacted the fish community, as species like northern pike are reliant on wetlands as breeding grounds.

How is the Creek affected by land use here?

The area of land draining to this site is small, receiving water from only 11 square miles of land, mostly farms.

This is one of the most rural areas in the Huron watershed, according to data from 2000. Only 10% of the study site's watershed is developed while more than 50% is used for agriculture. At that time, only 3% of the land was covered by impervious surface.

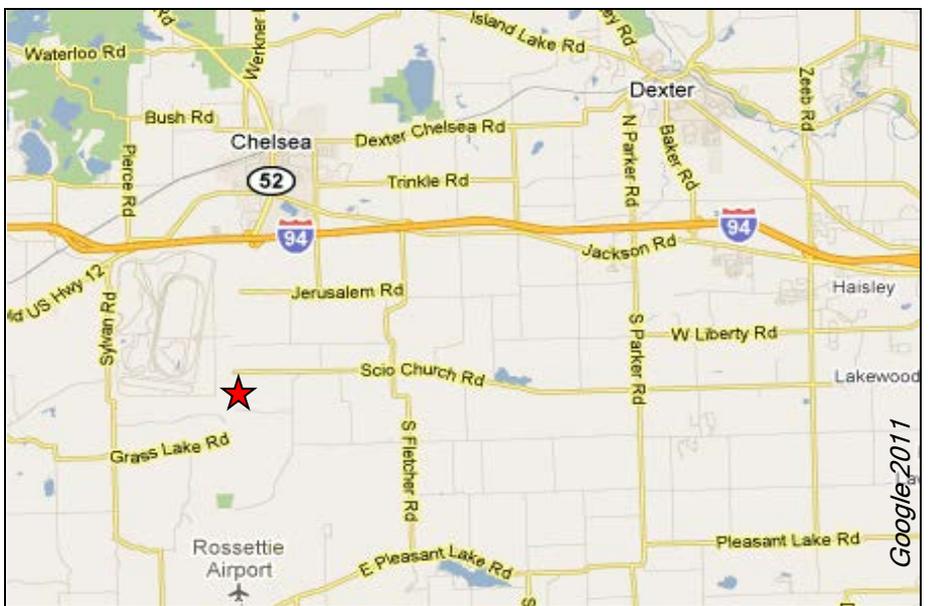
Impervious surface is hard on streams because it prevents rain from being filtered and cleaned through the soil and, instead, delivers it quickly to the stream, carrying pollutants and causing surging flows that damage the stream habitat and biotic community.

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: 55% Agriculture, 10% Urban, 11% Forest, 13% Open, 12% 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 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:

- *Corydalidae — dobson fly
 - *Isonychiidae — brush-legged mayfly
 - *Leptophlebiidae — pronggill mayfly
 - *Nemouridae — Nemourid broadback stonefly
 - *Perlodidae — Perlodid stonefly
 - Taeniopterygidae — broad-back stonefly ♥
 - Aeshnidae — darners dragonfly
 - Baetidae — small minnow mayfly
 - Calopterygidae — broad-winged damselfly
 - Chironomidae — midge
 - Elmidae — riffle beetle
 - Haliplidae — crawling beetle
 - Heptageniidae — flathead mayfly
 - Hydropsychidae — common net spinner caddisfly
 - Limnephilidae — northern caddisfly
 - Simuliidae — black fly
 - Tabanidae — deer fly, horse fly
 - Tipulidae — crane fly
 - Veliidae — short-legged striders
- *Sensitive Family*