

## Upper Grand River Watershed Survey (2016)

The Michigan Department of Environmental Quality (DEQ) has Aquatic Biologists that sample aquatic macroinvertebrates in the water, along with their habitat, to determine the health of our rivers and streams. Aquatic macroinvertebrates are insects and other small organisms without backbones that live in our streams and rivers and are excellent indicators of water body health because many live in the water all year. In addition, some macroinvertebrates are more tolerant to pollution than others. In general, healthy streams have a wider variety of macroinvertebrates than waters that are polluted.

The DEQ is responsible for ensuring our waters meet water quality standards and are safe for swimming, fishing, boating, agricultural and industrial uses, as well as protecting aquatic life and wildlife communities. The DEQ collects samples, including macroinvertebrates, from Michigan waters to identify areas that need special attention.

Additional information can be found on the DEQ's Assessment of Michigan Waters website at: [www.Michigan.gov/waterquality](http://www.Michigan.gov/waterquality)



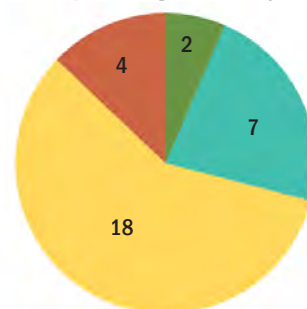
Grand River, Ingham County, MI

Routine sampling of the upper reaches of the Grand River occurs every five years to evaluate stream condition or health. Sampling occurred in 2006, 2011, and 2016 and will occur again in 2021. The aquatic macroinvertebrate community and habitat condition ratings for sites sampled in 2016, are shown in the graphs to the right. A map on the last page depicts the macroinvertebrate condition at specific stream locations. The aquatic macroinvertebrate community was most commonly rated at the lower end of acceptable and stream habitat (including habitat in the stream and along the bank) was rated either marginal or good. The macroinvertebrates in Carrier Creek scored poor, due to large and quick changes in water level (flashy flows) and the resultant erosion and fine sediment covering the bottom of the stream which smothers macroinvertebrates. The macroinvertebrates in the outlet of Pine Lake and an unnamed tributary to the Cedar River just west of Williamston also scored poor due to a lack of habitat caused at least in part to the streams being straightened and cleaned out for water drainage.

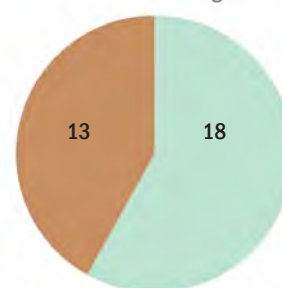
*"A watershed is all of the land that drains into a river, lake or stream."*

Aquatic Macroinvertebrate and Habitat Health at 31 stations in the Upper Grand River Watershed (2016)

Aquatic Bug Community



Habitat Rating



- Excellent
- High Acceptable
- Good
- Marginal
- Low Acceptable
- Poor

### Watershed Land Use

| Watershed                           | Natural | Developed | Cultivated Agriculture | Hay or Pasture | Water | Other | Lost Wetlands |
|-------------------------------------|---------|-----------|------------------------|----------------|-------|-------|---------------|
| Hurd Narvin Drain-Grand River       | 26%     | 65%       | 2%                     | 4%             | 2%    | 0%    | 21%           |
| Batteese Creek                      | 48%     | 7%        | 26%                    | 18%            | 1%    | 0%    | 18%           |
| Huntoon Creek                       | 22%     | 12%       | 40%                    | 25%            | 0%    | 0%    | 42%           |
| Western Creek-Grand River           | 42%     | 13%       | 24%                    | 20%            | 1%    | 0%    | 18%           |
| Perry Creek-Grand River             | 33%     | 5%        | 39%                    | 23%            | 0%    | 0%    | 12%           |
| Otter Creek-Spring Brook            | 37%     | 5%        | 38%                    | 19%            | 0%    | 0%    | 9%            |
| Handy Howell Drain-Red Cedar River  | 34%     | 18%       | 22%                    | 24%            | 2%    | 1%    | 16%           |
| Kalamink Creek                      | 19%     | 12%       | 50%                    | 19%            | 0%    | 0%    | 57%           |
| Hayhoe Drain-Doan Creek             | 24%     | 6%        | 44%                    | 24%            | 0%    | 2%    | 40%           |
| Squaw Creek-Red Cedar River         | 18%     | 12%       | 47%                    | 23%            | 0%    | 0%    | 20%           |
| Sloan Creek                         | 19%     | 9%        | 49%                    | 23%            | 0%    | 0%    | 27%           |
| Coon Creek-Red Cedar River          | 27%     | 14%       | 35%                    | 23%            | 0%    | 0%    | 15%           |
| Pine Lake Outlet                    | 36%     | 41%       | 9%                     | 9%             | 4%    | 1%    | 14%           |
| Mud Creek                           | 27%     | 6%        | 39%                    | 27%            | 0%    | 1%    | 32%           |
| Headwaters Sycamore Creek           | 15%     | 24%       | 38%                    | 23%            | 1%    | 0%    | 43%           |
| Skinner Extension Drain-Grand River | 28%     | 14%       | 31%                    | 26%            | 1%    | 0%    | 41%           |
| Carrier Creek-Grand River           | 11%     | 77%       | 6%                     | 4%             | 2%    | 1%    | 30%           |



MDEQ employee sampling  
a Michigan stream

### Land Use

The use of the land in the watershed that drains to waterbodies greatly influences the types of pollution that can enter the water. The landscape of the upper Grand River is gently sloping and has poorly drained soils. Agriculture is the dominant land use. Because the soils are poorly drained, many of the agricultural fields in the upper Grand River and Red Cedar River watershed use underground tile pipes to drain fields. Wetlands and streams have been drained, dredged, and straightened (e.g. channelized) so that water moves quickly. This scours the stream banks and fills in stream bottoms with sediment, and can degrade habitat for aquatic insects and fish. Overland stormwater runoff from bare fields can lead to additional sediment, nutrients, and other pollutants entering the stream. Development or urbanization of the watershed also results in an increase in runoff as a result hard surfaces. Forested and wetland areas have less stormwater runoff because water has more time to soak into and be filtered by the soil.

### Water Quality Data

Water chemistry data have been collected as part of the DEQ Water Quality Monitoring Program ([www.michigan.gov/waterquality](http://www.michigan.gov/waterquality)) and to a limited degree with biological surveys (The link provided was broken and has been removed). Data collected from randomly selected stations from 2005-2014 indicate nutrient levels in the upper Grand River watershed are at the higher end of levels typically found from other rivers across lower Michigan; including the lower Grand, Flint, Kalamazoo, Maple, Muskegon, and St. Joseph Rivers. Metal concentrations meet water quality standards with the exception of mercury which has resulted in fish consumption advisories.

### Fish Consumption Data

Fidelity Lake and Lake Lansing (Ingham County); Center Lake, Clark Lake, Norvell Lake, Portage Lake, and Vandercook Lake (Jackson County); the entire Grand River mainstem; and other water bodies, have fish consumption advisories due to mercury and PCB levels in fish tissue. The Eat Safe Fish link has more information. Fish Consumption Advisory Details: [www.michigan.gov/eatsafefish](http://www.michigan.gov/eatsafefish). The DEQ is not responsible for fish stocking, please see the Michigan Department of Natural Resources for more information ([www.michigan.gov/dnrfishing](http://www.michigan.gov/dnrfishing)).

### Beach Monitoring Data

Public beaches in this watershed (including those on rivers or lakes) may at times be closed due to elevated levels of bacteria, especially after rain. Although this is rare, beach closing information is available online through BeachCast: ([link broken, removed](#)) and through BeachGuard: <https://www.egle.state.mi.us/beach/>.

### Watershed groups and Lake Associations

The Upper Grand River Watershed Alliance  
[www.uppergrandriver.org](http://www.uppergrandriver.org)

Ingham County Conservation District  
<https://inghamconservation.com/>

Mid-Michigan Environmental Action Council  
[www.midmeac.org](http://www.midmeac.org)

Tri-County Regional Planning Commission  
<https://www.mitcrpc.org/>

Mirror Lake Association  
[mirrorlakemi.mylaketown.com](http://mirrorlakemi.mylaketown.com)

Middle Grand River Organization of Watersheds  
[www.mgrow.org](http://www.mgrow.org)

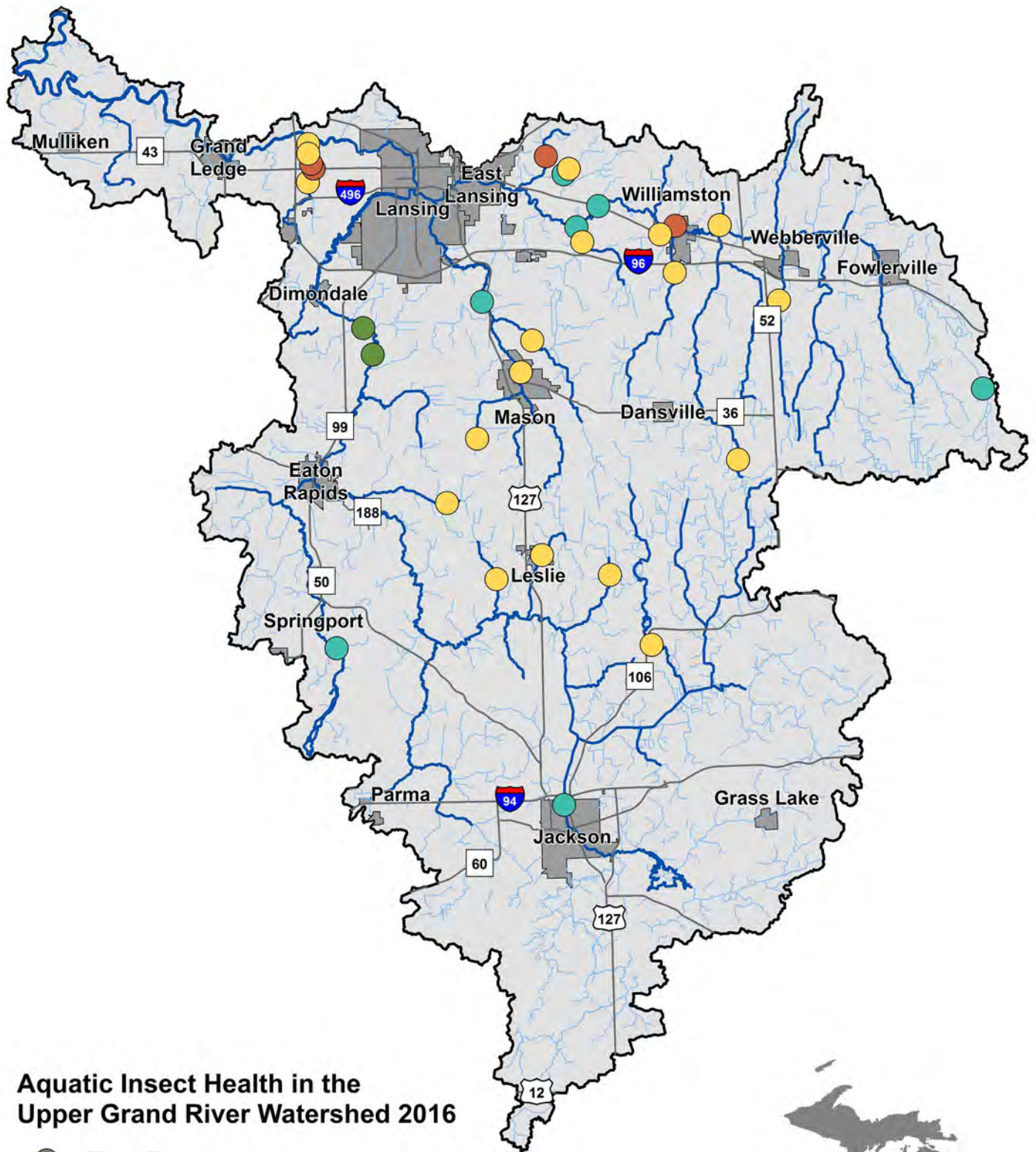
Jackson County Conservation District  
[www.jacksoncd.org](http://www.jacksoncd.org)

Grand River Environmental Action Team  
[www.great-mi.org](http://www.great-mi.org)

### Sampling Requests

If you have a water body that you would like the DEQ to consider sampling, you can fill out a Monitoring Request Form ([www.michigan.gov/waterquality](http://www.michigan.gov/waterquality)). Requests are reviewed annually and completed based on staff availability, budget, and other monitoring needs.





**Aquatic Insect Health in the Upper Grand River Watershed 2016**

- **Excellent**
- **High Acceptable**
- **Low Acceptable**
- **Poor**

