Getting to Know Your Michigan Watersheds Map

The Michigan Watersheds map illustrates that all waterways in Michigan eventually flow into the Great Lakes, and therefore, our actions on land influence what happens downstream. This guide is designed to explain map details and how to use the map as a tool.

MAP DATA SOURCES*

This map is based on high-resolution geographic data that was processed by partners at the USGS Great Lakes Science Center. The original data layers came from:

- *Watershed boundaries and lakes:* Michigan Geographic Data Library
- *Great Lakes:* Institute for Fisheries Research Great Lakes GIS
- *Rivers, political borders and cities:* Michigan Geographic Data Library and GIS-based software from ESRI

EXPLORING BOUNDARIES

Watersheds are often referred to as drainage or catchment basins and are defined as the land area that drains – or sheds – water to a particular river, stream or body of water. Watershed boundaries, referred to as drainage divides, are determined by high points in the landscape.

For general information about watersheds, see: http://water.usgs.gov/education.html

CLASSIFYING WATERSHEDS

Watershed boundaries can be represented in a number of different ways and at different scales. Large river basins can be subdivided into an almost infinite number of smaller watersheds, depending on the level of detail needed. The U.S. Geological Survey developed a hierarchical system for classifying watersheds into Hydrologic Unit Codes (HUCs), by dividing the U.S. into 21 hydrologic regions and then dividing each of those regions into smaller and smaller units. Many agencies organize watershed data using 8-digit HUCs, identified by an official 8-digit code.

The watershed boundaries on this map are smaller watershed divisions than those 8-digit HUCs. The boundaries are those used by the Michigan Department of Environmental Quality (MDEQ). The level of detail was chosen in order to define the watersheds in relation to the Great Lakes, where each river eventually ends.

To learn about watershed divisions, see:
http://water.usgs.gov/wsc

A Few Questions to Get Started

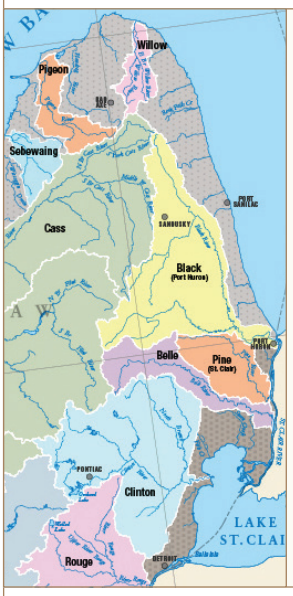
- Which watershed do you live in?
- Is it part of a Greater Watershed?
- Can you follow the flow of water from your watershed to one of the Great Lakes?
- What are the largest watershed basins in Michigan?

GREATER WATERSHEDS

Watershed names beginning with "Greater" refer to the whole drainage area for a large river that has been divided into distinct sub-watersheds to make management of the water resources easier.

MAP PROJECTION

When developing a map of a relatively large area, projecting geographic information from the spherical earth surface to a two-dimensional map surface with minimal distortion of shapes, sizes and distances is a challenge. The Michigan Watersheds map uses the Albers Equal Area Conic Projection. The projection helps to ensure that the sizes of landmasses are proportional to each other and helps maintain a 90-degree angle between lines of latitude and longitude. However, shapes are still slightly distorted due to the limitations of viewing a two-dimensional version of the surface of the earth.

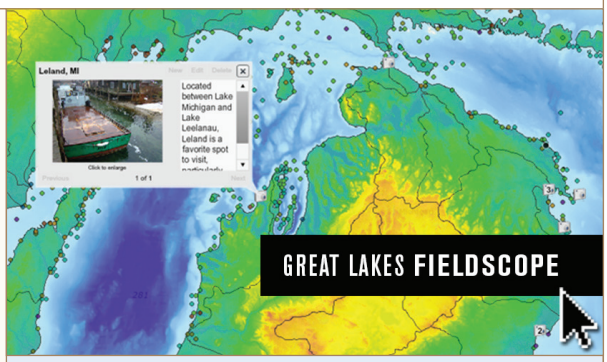


Coastal Areas

Most land and creeks in Michigan drain to one of the major rivers shown on the map — which is typically how watersheds function. However, coastal regions are different. Drawing watershed boundaries in these areas becomes more complicated.

In coastal regions, there are many small streams that are too small to show on the map. Those streams and creeks drain directly into a lake instead of collecting into a river and then draining to the Great Lakes. Rather than grouping them as watersheds, they are referred to as coastal drainages and are indicated on the map in various shades of gray.

Do you live in one of these coastal regions? What do you think happens to the water that lands within your watershed? Why do you think it's important to distinguish between coastal drainages and watersheds?



Are you interested in learning more about watersheds and water quality in Michigan and the Great Lakes? Check out the online mapping tool, FieldScope, to explore water issues throughout the basin.

http://greatlakes.fieldscope.org

** The Michigan Watersheds map was produced by Michigan Sea Grant and the USGS using the best possible data from many sources. Every effort has been made to use accurate and verified information, however, a degree of error is inherent in all maps. If you notice any errors, please contact Michigan Sea Grant at msgpubs@umich.edu.*

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