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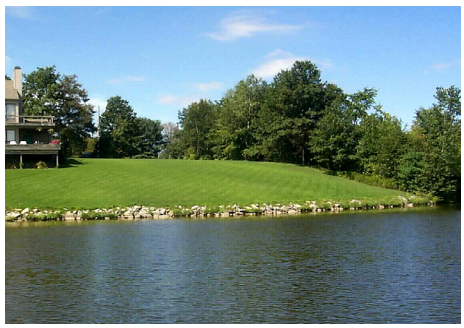

# What Is a Watershed?

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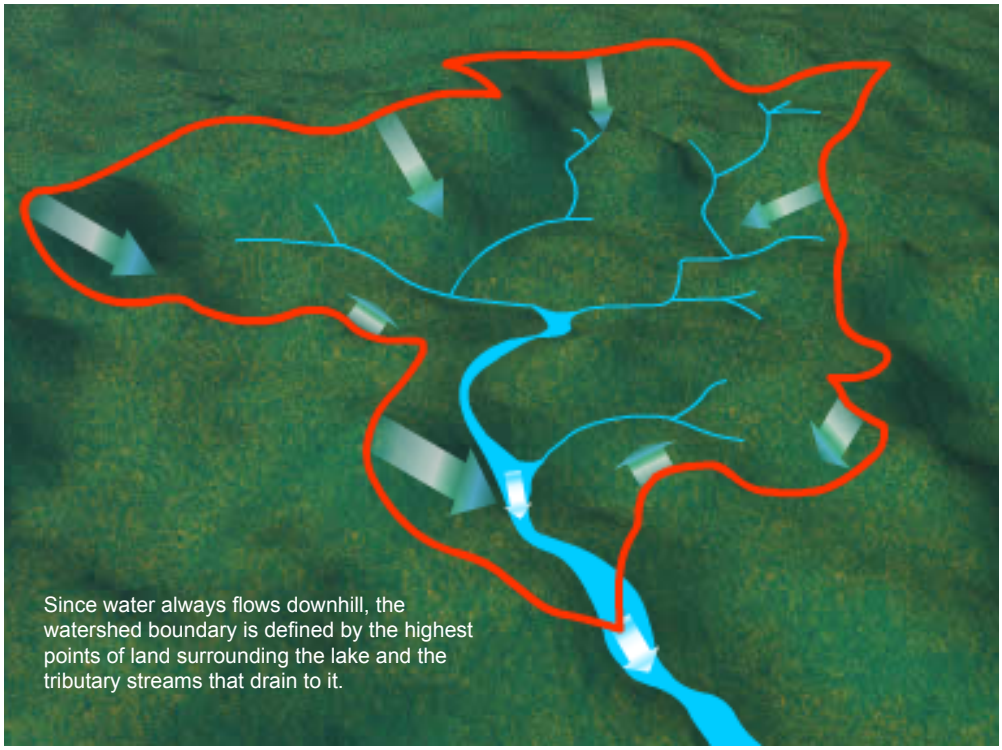
*by Tony Groves, Pam Tyning, and Paul Hausler*
*Progressive AE*

A lake's watershed, or drainage basin, is the land area surrounding the lake from which water drains to the lake. The imaginary line that defines a watershed is the watershed boundary or the drainage divide. Rain that falls inside the watershed boundary eventually drains to the lake. Outside the boundary, rainfall drains to a different waterbody.

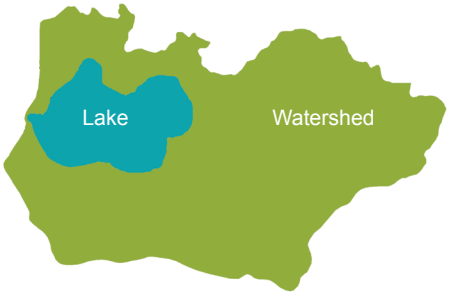
**Size Matters**

A watershed can be large or small; the size and shape of a watershed depends on the land relief, and on the number and length of tributary streams. Some lakes have no inlets, so their watersheds tend to be small. Other lakes are fed by large rivers and consequently have very large drainage areas. For example, the Muskegon Lake watershed is 2,350 square miles in area and includes drainage from the 212-mile-long Muskegon River. Higgins Lake, on the other hand, is about twice the size of Muskegon Lake but the Higgins Lake watershed is 37 square miles in area.

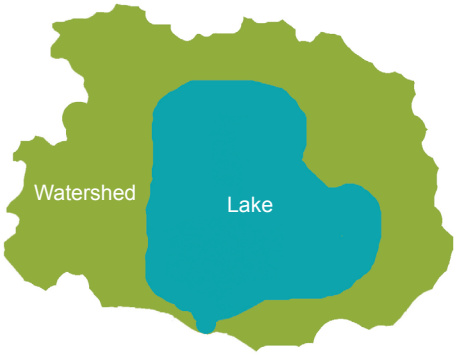
Watersheds can also be large or small relative to the size of the lake. The Muskegon Lake watershed is over 360 times larger than the lake itself; the Higgins Lake watershed is 2.5 times the size of the lake.




Caption: Arial Regular 8 on 9.6, left justify.




Watershed is large compared to the lake. Large watersheds tend to have a greater impact on lake water quality than watersheds that are small relative to the size of the lake.




Lake with relatively small watershed.

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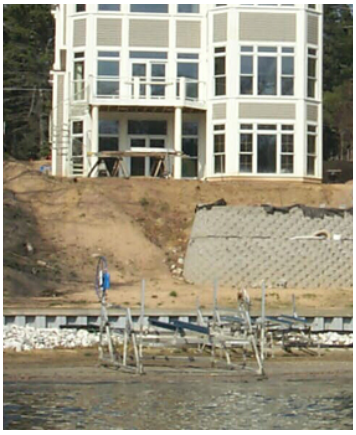
Watersheds can impact water quality within the lake. In general, large watersheds have a greater impact on lake water quality than small watersheds. As runoff moves over the land, it can pick up pollutants that can be transported to the lake. Pollutants may travel for many miles before reaching the lake.

**Land Use is Important Too**

The type of land in the watershed can impact water quality in the lake. In general, urban land and farmland tend to produce more pollutants in runoff than does forested land or wetland. In watersheds with homes and farms, runoff often contains fertilizers that can stimulate growth of nuisance plants and algae in the lake. In watersheds where there is construction or erosion, sediments are carried in the runoff causing the lake to become shallower with sediment fill-in. Thus, urbanized and farmed watersheds tend to have a greater negative impact on lake water quality than watersheds with forests and wetlands. By contrast, wetlands often act as a filter, removing sediments, fertilizers and other pollutants before they wash into a lake.

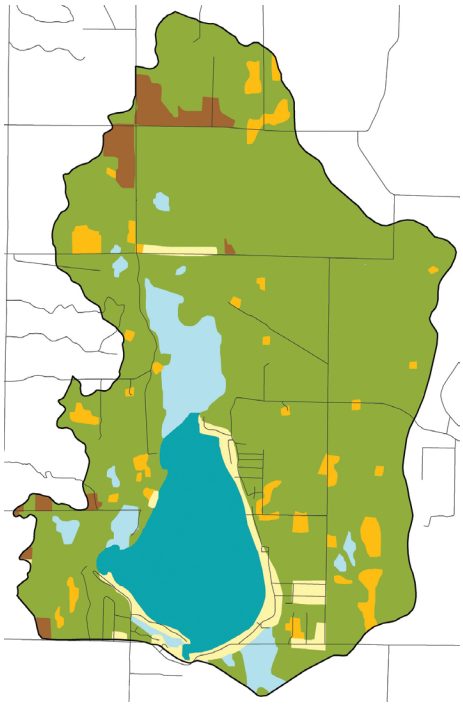
Erosion can occur even on seemingly flat land within a watershed. Besides the sediment itself, the eroded soil can carry phosphorus, pesticides and other pollutants to the lake. In this way, activities that occur far from the lake shore can still affect water quality.


Although pollutants can be carried to a lake from long distances within a watershed, activities along the lake shore can have an immediate and direct impact on water quality because of the close proximity to the lake.

**What's in Your Watershed?**

*Just as every lake is unique, so is every watershed. Every watershed has its own size and shape; the number and length of tributary streams is unique; the soil types through which surface water and groundwater drains to the lake; the manner in which the land is used—farming, residential, forests, or wetland—all of these factors, and the combination of these factors, is unique to each watershed.*

*About the Authors:*
*Tony Groves, Pam Tyning, and Paul Hausler have nearly 70 years of combined experience working as lake management consultants with Progressive AE in Grand Rapids, Michigan. Tony, Pam, and Paul created MichiganLakeInfo.com, a website for those interested in Michigan's inland lakes. On the site you can find this article and information on topics such as lake water quality, watershed management, aquatic plants, lake levels, lake improvement boards and more.*



When precipitation falls on the land, it absorbs into the ground and becomes groundwater, or it washes over the land as "runoff."

Catch basins collect runoff from parking lots, roadways, and other paved areas.

*Watersheds are important because they can impact lake water quality.*


Runoff from agriculture (left) and urban land (right) tend to carry more pollutants, and can have a greater impact on lake water quality.

Forested lands tend to contribute very little runoff to lakes while wetlands act as runoff filters and reduce the amount of pollutants that wash into lakes.