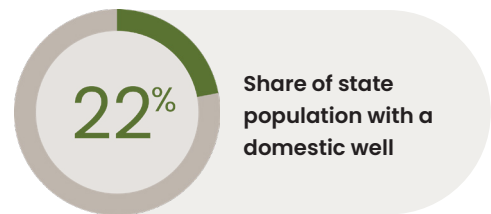
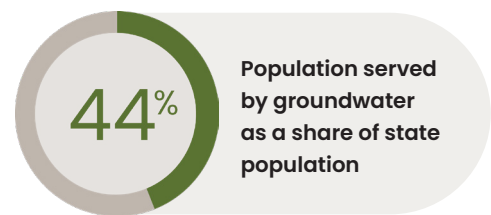




Michigan Groundwater: The Basics

Agency Authority

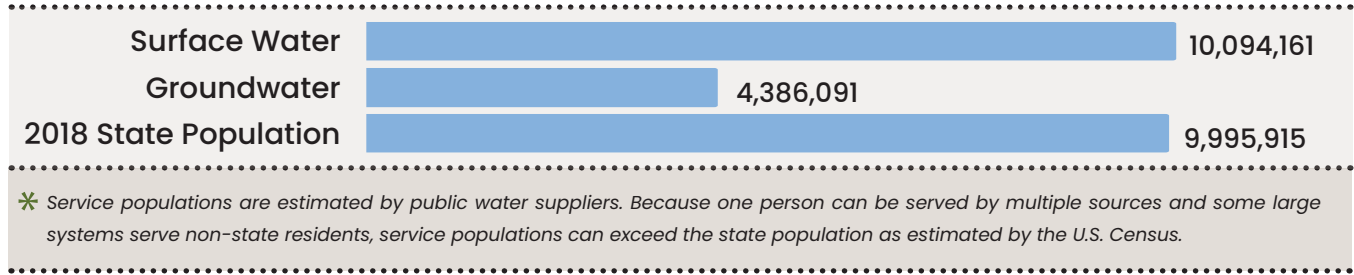
The Michigan Dept. of Energy, Great Lakes and the Environment (EGLE), formerly the Dept. of Environmental Quality (DEQ) houses a Water Resources Division that issues groundwater permits. EGLE also uses the Water Withdrawal Assessment Tool to assess surface water impacts of groundwater withdrawals. EGLE and the Michigan Department of Health and Human Services (MDHHS) are responsible for managing drinking water supply. In Michigan, most public water systems use at least some surface water, with only 44% of the state's population using groundwater. Twenty-six percent of the state's population served by domestic wells.



Michigan State Agency organization around common areas of GW concern

Agency	Area of Concern
Michigan Department of Environment, Great Lakes, and Energy (EGLE)	Groundwater appropriation or permitting
	Groundwater availability and ecological impact
	Industrial contamination
EGLE and Michigan Dept. of Health & Human Services (MDHHS)	Drinking water supply
Michigan Department of Agriculture And Rural Development (MDARD)	Agricultural pesticide and fertilizer contamination

Population served by Public Water Supplies sourcing from...



State of Groundwater Knowledge and Production

Michigan is unique in Environmental Protection Agency (EPA) Region 5 in that nearly the entire state lies within the Great Lakes Basin. Groundwater quantity is limited according to the Great Lakes Compact, and groundwater users are registered. However, concerns over groundwater availability are not a driver of mapping efforts in the state. Groundwater *quality* appears to be increasingly impacting available *quantity*. The State Geologist and a small staff comprising the Geological Survey is currently housed at Western Michigan University. Although they nominally provide map data on geology and hydrogeology, they have historically not been funded at a level that supports a coordinated mapping program. The USGS has two cost-share mapping programs that have been used for the limited mapping and drill-core information that is available, EDMAP and STATEMAP. As a result, very little is known about buried glacial aquifer extent.

The Michigan Department of Energy, Great Lakes, and Environment (EGLE) has developed a Water Withdrawal Assessment Tool to assess the impacts of pumping groundwater to surface water features. The 12-to-15-year old model provides an estimate of the impact of a particular well on a surface water feature, and is run separately for every new well. The state has a long-term agreement with the USGS for gauging, climate monitoring, and groundwater monitoring wells, all of which are inputs to groundwater models. The independent nature of the United States Geological Survey may be especially helpful with groundwater issues that cross state lines, for example between Ohio, Indiana and Michigan.

“
**Groundwater
quality
appears to be
increasingly
impacting
available
quantity**
”

Legal

Historically, the primary source of water law in Michigan has been caselaw. However, the state is a party to the Great Lakes Compact and has enacted statutes governing groundwater use. The reasonable use rule for percolating underground waters has been enacted into statutory law. (MCL § 600.2941). The statute casts reasonable use of groundwater in terms of nuisance and abatement. (MCL § 600.2941(1)). When a well is declared a nuisance, a court “shall specify in some practicable manner the daily amount or volume of water that may be used or allowed to flow therefrom.” (MCL § 600.2941(3)).

In *Michigan Citizens for Water Conservation v Nestlé Waters North America Inc.* (2005), the Michigan Court of Appeals determined that Michigan law on groundwater use applies a “reasonable use balancing test” to “ensure the greatest possible access to water resources for all users while protecting certain traditional water uses.” The court said the balancing test should consider several factors on a case-by-case basis, including:

- (1) the purpose of the use, (2) the suitability of the use to the location, (3) the extent and amount of the harm, (4) the benefits of the use, (5) the necessity of the amount and manner of the water use, and (6) any other factor that may bear on the reasonableness of the use.

On appeal, the Supreme Court of Michigan held that the plaintiffs lacked standing. (*Michigan Citizens for Water Conservation v Nestlé Waters North America Inc.* 2007). However, the Court of Appeal's ruling still stands. There is a registration requirement for withdrawals over 100,000 gallons/day in any consecutive 30-day period. (MCL § 324.32705(1)). Registration is not required for owners of a noncommercial well on certain residential properties and seasonal withdrawals of 2 million gallons/day in any consecutive 90-day period to supply a common distribution system. Michigan also has a permitting system for users proposing to withdraw over 2,000,000 gallons/day, and certain other large withdrawals that will be used to supply a common distribution system. (MCL § 324.32723(1)(a).

Tribes and Groundwater

There are 12 federally recognized tribes that share geography with Michigan, listed here. Because of the relatively smaller geographic size of these nations, aquifers and their recharge areas are rarely entirely contained within a tribe's official physical jurisdiction. In some instances, a tribe will partner formally or informally with neighboring tribal communities or county governments to manage groundwater. The Inter-Tribal Commission of Michigan is an example of an official consortium of the federally recognized tribes in the state that works specifically with groundwater. Particularly where surface water expressions of groundwater such as springs have significant cultural value, but also simply where a single aquifer is the primary source of water for a community, there are concerns about aquifer contamination from land use changes and in the recharge area that may lay outside of jurisdictional boundaries. Tribal government natural resource departments responsible for groundwater management are often small, with limited capacity to take on tasks outside of required reporting to the Environmental Protection Agency.

12 Federally Recognized Tribes

- Bay Mills Indian Community
- Grand Traverse Band of Ottawa & Chippewa
- Hannahville Indian Community
- Keweenaw Bay Indian Community
- Lac Vieux Desert Band of Chippewa
- Little River Band of Ottawa
- Little Traverse Bay Bands of Odawa
- Match-E-Be-Nash-She-Wish (Gun Lake) Band of Pottawatomi
- Nottawaseppi Huron Band of the Potawatomi
- Pokagon Band of Potawatomi
- Saginaw Chippewa Indian Tribe
- Sault Ste. Marie Tribe of Chippewa

Key Takeaways

- » Because of Michigan's unique and complicated geological setting and the lack of a coordinated mapping program, there is much that is not well understood about the conditions of groundwater in the state.
- » Groundwater is often managed based on surface water impacts, and EGLE has developed a tool to model and assess new wells based on this risk.
- » Among household users of groundwater, most have domestic wells, which are not regulated by EGLE or MDHHS, meaning that that population is vulnerable to changes in groundwater quality and quantity.
- » Permitting and registration for high-capacity wells is less restrictive in Michigan than in other states in the region that have lower thresholds for withdrawal permitting.

WORK PRESENTED BY AND CREATED IN COLLABORATION WITH:



READ THE FULL REPORT:



WORK MADE POSSIBLE BY:

