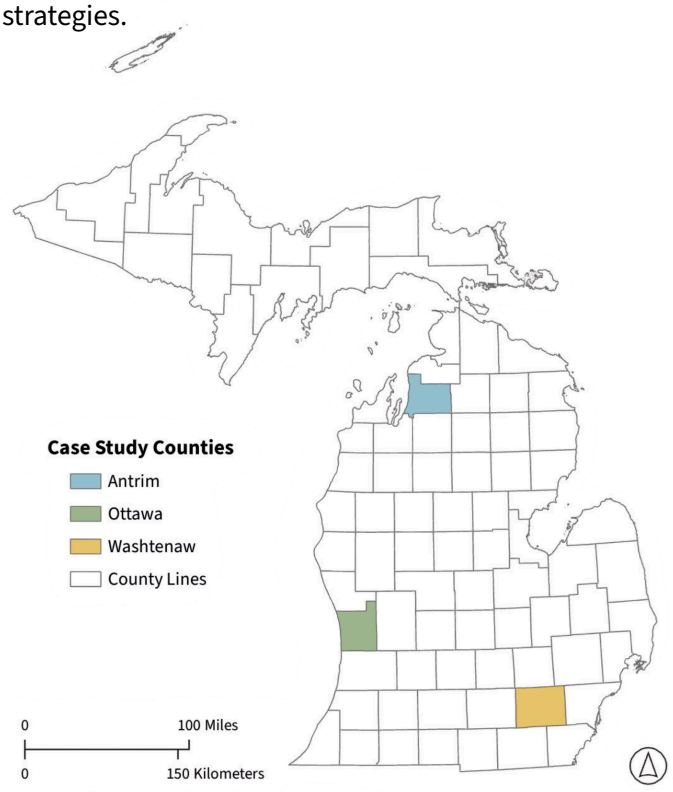
Groundwater Issues in Michigan: Case Studies

From *A Groundwater Strategy for Michigan: Protecting the "Sixth Great Lake"*

Why case studies?

Groundwater is crucial to Michigan's economy, environment, and the everyday lives of residents. 45% of Michigan residents rely on groundwater for their drinking water. *A Groundwater Strategy for Michigan: Protecting the "Sixth Great Lake"* uses county-level case studies to understand how groundwater is currently managed, and to make recommendations for safer, more sustainable strategies.



Antrim County

Between 1886 and 1945, and 1947 and 1967, respectively, the Tar Lake plume and the Wickes TCE plume were created by industrial companies that deliberately contaminated soil and groundwater. Today, the EPA monitors Tar Lake. Even after 47,000 tons of soil were removed, parts of the site remain polluted. The Wickes plume is the largest TCE plume in the country, and multiple assessments have determined that the plume is too large to remediate. While the Mancelona Area Water and Sewer Authority has worked with the Michigan Department of Environment, Great Lakes and Energy (EGLE) to expand municipal water to residents whose wells are contaminated, public water also comes from groundwater. As the plume expands, surface bodies, including Torch Lake and Lake Bellaire, are at risk.

Ottawa County

Groundwater shortages in Ottawa County were first reported in 2007, when residential wells in a new subdivision in Allendale Township ran dry, and farmers noticed their soybean crops mysteriously dying. It was soon discovered that salty 'brine' from the depleted Marshall aquifer was harming crops. To address the challenge of water scarcity, Ottawa County has created a Groundwater Board to advise policy and planning, and one community is encouraging new development to connect to public water.

Washtenaw County

Since the discovery of an industrial 1,4-dioxane plume running beneath Ann Arbor in 1984, the City, the Michigan Department of Environment, Great Lakes, and Energy (EGLE) and the responsible company have negotiated complex land-use restrictions and remediation measures. In March 2026, in response to resident and state-level insistence for federal intervention, the plume was added to the EPA's Superfund list.

In Ann Arbor Township, a gravel mine called the Vella Pit has led to the depletion and contamination of nearby residential wells. In 2023, the Township cited the mine for 13 local ordinance violations, and EGLE issued violation notices for 5 state rules and laws. In December 2025, a group of neighboring residents filed lawsuits against both the mine operator and EGLE, arguing that their riparian rights to water had been violated.

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Key Lessons

1. The state should provide **more funding and technical support** to local entities facing groundwater challenges.

2. Intentional and **proactive public education** must be pursued to fortify effective management across groundwater issues. Examples from Antrim County, where public education is an integral tool for maintaining community trust, and Ottawa County, where public education is the primary tool for officials seeking to promote water conservation, illustrate the value of outreach.

3. **Stronger cleanup standards** for groundwater contamination should prevent the persistence or expansion of contamination that limits future groundwater use. In Antrim and Washtenaw Counties, contamination has been allowed to expand since it was discovered. Michigan's risk-based approach to remediation relinquishes the value of groundwater—both financial and environmental—to legacy polluters.

4. Michigan's water withdrawal assessment program must **account for the cumulative impacts** of small-scale withdrawals. In Ottawa County, officials are concerned about the impact of well-dependent population growth on the depleted Marshall aquifer. As the state's withdrawal assessment tool is updated, additional bedrock aquifer mapping and research should investigate novel ways to account for the impact of small-scale wells in a given area, which may use just as much or more water as a single large user.

5. Michigan must **eliminate zoning privileges** for natural resource mining. In Michigan's Zoning Enabling Act, natural resource mining is especially protected from local land use regulation. In practice, this provision means that municipalities may not "zone out" mining operations or exclude such land use from their ordinances. Even Ann Arbor Township's extensive permitting process for mines could not prevent abuse by a gravel mine, which flagrantly violated its permit conditions.

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See the full report