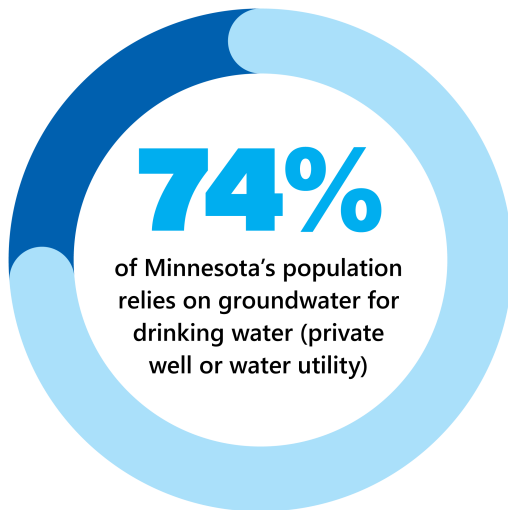


Background

The Great Lakes Commission (GLC) passed a policy resolution in March 2024 which called upon partners and agencies to engage with the GLC toward a better understanding of the current state of groundwater management in the Great Lakes basin.¹ Then, in December 2024, the GLC received funding from the Joyce Foundation to develop groundwater management summaries for each Great Lakes jurisdiction, building upon previous reports supported by the Joyce Foundation.² This report summarizes groundwater management in Minnesota, both statewide and within the Great Lakes basin.

State Agency Authority

The Minnesota Department of Natural Resources (MN DNR) manages groundwater quantity, appropriations permitting, groundwater availability, and the ecological impacts of groundwater withdrawal on ecosystems.³ MN DNR has the authority to intervene when a well interference occurs, and may temporarily suspend permits for groundwater withdrawals in cases of interference with domestic water users and other high-capacity appropriators. Minnesota Statute 103G and Minnesota Rule 6115 outline groundwater appropriation regulations, including permitting, water allocation and monitoring.



The Minnesota Department of Health (MDH) oversees drinking water supply in the state through well construction permitting and management, source water protection, and public water supply regulatory programs.⁴ It is important to note that 20% of the state's population, or 1.2 million people, uses private wells, which are not regulated by MDH outside of a contaminant test immediately following construction of a new well.⁵ The Minnesota Pollution Control Agency (MPCA) oversees industrial contamination of groundwater supplies and the Minnesota Department of Agriculture is responsible for matters involving agricultural pesticide and fertilizer contamination. **Table 1** highlights the state agencies in Minnesota which play a role in managing groundwater in the state.

¹ Great Lakes Commission. March 6, 2024. [Understanding Impacts to Great Lakes Agriculture and Water Use Under Changing Climate Conditions.](#)

² The Joyce Foundation. [Groundwater Governance in EPA Region 5.](#)

³ Minnesota Department of Natural Resources. [Groundwater.](#)

⁴ Minnesota Department of Health. [Wells and Borings.](#)

⁵ Minnesota Department of Health. [Private Well Protection.](#)

Table 1. Minnesota state agency authorities on groundwater management priority areas.

Agency	Minnesota Dept. of Natural Resources	Minnesota Pollution Control Agency	Minnesota Dept. of Health	Minnesota Dept. of Agriculture
Groundwater Priority Area	Groundwater appropriation permitting Groundwater availability and ecological impacts	Groundwater quality monitoring Chemical releases Industrial contamination	Well construction and management Public water supply Health risk assessments	Agricultural pesticide and fertilizer contamination

Groundwater Science and Knowledge Production

Minnesota has invested significant time and resources into mapping and understanding the geology and groundwater resources within state boundaries, in addition to the activities of users. Systematic mapping efforts by the Minnesota Geological Survey (MGS), hosted by the University of Minnesota, have resulted in completed surficial, stratigraphic, and bedrock maps for half of Minnesota’s 87 counties. These maps are used by the MN DNR to create hydrogeologic atlases that focus on groundwater chemistry and pollution sensitivity.⁶

A statewide compilation of the Surficial Bedrock and Pollution Sensitivity of Surface (rate of travel from surface to water table aquifer) and Buried Bedrock Surface was recently completed. The MGS, in partnership with the Minnesota Department of Health, maintains a database of subsurface information for almost 600,000 water wells and borings drilled in the state.⁷

Minnesota DNR gathers and publishes annual permitted water use data on its website and produces a permit location map.⁸

Legislation and Regulations

Little jurisprudence regarding groundwater withdrawals exists in Minnesota. While the Minnesota Supreme Court used the semantics of Correlative Rights in application to artesian wells,⁹ it appears that the rule of Absolute Dominion still governs groundwater in the state. According to Absolute Dominion, where a person uses or disposes of percolating groundwater for a beneficial purpose, damage that results to another is not actionable unless the damage is deliberate or gratuitous.¹⁰

⁶ Minnesota Geologic Survey. [County Geologic Atlas](#).

⁷ Minnesota Geological Survey. [County Well Index](#).

⁸ Minnesota Department of Natural Resources. [Minnesota water use data](#).

⁹ *Erickson v. Crookston Waterworks, Power & Light Co.*, 111 N.W. 391 (Minn. 1907), affirmed, *Erickson v. Crookston Waterworks, Power & Light Co.*, 117 N.W. 435 (Minn. 1908).

¹⁰ Water Systems Council. (2016). [Who Owns the Water?](#)

New or existing groundwater users in Minnesota must obtain a permit to withdraw more than 10,000 gallons per day or 1,000,000 gallons per year.¹¹ Permits are granted if the MN DNR determines that “water remaining in the basin of origin will be adequate to meet the basin's water resources needs during the specified life of the consumptive use.”¹² Exceptions to the permit requirements include domestic uses supplying the needs of less than 25 people, reuse of water already authorized by a permit, and certain agricultural drainage systems.¹³

Minnesota is a riparian rights state and provides for the Commissioner of Natural Resources to determine when groundwater appropriations may be authorized. The commissioner may issue permits to appropriate groundwater only if the commissioner determines the groundwater use is sustainable, will not harm ecosystems, degrade water, or reduce water levels beyond the reach of public water supply and private domestic wells (Minn. R. §103G.287). When there is a conflict, that is where “there are competing demands among existing and proposed users which exceed the reasonably available waters,” the Commissioner of Natural Resources can resolve the conflict under Minn. R. §§ 6115.0740 et seq., using legislatively established priorities.

It does not appear that Minnesota has extended the public trust doctrine¹⁴ to apply to groundwater.

Great Lakes Basin Groundwater Management

In February 2007, Minnesota codified the Great Lakes-St. Lawrence River Basin Water Resources Compact (Compact) into Minn. Stat. § 103G.801. The legislation enacted the terms of the Compact verbatim. Minnesota incorporated the terms of the Compact using its existing statutes and programs. Minnesota requires permits for all withdrawals exceeding 10,000 gallons per day or a total of 1 million gallons per year.¹⁵ This threshold is lower than the Compact’s withdrawal reporting threshold of 100,000 gallons per day averaged over any 30-day period. Minnesota requires permits for existing users as well as new or increased withdrawals and consumptive uses, also requires permits for existing users.

Minnesota has adopted the water conservation and efficiency provisions of the Compact. The State of Minnesota’s program is consistent with, and fully supports, the goals and objectives of the Compact, including promoting the efficiency of use and reducing losses and waste of water in the basin and retaining the quantity of surface water and groundwater in the basin.

Per the Compact, its party states commit to the development of a collaborative strategy to guide the collection and application of scientific information to support the “improved understanding of the role of groundwater in basin water resources management.”

Great Lakes Basin Groundwater Usage

Minnesota’s groundwater withdrawals from the Great Lakes basin have varied in volume between 4.5 million and 6.6 million gallons per day over the last decade. This interannual variation is primarily due to changes in water use for public supply. See **Figure 1** below to view trends in Minnesota’s reported groundwater withdrawals within the Great Lakes basin from each facility withdrawing at least 100,000 gallons per day from 2014 to 2024.

¹¹ Minn. Stat. § 103G.271(4); see also Minn Stat. § 103G.271(4).

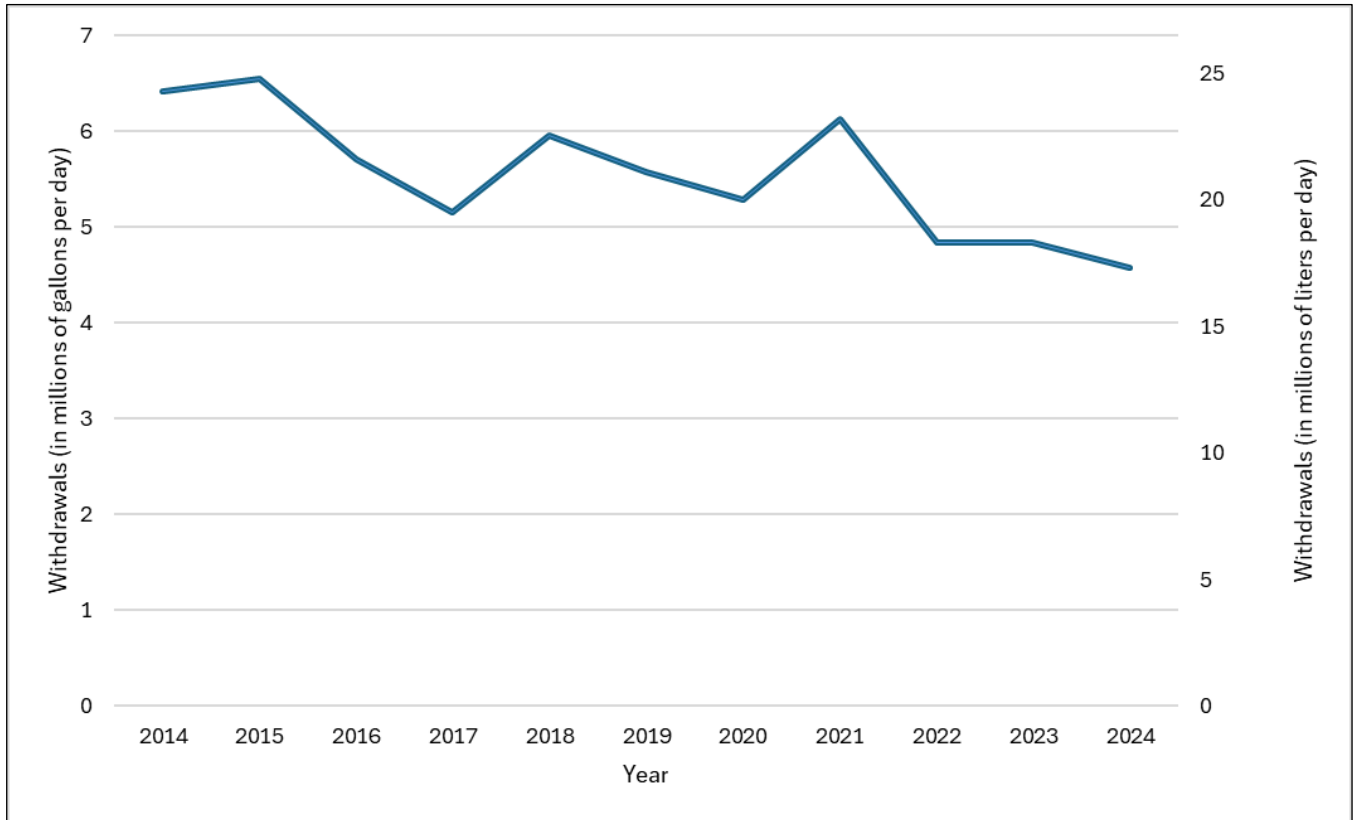
¹² Minn. Stat. § 103G.265(3).

¹³ Minn. Stat. ch. 103G. 103G.271.

¹⁴ National Sea Grant Law Center. [Overview of the Public Trust Doctrine.](#)

¹⁵ Minn. Stat. § 103G.271(4); See also Minn. R. 6115.0620(C).

Figure 1. Minnesota Great Lakes Basin Groundwater Withdrawals from 2014-2024.¹⁶



Statewide Definitions

Groundwater: water contained below the surface of the earth in the saturated zone including, without limitation, all waters whether under confined, unconfined, or perched conditions, in near-surface unconsolidated sediment or regolith, or in rock formations deeper underground.¹⁷

High-capacity well: is a well that appropriates in excess of 10,000 gallons per day or one million gallons per year.

¹⁶ As reported to the [Great Lakes Regional Water Use Database](#).

¹⁷ Minn. Stat. § 115.01(6).