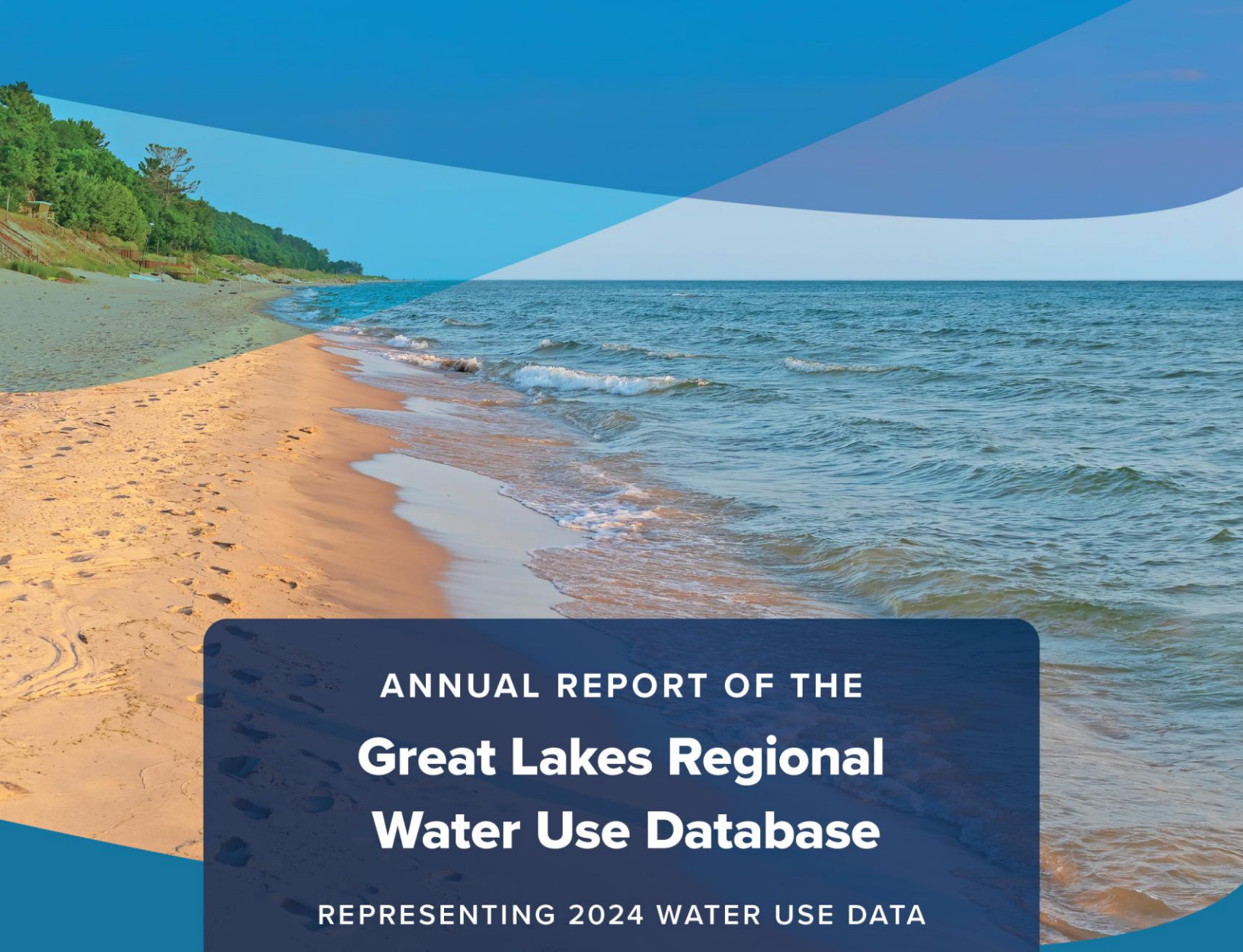

ANNUAL REPORT OF THE

Great Lakes Regional Water Use Database

REPRESENTING 2024 WATER USE DATA

Prepared by the **Great Lakes Commission** for the
Great Lakes-St. Lawrence River Water Resources Regional Body and the
Great Lakes-St. Lawrence River Basin Water Resources Council

Great Lakes Commission
des Grands Lacs

Acknowledgments

The Great Lakes Commission thanks the states and provinces for their commitment to collecting and reporting the water use data included in this report. Appreciation is extended to Steve Altman, James Casey, Russell Flinchum and Luz Payan (Illinois); Allison Mann (Indiana); Andrew LeBaron (Michigan); Denise Elston, Claudia Hochstein and Sean Hunt (Minnesota); Richard Kruzansky (New York); Bradley Lodge (Ohio); Darlene Dove and Mimi Santano Carrasco (Ontario); Susannah Harris, James Horton and Jason Minnich (Pennsylvania); Félix-Antoine Aubé, Françoise Auger, Joëlle Guillet and Anna Scheili (Québec); and Shaili Pfeiffer and Joe Rosnow (Wisconsin) for their time and effort put into preparing and reviewing the 2024 water use data included in this report. Special thanks go to the staff of the Great Lakes St. Lawrence Governors & Premiers for their support throughout the process and providing input on this report.

Preface

This is the Annual Report of the Great Lakes-St. Lawrence River Regional Water Use Database, representing 2024 water use data. These data are provided by the Great Lakes-St. Lawrence River states and provinces to the Great Lakes Commission (GLC), which serves as the database repository under the Great Lakes-St. Lawrence River Basin Water Resources Compact (Compact) and the Great Lakes-St. Lawrence River Basin Sustainable Water Resources Agreement (Agreement).

The Great Lakes-St. Lawrence River Regional Water Use Database (the database) has been operational since 1987. It was created by the states and provinces in response to a provision of the 1985 Great Lakes Charter (Charter) that called for the establishment and maintenance of a regional system for the collection of data on major water uses, diversions and consumptive uses in the binational Great Lakes-St. Lawrence River basin (the basin). The Charter–a precursor to the Compact and Agreement–was a nonbinding, "good faith" agreement signed by the Great Lakes and St. Lawrence River governors and premiers that set forth a series of principles and procedures for strengthening water management activities in the basin. The Charter envisioned a centralized database as an important tool to support a regional water resources management program and guide the future development, management and conservation of the water resources of the basin. In 1987, the GLC was selected to serve as the repository for the regional water use database and has operated and maintained the database since that time.

In 2008, the Great Lakes St. Lawrence Governors & Premiers (GSGP, formerly the Council of Great Lakes Governors) helped to implement key improvements in jurisdictional[1] water use data collection and reporting programs. In its role as Secretariat to the Great Lakes-St. Lawrence River Basin Water Resources Council (Compact Council) and the Great Lakes-St. Lawrence River Water Resources Regional Body (Regional Body), and through its Great Lakes Water Use Information Initiative, the GSGP led the states and provinces through a process that culminated in the drafting of new water use data collection and reporting protocols. The Compact Council and Regional Body adopted these protocols in 2009. The protocols offer guidance to ensure that water use data provided to the database by the states and provinces is accurate, of the highest quality and reported in a consistent manner. Modifications to the reporting protocols were instituted via Compact Council and Regional Body resolutions in 2016 to support the advancement of the database.

[1] For the purposes of this report, the term 'jurisdiction' or 'jurisdictional' refers to the eight Great Lakes U.S. states and two Great Lakes Canadian provinces.

While updating the data reporting protocols was an important step in support of a more robust regional water management regime, improvements in data collection, reporting, quality, accuracy and compatibility must continue to be made. The following section describes the progress made in 2025 to improve data quality and reporting compliance for the 2024 annual report.

Overview

Improving Data Quality

Together with the GSGP, the GLC works with the states and provinces to improve data collection, reporting, quality, accuracy and compatibility. To guide the preparation of 2024 water use data and this report, several steps were taken to improve data quality.

Starting with the 2014 water use year, the GLC collected information from each jurisdiction that describes water use data and includes information related to data sources, rates of reporting compliance (i.e., the percentage of users submitting the required reports to their respective jurisdiction) by water use sector, the year from which the data was collected, and changes in the data between the current year and previous years and reasons for those changes. To achieve this, the GLC created an online data management system that assists in the creation of metadata. For this report, each state and province submitted metadata along with associated 2024 water use data to the GLC. Project staff met by phone with representatives from each jurisdiction to discuss changes in compliance rates and reported water use from the previous year. Implementing this process has resulted in improvements to the database in both compliance rates and data quality.

The GLC will continue to work with the states and provinces to identify additional areas for improvement. While this report contains the best available information as of its publishing date, the states and provinces may continue to update their data in the online water use database (https://waterusedata.glc.org/). Discrepancies between the data online and those summarized in this report may appear. *In all cases, the online database will contain the most current available data*.

In compiling this report, the GLC noted specific steps taken by each jurisdiction to improve reporting compliance and data quality. The states and provinces have reporting programs in place that require users to report their water use each year to their respective jurisdictions. Reporting compliance varies across the basin by jurisdiction and sector, affecting the quality of the data. Table 1 summarizes reporting compliance rates by jurisdiction in 2024. Illinois, Minnesota, New York, Ohio, and Pennsylvania each indicated 100% reporting compliance by water users in their respective jurisdictions.

Beyond compliance, the number of reported users can also vary from year to year due to a change in status as a threshold facility. Only water use data from facilities that withdraw more than 100,000 gallons (or 380,000 liters) per day averaged over a 30-day period (referred to as the trigger level for reporting) are included in the database, per the Compact and Agreement. Some facilities that tend to withdraw water in volumes close to the reporting trigger level may therefore change from being a threshold facility (defined as a water user withdrawing water at or above the trigger level) from one year to the next based on weather conditions, business operations or other factors. Water use sectors that see more interannual variability in use (e.g., self-supply irrigation) may have greater changes in the number of threshold facilities than other use sectors. These changes are discussed in the jurisdiction report sections.

Table 1. 2024 State and Provincial Reporting Compliance Percentage by Water Use Sector*

Sector	IL	IN	MI	MN	NY	OH	ON	PA	QC	WI
Public Water Supply	100	95	99	100	100	100	98	100	95	100
Self-Supply Commercial & Institutional	100	83	83	100	100	100	94	-	82	94
Self-Supply Irrigation	100	91	80	-	100	100	92	100	66	96
Self-Supply Livestock	-	89	80	-	100	100	89	100	51	95
Self-Supply Industrial	100	85	90	100	100	100	91	-	80	96
Self-Supply Thermoelectric Power Production (Once-through cooling)	100	100	100	100	100	100	93	-	-	100
Self-Supply Thermoelectric Power Production (Recirculated cooling)	-	100	100	-	100	100	-	-	-	-
Off-Stream Hydroelectric Power Production	-	-	N/A	100	100	N/A	-	-	N/A	N/A
In-Stream Hydroelectric Water Use	-	N/A	N/A	100	100	N/A	100	-	N/A	N/A
Other Self Supply	100	82	85	100	100	100	93	-	63	100

A blank indicates that the jurisdiction did not report any water use figures for that particular sector. N/A indicates that facilities are not required by jurisdiction policy to report water use for that particular sector. Some jurisdictions updated their compliance reporting methodology starting with the 2022 water use data reporting process; in previous years, some jurisdictions reported numerical compliance rates where blanks or N/As should have been reported.

**For each water use category, the compliance rate measures the percentage of active, registered facilities with the capacity to withdraw 100,000 gallons per day or more averaged over a 30-day period that have reported to the relevant state/provincial program compared with the total number of facilities required to report.*

Database Upgrades

From winter 2023 to summer 2024, the GLC contracted with the Digital Industry Group, or DIG,[2] to release a more secure, easily accessible Great Lakes Water Use Database website.[3] Upgrades to the site included: a streamlined, more intuitive process for water use data managers to report their jurisdictions' data and metadata; an improved public-facing "create a query" tool that allows users to create charts based on their specific data selections; and enhanced security features to better protect data before it is published.

[2] Digital Industry Group. https://thedigteam.com/.
[3] Great Lakes Regional Water Use Database. https://waterusedata.glc.org/.

Great Lakes Regional Water Use in 2024

The Great Lakes-St. Lawrence River basin – the world's largest fresh surface water system – spans an area of about 289,600 square miles (750,000 square kilometers). Its total volume is 6.5 quadrillion gallons (25 quadrillion liters), an amount that would fill almost 10 billion Olympic-size swimming pools.[4]

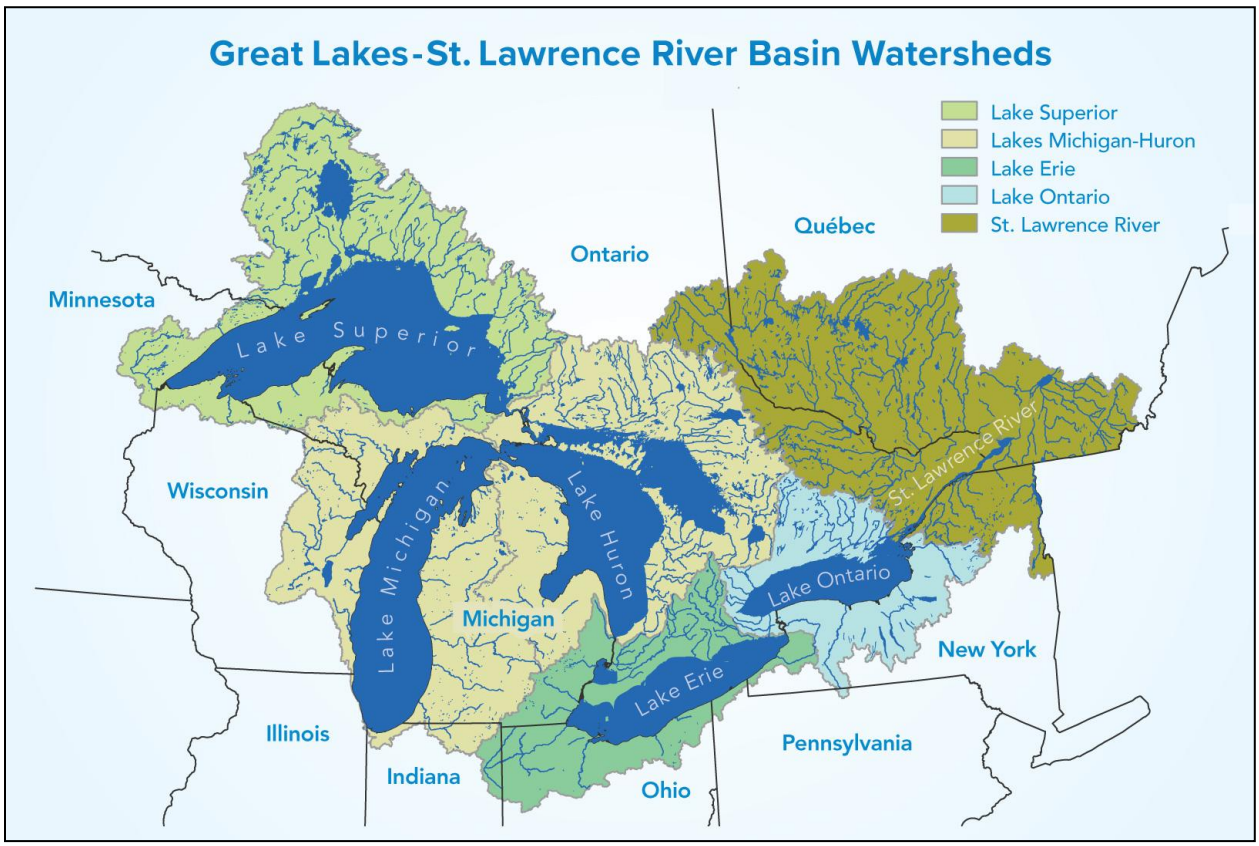

Figure 1. Great Lakes-St. Lawrence River basin

Water Withdrawals

In 2024, the total reported withdrawal amount for the Great Lakes-St. Lawrence River basin, excluding in-stream hydroelectric water use, was 35,665 million gallons per day (mgd) or 135,006 million liters per day (mld). Water used for in-stream hydroelectric power production accounted for more than 99% of the water use in the region but is not considered a withdrawal in the traditional sense because it includes "run of the river" use, where the water remains in the water body and has negligible water consumption. Therefore, despite being an important water use for the Great Lakes-St. Lawrence River region (e.g., New York produced more hydroelectric power than any other state east of the Rocky Mountains in 2024)[5], in-stream hydroelectric power use is ordinarily excluded from discussion of water use trends and impacts.

Water used for off-stream hydroelectric power generation is considered a withdrawal since the water is removed to a retention area or reservoir that serves as a storage system. After being used for power generation, the water is returned to its original source. Both off-stream and in-stream totals are mentioned

[4] An Olympic-size swimming pool holds about 660,000 gallons or 2.5 million liters.
[5] U.S. Energy Information Administration, Electricity Data Browser. 2024.

in the watershed and jurisdiction summaries in this report,[6] but only off-stream hydroelectric power generation is typically incorporated in discussion, figures and overall water withdrawal totals.

The total 2024 water withdrawal amount represents a less than one percent increase from the total 2023 withdrawal of 35,462 mgd (134,239 mld). It is normal to see some fluctuation in water use from year to year, but some sectors, like self-supply irrigation, may exhibit greater variability due to the influence of weather patterns that increase or decrease seasonal use. It should be noted that withdrawals are not a measure of water consumed or lost to the basin, since much of the withdrawn water is returned to the basin after use. Just under 5% of the total reported withdrawal amount (1,766 mgd or 6,684 mld) was consumed or otherwise lost from the basin.

Water withdrawals for all water use sectors, excluding the in-stream hydroelectric water use sector, are presented in Figure 2 below. The water use sectors are defined in Appendix A. Self-supply thermoelectric power production (once-through cooling), public water supply, and self-supply industrial are the primary water use sectors (i.e., those withdrawing the largest volumes of water).

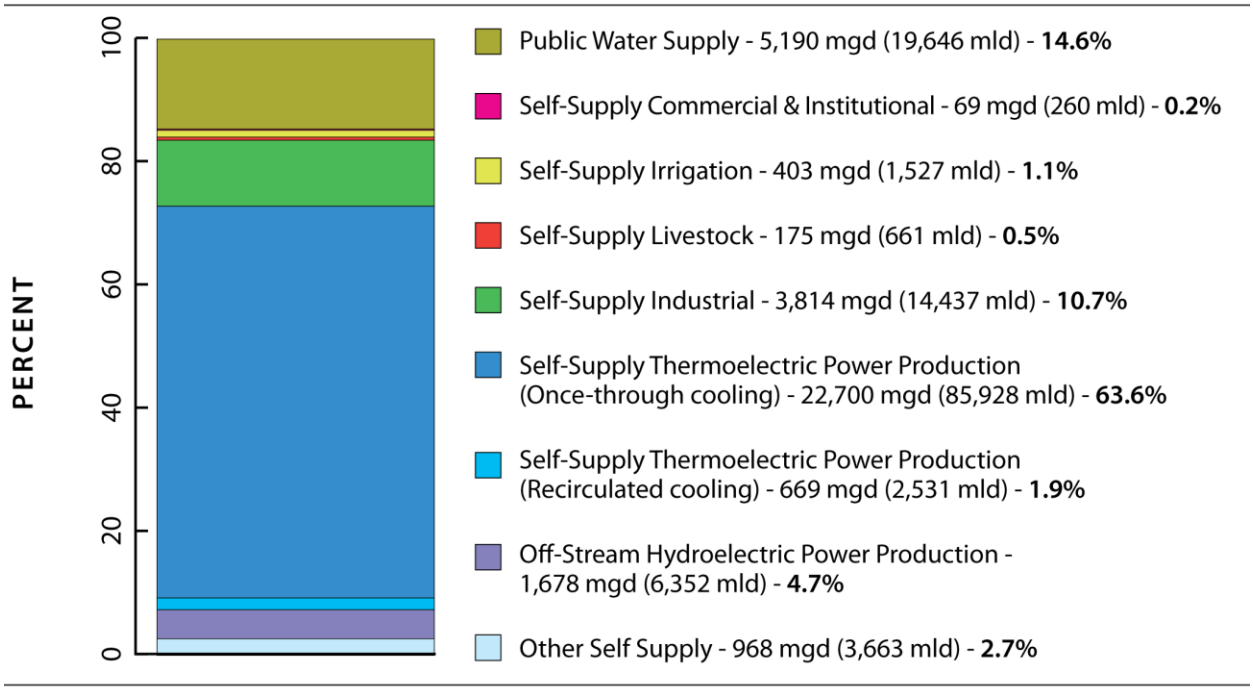

Figure 2. Basin-wide water withdrawals (excluding in-stream hydroelectric water use) by water use sector in 2024

[6] Under the 2009 water use data collection and reporting protocols, the reporting of in-stream hydroelectric power production data is optional, so the database and report do not represent this water use by all jurisdictions.

In 2024, the Lake Ontario watershed had the greatest withdrawal amount (representing about 27% of total withdrawals from the basin), followed closely by Lake Michigan (26%). Figure 3 shows withdrawals by watershed broken down by water source: Great Lakes surface water (GLSW), other surface water (OSW)[7] and groundwater (GW). In most watersheds, Great Lakes surface water was the predominant source of water withdrawals, with the exceptions of the Lake Superior and Lake Huron watersheds, whose main source of water withdrawals was other surface water.

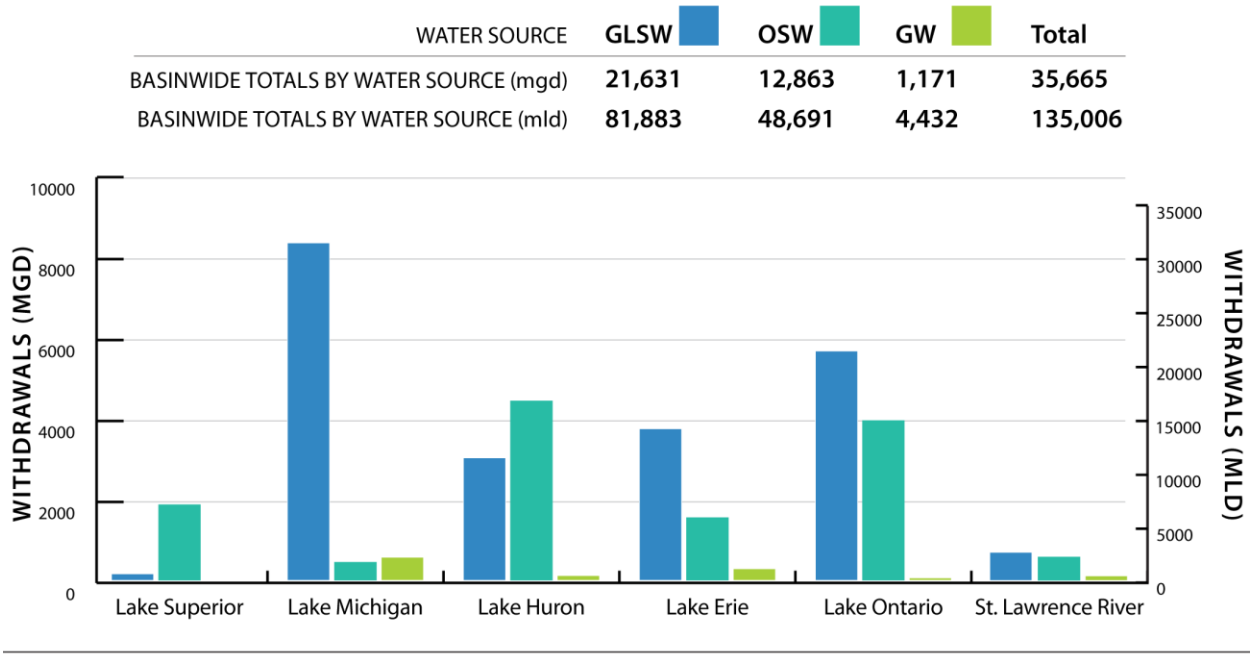

Figure 3. Water withdrawals (excluding in-stream hydroelectric water use) by watershed in 2024

Figure 4 shows total water withdrawals, excluding in-stream hydroelectric water use, by jurisdiction. Ontario, which has the largest land area in the basin of the 10 jurisdictions (108,680 square miles or 281,377 square kilometers over five watersheds), was the largest withdrawer of Great Lakes water in 2024. Facilities in Ontario withdrew 15,240 mgd (57,691 mld), accounting for 43% of the total withdrawal amount across all jurisdictions. In contrast, Pennsylvania, which has the smallest land area in the basin (511 square miles or 1,316 square kilometers), withdrew about 26 mgd (100 mld) or less than 0.1% of the total withdrawal amount.

Figure 5 shows total water withdrawals (excluding in-stream hydroelectric water use) by jurisdiction from 2020-2024. Water use in each jurisdiction has generally stayed steady or decreased over this five-year period. Variances from this general trend are typically explained by one or two large water withdrawing facilities using more or less water from previous years. One exception is Ontario, which saw a drastic increase in withdrawals from 2020 to 2021, deviating from the trend of generally declining withdrawals over time.[8] In 2023, Ontario's water withdrawals decreased back to typical withdrawal amounts prior to 2021.

[7] Other surface water is defined as tributary streams, lakes, ponds and reservoirs within the Great Lakes basin.
[8] The increased withdrawals in Ontario between 2020 and 2021 are primarily due to two withdrawals by a large water user in the self-supply thermoelectric power production (once-through cooling) sector, taken under two new permits issued in 2021 through the provincial water taking and reporting system.

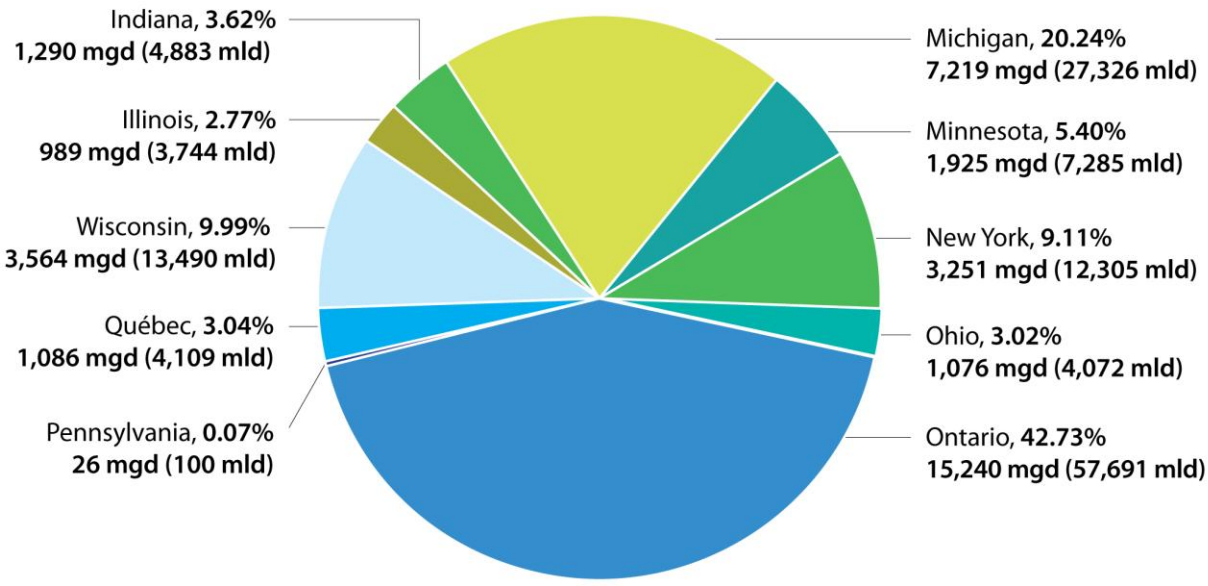

Figure 4. Water withdrawals (excluding in-stream hydroelectric water use) by jurisdiction in 2024

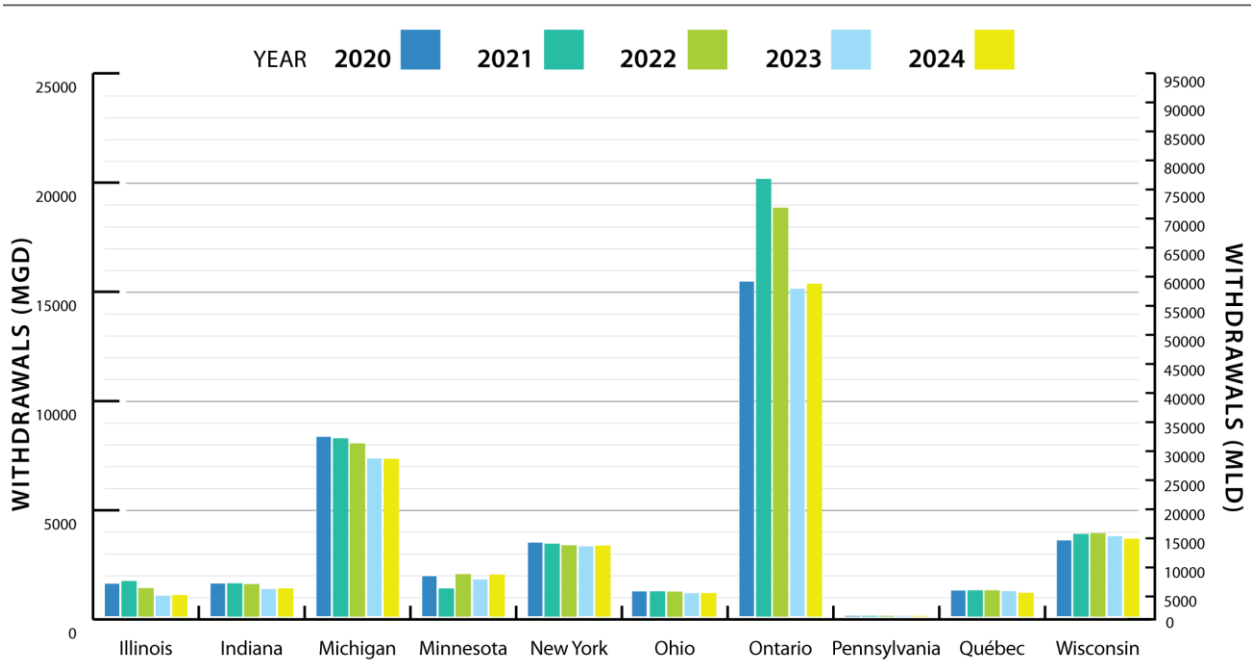

Figure 5. Water withdrawals (excluding in-stream hydroelectric water use) by jurisdiction over the past five years

Diversions and Consumptive Uses

Diversions and consumptive uses of water are key components of the regional water use database (see Appendix B for the Compact's and Agreement's definitions of these terms). Water use data from diversions and consumptive uses are considered particularly informative for assessing the cumulative hydrologic effects of Great Lakes basin water use since they represent water that is not returned to the source watershed.

The total reported 2024 diversion out of the basin was 1,101 mgd or 4,167 mld. About 86% (941 mgd or 3,563 mld) of this amount was associated with the Illinois Diversion, which takes water from Lake Michigan and discharges it into the Mississippi River watershed. The reported amount associated with the Illinois Diversion increased by about 3% from the 2023 reported diversion of 915 mgd (3,464 mld). Smaller diversions throughout the region made up the balance of the total, and some of the diverted water was returned to the source watershed as return flow.

There were also diversions into the basin,[9] including the Long Lac and Ogoki diversions (incoming diversions from the Hudson Bay watershed into northern Lake Superior), which contributed 3,173 mgd (12,010 mld) to the basin in 2024; this represents a 34% increase from the 2023 reported diversion of 2,376 mgd (8,993 mld). Despite this change, both 2023 and 2024 Long Lac and Ogoki diversion amounts are within the range of flow variability observed from 1944-2015. The flow from these diversions has ranged from 1,643 mgd (6,219 mld) to 5,181 mgd (19,612 mld).[10] When conditions in the Long Lac and Lake Nipigon (downstream of Ogoki) watersheds are wet, the diversions are often reduced, and water that otherwise would have been diverted into Lake Superior is instead directed through natural outlets that flow toward Hudson Bay. Conversely, when conditions are dry in the downstream watersheds, the diversion flow may be higher.

Overall, the net diversion, or outgoing diversions plus incoming diversions and returns (reported as negative numbers), was a gain of 2,111 mgd (7,990 mld), meaning more water was diverted into than out of the basin in 2024.

Consumptive use is the portion of the water withdrawn or withheld from the basin that is lost from or otherwise not returned to the basin due to evaporation, incorporation into products or other processes. Consumptive use is most often calculated by applying a consumptive use coefficient to the reported withdrawal amount. The database documents whether a consumptive use coefficient was applied or the consumptive use was determined through measurement for each reported water withdrawal. Figure 6 shows total consumptive use by jurisdiction over the past five years. Because different consumptive use coefficients are employed for each water use sector, changes in the makeup of each jurisdiction's water withdrawals from year to year can impact its total consumptive use.[11]

The total reported 2024 consumptive use for the basin was 1,766 mgd (6,684 mld), representing a 6% decrease from the total 2023 consumptive use of 1,888 mgd (7,147 mld). The public water supply sector had the greatest consumptive use, accounting for 34% of the basin's total consumptive use. The self-supply industrial and self-supply irrigation sectors comprised most of the remaining consumptive use, accounting for 27% and 20% of the basin's total consumptive use, respectively. The Lake Michigan watershed had the

[9] The Great Lakes Regional Water Use Database records incoming diversions with a negative sign and outgoing diversions with a positive sign.
[10] Information on the flow variability of the Long Lac and Ogoki diversions was provided by Ontario Power Generation.
[11] See each jurisdiction's consumptive use coefficients by water use sector at the Consumptive Use Coefficients page of the Great Lakes Regional Water Use Database. https://waterusedata.glc.org/consumptive-use-coefficients.

largest consumptive use of all watersheds at 613 mgd (2,322 mld), comprising 35% of the basin's total consumptive use.

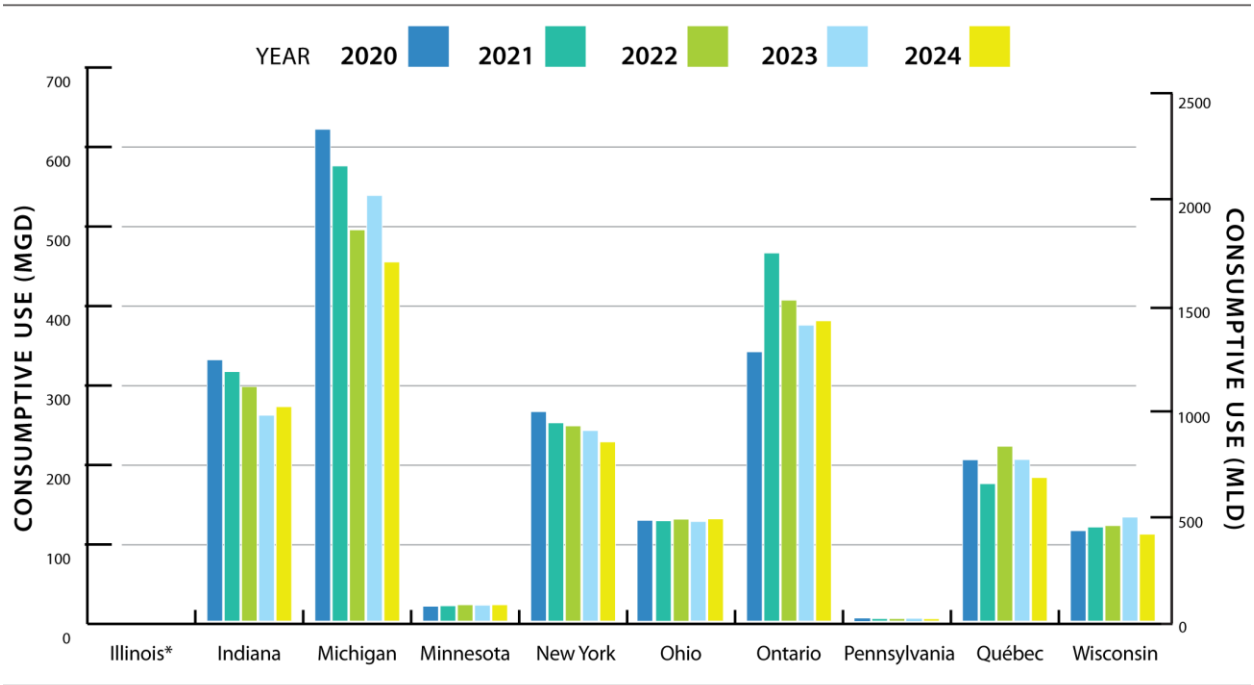

Figure 6. Consumptive use by jurisdiction over the past five years

** Illinois's consumptive use is negligible. Water loss associated with the Illinois Diversion is reported in Table 2a.*

Considering both consumptive use and diversions, the basin gained a total of 345 mgd (1,306 mld) in 2024. By comparison, the basin lost a total of 550 mgd (2,081 mld) in 2023. As explained above, the change between 2023 and 2024 is primarily due to an increase in the diversion from Long Lac and Ogoki into Lake Superior. Tables 2a through 4b summarize the basin's total 2024 water withdrawals, diversions and consumptive use by watershed, sector and jurisdiction.

Table 2a. Basin-wide 2024 Water Use Data Summary by Watershed (including in-stream hydroelectric water use) in mgd

Watershed	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	Total	Intrabasin	Interbasin	
Lake Superior	162	32,340	16	32,517	0	-3,154	29
Lake Michigan	8,336	454	572	9,362	0	1,015	613
Lake Huron	21,887	19,577	118	41,583	41	0	155
Lake Erie	53,747	2,179	287	56,212	3,614	-18	409
Lake Ontario	46,810	102,205	62	149,076	-3,655	41	350
St. Lawrence River	65,234,625	56,887	116	65,291,628	0	5	209
Total	**65,365,565**	**213,641**	**1,171**	**65,580,377**	**0**	**-2,111**	**1,766**

In millions of gallons per day; Water Sources: Great Lakes surface water (GLSW), other surface water (OSW) and groundwater (GW); totals may not sum exactly due to rounding.

Table 2b. Basin-wide 2024 Water Use Data Summary by Watershed (including in-stream hydroelectric water use) in mld

Watershed	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	Total	Intrabasin	Interbasin	
Lake Superior	613	122,420	59	123,091	-1	-11,938	110
Lake Michigan	31,553	1,717	2,167	35,437	1	3,843	2,322
Lake Huron	82,850	74,109	448	157,407	155	0	585
Lake Erie	203,453	8,248	1,085	212,785	13,681	-67	1,550
Lake Ontario	177,194	386,886	235	564,316	-13,836	154	1,326
St. Lawrence River	246,939,919	215,340	438	247,155,697	0	18	792
Total	**247,435,582**	**808,720**	**4,432**	**248,248,734**	**0**	**-7,990**	**6,684**

In millions of liters per day; Water Sources: Great Lakes surface water (GLSW), other surface water (OSW) and groundwater (GW); totals may not sum exactly due to rounding.

Table 3a. Basin-wide 2024 Water Use Data Summary by Sector (including in-stream hydroelectric water use) in mgd

Sector	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	Total	Intrabasin	Interbasin	
Public Water Supply	3,691	998	501	5,190	0	861	602
Self-Supply Commercial and Institutional	8	54	7	69	0	2	8
Self-Supply Irrigation	3	130	271	403	0	0	345
Self-Supply Livestock	0	105	70	175	0	0	16
Self-Supply Industrial	1,891	1,625	298	3,814	0	43	479
Self-Supply Thermoelectric Power Production (Once-through cooling)	15,260	7,438	1	22,700	0	0	208
Self-Supply Thermoelectric Power Production (Recirculated cooling)	619	46	4	669	0	0	71
Off-Stream Hydroelectric Power Production	0	1,678	0	1,678	0	0	0
In-Stream Hydroelectric Water Use	65,343,934	200,778	0	65,544,712	0	-3,173	0
Other Self Supply	159	790	19	968	0	156	37
Total	**65,365,565**	**213,641**	**1,171**	**65,580,377**	**0**	**-2,111**	**1,766**

In millions of gallons per day; Water Sources: Great Lakes surface water (GLSW), other surface water (OSW) and groundwater (GW); totals may not sum exactly due to rounding.

Table 3b. Basin-wide 2024 Water Use Data Summary by Sector (including in-stream hydroelectric water use) in mld

Sector	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	Total	Intrabasin	Interbasin	
Public Water Supply	13,973	3,778	1,895	19,646	0	3,261	2,278
Self-Supply Commercial and Institutional	30	204	26	260	0	7	29
Self-Supply Irrigation	11	491	1,025	1,527	0	0	1,305
Self-Supply Livestock	0	397	264	661	0	-1	62
Self-Supply Industrial	7,157	6,150	1,130	14,437	0	162	1,815
Self-Supply Thermoelectric Power Production (Once-through cooling)	57,767	28,157	4	85,928	0	0	788
Self-Supply Thermoelectric Power Production (Recirculated cooling)	2,342	172	16	2,531	0	0	267
Off-Stream Hydroelectric Power Production	0	6,352	0	6,352	0	0	0
In-Stream Hydroelectric Water Use	247,353,700	760,028	0	248,113,728	0	-12,010	0
Other Self Supply	601	2,990	72	3,663	0	591	140
Total	**247,435,582**	**808,720**	**4,432**	**248,248,734**	**0**	**-7,990**	**6,684**

In millions of liters per day; Water Sources: Great Lakes surface water (GLSW), other surface water (OSW) and groundwater (GW); totals may not sum exactly due to rounding.

Table 4a. Basin-wide 2024 Water Use Data Summary by Jurisdiction (including in-stream hydroelectric water use) in mgd

Jurisdiction	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	Total	Intrabasin	Interbasin	
Illinois	989		0	989	0	941	0
Indiana	1,109	88	93	1,290	0	82	270
Michigan	6,060	652	507	7,219	0	0	452
Minnesota	105	3,825	5	3,934	0	19	20
New York	65,208,858	82,234	26	65,291,118	0	43	225
Ohio	582	414	80	1,076	0	-26	129
Ontario	144,005	125,797	275	270,076	0	-3,173	378
Pennsylvania	22	2	2	26	0	0	3
Québec	646	364	75	1,086	0	3	180
Wisconsin	3,190	265	108	3,564	0	0	109
Total	**65,365,565**	**213,641**	**1,171**	**65,580,377**	**0**	**-2,111**	**1,766**

In millions of gallons per day; Water Sources: Great Lakes surface water (GLSW), other surface water (OSW) and groundwater (GW); totals may not sum exactly due to rounding.

Table 4b. Basin-wide 2024 Water Use Data Summary by Jurisdiction (including in-stream hydroelectric water use) in mld

Jurisdiction	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	Total	Intrabasin	Interbasin	
Illinois	3,744	0	0	3,744	0	3,563	0
Indiana	4,198	334	351	4,883	0	310	1,021
Michigan	22,938	2,470	1,918	27,326	0	0	1,709
Minnesota	396	14,480	17	14,893	0	72	77
New York	246,842,381	311,288	98	247,153,767	0	161	853
Ohio	2,201	1,567	304	4,072	0	-98	486
Ontario	545,117	476,192	1,040	1,022,349	0	-12,010	1,429
Pennsylvania	85	6	9	100	0	0	11
Québec	2,446	1,378	285	4,109	0	11	683
Wisconsin	12,077	1,005	409	13,490	0	1	414
Total	**247,435,582**	**808,720**	**4,432**	**248,248,734**	**0**	**-7,990**	**6,684**

In millions of liters per day; Water Sources: Great Lakes surface water (GLSW), other surface water (OSW) and groundwater (GW); totals may not sum exactly due to rounding.

Lake Watershed Summaries

Lake Superior

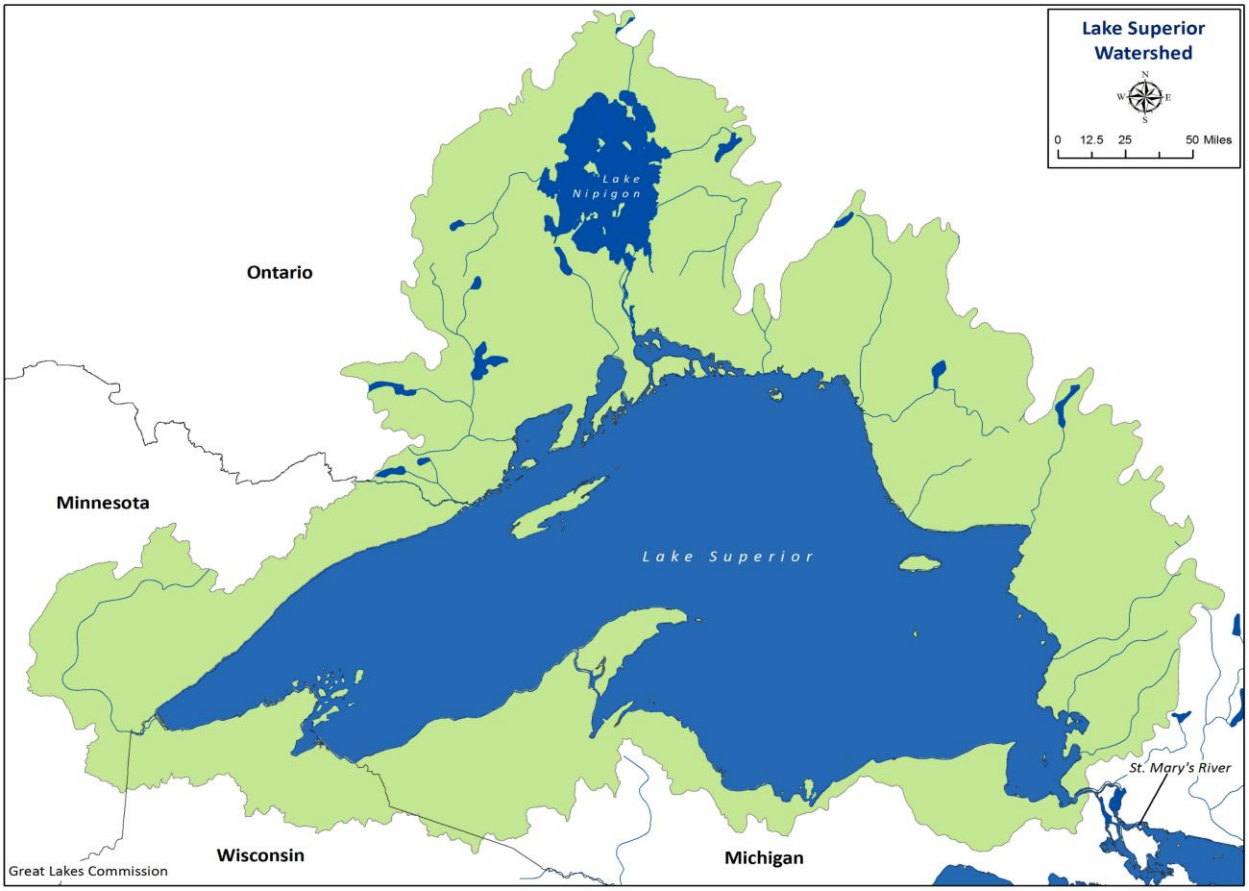

Figure 7. Lake Superior Watershed

Overview of Watershed Characteristics

Lake Superior is the largest Great Lake and the world's third-largest freshwater lake by volume, holding about 2,900 cubic miles (12,100 cubic kilometers) of water. Lake Superior could hold all the water in the other Great Lakes, plus three more Lake Eries.[12] Its surface area is roughly the size of South Carolina, or approximately 31,700 square miles (82,100 square kilometers).

Basic Stats of Lake Superior

Length: 350 mi/563 km

Breadth: 160 mi/257 km

Elevation: 600 ft/183 m

Depth: 483 ft/47 m average, 1,330 ft/406 m maximum

Volume: 2,900 cubic mi/12,100 cubic km

Lake surface area: 31,700 square mi/ 82,100 square km

Watershed drainage area: 49,300 square mi/127,700 square km

Outlet: St. Marys River to Lake Huron

Retention/replacement time: 191 years

Approximate population in watershed: United States - 424,473; Canada - 169,897; Total - 594,370

[12] Great Lakes Commission, Lake Superior.

Water Withdrawals

Four jurisdictions – Michigan, Minnesota, Ontario and Wisconsin – share the Lake Superior watershed and collectively withdrew 2,051 mgd (7,765 mld) in 2024, excluding the reported in-stream hydroelectric water use of 28,456 mgd (107,718 mld). This represents a 10% increase from the 2023 total withdrawal amount of 1,859 mgd (7,038 mld). The off-stream hydroelectric power production sector represented 80% of all withdrawals from the watershed at 1,644 mgd (6,223 mld). The self-supply industrial (191 mgd or 725 mld) and self-supply thermoelectric power production (once-through cooling) (122 mgd or 463 mld) sectors made up the bulk of remaining water withdrawals from the Lake Superior watershed.

Other surface water within the Lake Superior watershed was primarily used to generate electricity with in-stream hydroelectric power. Excluding water used for in-stream hydroelectric power production, 91% (1,874 mgd or 7,094 mld) of the total reported withdrawal from the watershed came from other surface water in 2024. Of the remaining withdrawals, 8% came directly from Lake Superior (162 mgd or 613 mld) and less than 1% came from groundwater (16 mgd or 59 mld).

Water Diversions and Consumptive Uses

The reported net water gain[13] (3,125 mgd or 11,829 mld) in the Lake Superior watershed in 2024 was largely attributable to the Long Lac and Ogoki interbasin diversions in northern Ontario that diverted 3,173 mgd or 12,010 mld into Lake Superior. On average, these diversions into the basin are about twice the volume of the Illinois Diversion out of the basin; in 2024, they were more than three times its volume.

Outgoing interbasin diversions totaling 19 mgd (72 mld) were reported in Minnesota for the self-supply industrial sector.

The total consumptive use for all four jurisdictions in the Lake Superior watershed was 29 mgd (110 mld). Self-supply industrial use (20 mgd or 74 mld) was the largest contributor at 68% of the total consumptive use for the watershed, followed by public water supply (6 mgd or 23 mld) at 21% in 2024. Total consumptive use in the Lake Superior watershed in 2024 decreased by about 10% from 2023.

[13] Incoming diversions are reported as negative values in the database and on tables in this report.

Table 5a. Lake Superior Watershed 2024 Water Use Data Summary in mgd

Sector	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	Total	Intrabasin	Interbasin	
Public Water Supply	42	3	11	56	0	0	6
Self-Supply Commercial and Institutional	2	1	0	3	0	0	0
Self-Supply Irrigation	0	0	1	1	0	0	1
Self-Supply Livestock	0	24	3	27	0	0	0
Self-Supply Industrial	49	142	1	191	0	19	20
Self-Supply Thermoelectric Power Production (Once-through cooling)	69	54	0	122	0	0	2
Self-Supply Thermoelectric Power Production (Recirculated cooling)	0	0	0	0	0	0	0
Off-Stream Hydroelectric Power Production	0	1,644	0	1,644	0	0	0
In-Stream Hydroelectric Water Use	0	30,466	0	30,466	0	-3,173	0
Other Self Supply	0	6	0	7	0	0	0
Total	**162**	**32,340**	**16**	**32,517**	**0**	**-3,154**	**29**

In millions of gallons per day; Water Sources: Great Lakes surface water (GLSW), other surface water (OSW) and groundwater (GW); totals may not sum exactly due to rounding.

Table 5b. Lake Superior Watershed 2024 Water Use Data Summary in mld

Sector	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	Total	Intrabasin	Interbasin	
Public Water Supply	161	10	43	213	-1	0	23
Self-Supply Commercial and Institutional	7	5	0	12	0	0	1
Self-Supply Irrigation	0	1	2	3	0	0	3
Self-Supply Livestock	0	91	10	101	0	0	0
Self-Supply Industrial	185	537	3	725	0	72	74
Self-Supply Thermoelectric Power Production (Once-through cooling)	260	203	0	463	0	0	8
Self-Supply Thermoelectric Power Production (Recirculated cooling)	0	0	0	0	0	0	0
Off-Stream Hydroelectric Power Production	0	6,223	0	6,223	0	0	0
In-Stream Hydroelectric Water Use	0	115,326	0	115,326	0	-12,010	0
Other Self Supply	0	24	0	25	0	0	0
Total	**613**	**122,420**	**59**	**123,091**	**-1**	**-11,938**	**110**

In millions of liters per day; Water Sources: Great Lakes surface water (GLSW), other surface water (OSW) and groundwater (GW); totals may not sum exactly due to rounding.

Lake Michigan

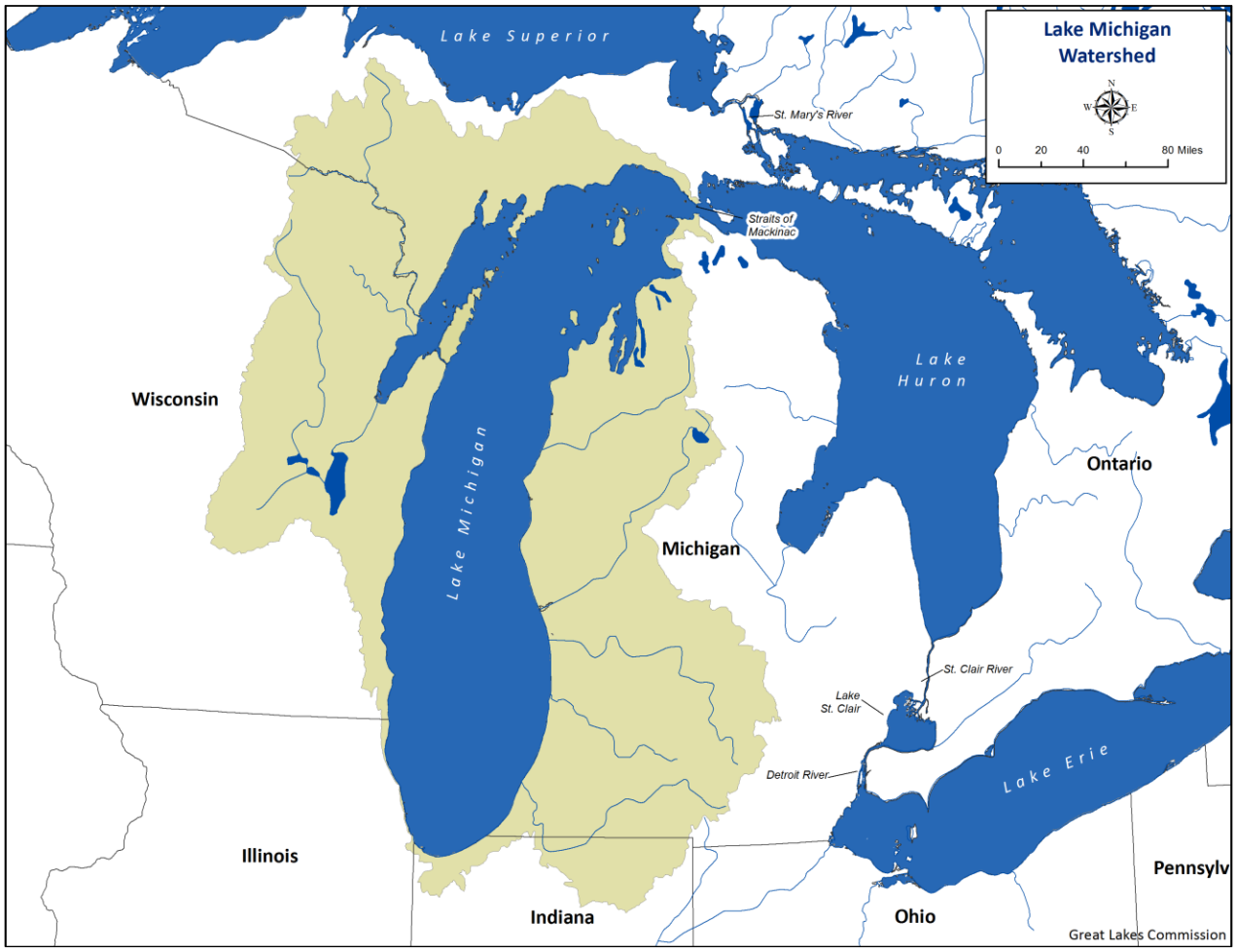

Figure 8. Lake Michigan Watershed

Overview of Watershed Characteristics

Lake Michigan is the only Great Lake situated entirely within the United States. It is the second largest Great Lake by volume, holding about 1,180 cubic miles (4,918 cubic kilometers) of water.[14] Its surface area is roughly the size of West Virginia at approximately 22,300 square miles (57,753 square kilometers). More than eight million people call the Lake Michigan watershed home.

Basic Stats of Lake Michigan

Length: 307 mi/494 km

Breadth: 118 mi/190 km

Elevation: 577 ft/176 m

Depth: 279 ft/85 m average, 923 ft/281 m maximum

Volume: 1,180 cubic mi/4,918 cubic km

Lake surface area: 22,300 square mi/57,753 square km

Watershed drainage area: 45,600 square mi/ 118,095 square km

Outlet: Straits of Mackinac to Lake Huron

Retention/replacement time: 62 years

Approximate population in watershed: 8,011,470

[14] Great Lakes Commission, Lake Michigan.

Water Withdrawals

Four jurisdictions – Illinois, Indiana, Michigan and Wisconsin – share the Lake Michigan watershed and collectively withdrew 9,362 mgd (35,437 mld) in 2024, a less than one percent decrease from the total 2023 withdrawal of 9,443 mgd (35,747 mld). No in-stream or off-stream hydroelectric water use was reported for the watershed.[15] The primary water uses were for self-supply thermoelectric power production (once-through cooling), representing 64% (5,975 mgd or 22,618 mld) of water use in the Lake Michigan watershed; public water supply at 16% (1,490 mgd or 5,641 mld); and self-supply industrial use at 14% (1,348 mgd or 5,104 mld) in 2024.

Lake Michigan surface water was the primary source of withdrawals in the watershed, accounting for 89% of total withdrawals (8,336 mgd or 31,553 mld) in 2024. Of the remaining withdrawals, 6% came from groundwater (572 mgd or 2,167 mld) and 5% came from other surface water (454 mgd or 1,717 mld).

Water Diversions and Consumptive Uses

The reported net water loss from the Lake Michigan watershed totaled 1,629 mgd (6,166 mld) in 2024. This represents 17% of total Lake Michigan withdrawals and a 4% decrease in water loss from 2023. Water loss primarily consisted of the Illinois Diversion of 941 mgd (3,563 mld) and the watershed's total consumptive use of 613 mgd (2,322 mld).

Net diversions, including the Illinois Diversion, increased by 3% from 2023 while consumptive use decreased by 12% in the Lake Michigan watershed in 2024. The sectors with the majority of consumptive use in the watershed were self-supply irrigation (242 mgd or 915 mld) at 39% of the total consumptive use and self-supply industrial use (228 mgd or 864 mld) at 37% of the total.

[15] This does not necessarily mean no water was used to produce in-stream or off-stream hydroelectric power; jurisdictions are not required to report in-stream hydroelectric power production to the database and some have enacted policies that do not require the jurisdiction to report water used to produce off-stream hydroelectric power production.

Table 6a. Lake Michigan Watershed 2024 Water Use Data Summary in mgd

Sector	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	Total	Intrabasin	Interbasin	
Public Water Supply	1,246	22	222	1,490	0	838	86
Self-Supply Commercial and Institutional	4	7	5	15	0	2	1
Self-Supply Irrigation	0	40	235	276	0	0	242
Self-Supply Livestock	0	12	27	39	0	0	9
Self-Supply Industrial	1,091	188	70	1,348	0	24	228
Self-Supply Thermoelectric Power Production (Once-through cooling)	5,830	144	1	5,975	0	0	31
Self-Supply Thermoelectric Power Production (Recirculated cooling)	14	41	4	59	0	0	17
Off-Stream Hydroelectric Power Production	0	0	0	0	0	0	0
In-Stream Hydroelectric Water Use	0	0	0	0	0	0	0
Other Self Supply	151	1	8	160	0	151	0
Total	**8,336**	**454**	**572**	**9,362**	**0**	**1,015**	**613**

In millions of gallons per day; Water Sources: Great Lakes surface water (GLSW), other surface water (OSW) and groundwater (GW); totals may not sum exactly due to rounding.

Table 6b. Lake Michigan Watershed 2024 Water Use Data Summary in mld

Sector	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	Total	Intrabasin	Interbasin	
Public Water Supply	4,717	82	842	5,641	1	3,173	324
Self-Supply Commercial and Institutional	14	25	17	57	0	7	2
Self-Supply Irrigation	1	151	891	1,043	0	0	915
Self-Supply Livestock	0	44	103	146	0	0	35
Self-Supply Industrial	4,128	712	263	5,104	0	90	864
Self-Supply Thermoelectric Power Production (Once-through cooling)	22,069	545	4	22,618	0	0	117
Self-Supply Thermoelectric Power Production (Recirculated cooling)	52	155	15	222	0	0	64
Off-Stream Hydroelectric Power Production	0	0	0	0	0	0	0
In-Stream Hydroelectric Water Use	0	0	0	0	0	0	0
Other Self Supply	572	4	31	607	0	572	1
Total	**31,553**	**1,717**	**2,167**	**35,437**	**1**	**3,843**	**2,322**

In millions of liters per day; Water Sources: Great Lakes surface water (GLSW), other surface water (OSW) and groundwater (GW); totals may not sum exactly due to rounding.

Lake Huron

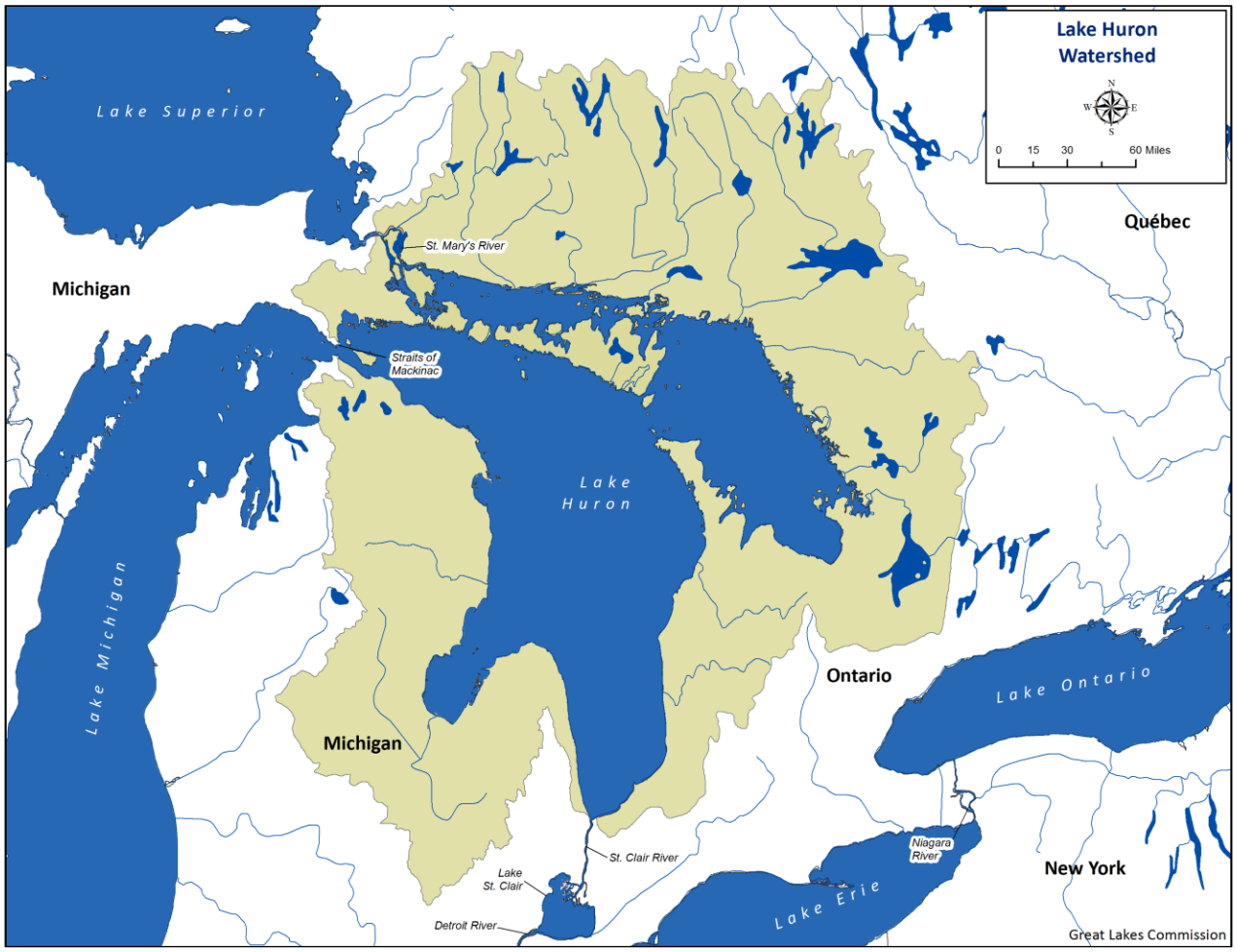

Figure 9. Lake Huron Watershed

Overview of Watershed Characteristics

By surface area, Lake Huron is the second largest of the Great Lakes. It covers 23,000 square miles (59,565 square kilometers), making it the third largest freshwater lake on Earth by surface area.[16] By volume however, Lake Huron is only the third largest Great Lake. The latest population estimates represent the first time the Canadian population is greater than the U.S. population within the Lake Huron watershed.[17]

Basic Stats of Lake Huron

Length: 206 mi/332 km

Breadth: 183 mi/295 km

Elevation: 577 ft/176 m

Depth: 195 ft/59 m average, 750 ft/ 229 m maximum

Volume: 849 cubic mi/3,538 cubic km

Lake Surface Area: 23,000 square mi/ 59,565 square km

Watershed Drainage Area: 50,700 square mi/131,303 square km

Outlet: St. Clair River to Lake Erie

Retention/replacement time: 21 years

Approximate population in watershed: United States - 1,563,597; Canada - 1,636,294; Total - 3,199,891

[16] Great Lakes Commission, Lake Huron.
[17] State of the Great Lakes 2022 – Technical Report.

Water Withdrawals

Only two jurisdictions – Michigan and Ontario – share the Lake Huron watershed and collectively withdrew 7,584 mgd or 28,710 mld in 2024, excluding the reported in-stream hydroelectric water use of 33,998 mgd or 128,697 mld. This represents a less than one percent decrease from the 2023 total withdrawal of 7,616 mgd (28,828 mld). Self-supply thermoelectric power production (once-through cooling) was the primary sector in the Lake Huron watershed at 6,945 mgd (26,291 mld) in 2024, accounting for 92% of total withdrawals. Together, withdrawals for self-supply industrial use (353 mgd or 1,337 mld) and public water supply (210 mgd or 795 mld) made up the bulk of remaining withdrawals at 7.5% of the total.

Excluding in-stream hydroelectric water use, other surface water was the primary source of withdrawals in the watershed, accounting for 59% (4,440 mgd or 16,808 mld) of total withdrawals from the Lake Huron watershed in 2024. Of the remaining withdrawals, 40% came from Lake Huron surface water (3,026 mgd or 11,454 mld) and less than 2% came from groundwater (118 mgd or 448 mld).

Water Diversions and Consumptive Uses

The reported net water loss from the Lake Huron watershed was 195 mgd (740 mld) in 2024. Total consumptive use was 155 mgd or 585 mld, accounting for 79% of the net water loss. Most of the consumptive use in the watershed came from the self-supply thermoelectric power production (once-through cooling) (62 mgd or 236 mld) and self-supply industrial (41 mgd or 154 mld) sectors at 40% and 26% of total consumptive use, respectively. Consumptive use in the Lake Huron watershed increased by 6% from 2023.

The remainder of the net water loss consisted of an intrabasin transfer of 41 mgd (155 mld) for public water supply in Ontario. This intrabasin diversion represented a loss from the Lake Huron watershed and a corresponding gain to the Lake Erie and Lake Ontario watersheds and thus did not have an impact on the overall Great Lakes-St. Lawrence River basin water balance (i.e., all water diverted remained in the basin). Over 97% of the diversion was into the Lake Erie watershed.

Table 7a. Lake Huron Watershed 2024 Water Use Data Summary in mgd

Sector	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	Total	Intrabasin	Interbasin	
Public Water Supply	120	42	48	210	41	0	26
Self-Supply Commercial and Institutional	1	2	1	4	0	0	0
Self-Supply Irrigation	0	19	16	36	0	0	21
Self-Supply Livestock	0	14	15	29	0	0	1
Self-Supply Industrial	35	281	37	353	0	0	41
Self-Supply Thermoelectric Power Production (Once-through cooling)	2,870	4,076	0	6,945	0	0	62
Self-Supply Thermoelectric Power Production (Recirculated cooling)	0	4	0	4	0	0	4
Off-Stream Hydroelectric Power Production	0	0	0	0	0	0	0
In-Stream Hydroelectric Water Use	18,861	15,137	0	33,998	0	0	0
Other Self Supply	0	2	1	3	0	0	0
Total	**21,887**	**19,577**	**118**	**41,583**	**41**	**0**	**155**

In millions of gallons per day; Water Sources: Great Lakes surface water (GLSW), other surface water (OSW) and groundwater (GW); totals may not sum exactly due to rounding.

Table 7b. Lake Huron Watershed 2024 Water Use Data Summary in mld

Sector	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	Total	Intrabasin	Interbasin	
Public Water Supply	453	159	184	795	155	0	97
Self-Supply Commercial and Institutional	4	7	2	13	0	0	1
Self-Supply Irrigation	1	73	62	136	0	0	81
Self-Supply Livestock	0	51	57	108	0	0	2
Self-Supply Industrial	133	1,065	140	1,337	0	0	154
Self-Supply Thermoelectric Power Production (Once-through cooling)	10,863	15,428	0	26,291	0	0	236
Self-Supply Thermoelectric Power Production (Recirculated cooling)	0	16	1	17	0	0	13
Off-Stream Hydroelectric Power Production	0	0	0	0	0	0	0
In-Stream Hydroelectric Water Use	71,396	57,301	0	128,697	0	0	0
Other Self Supply	0	9	3	12	0	0	0
Total	**82,850**	**74,109**	**448**	**157,407**	**155**	**0**	**585**

In millions of liters per day; Water Sources: Great Lakes surface water (GLSW), other surface water (OSW) and groundwater (GW); totals may not sum exactly due to rounding.

Lake Erie

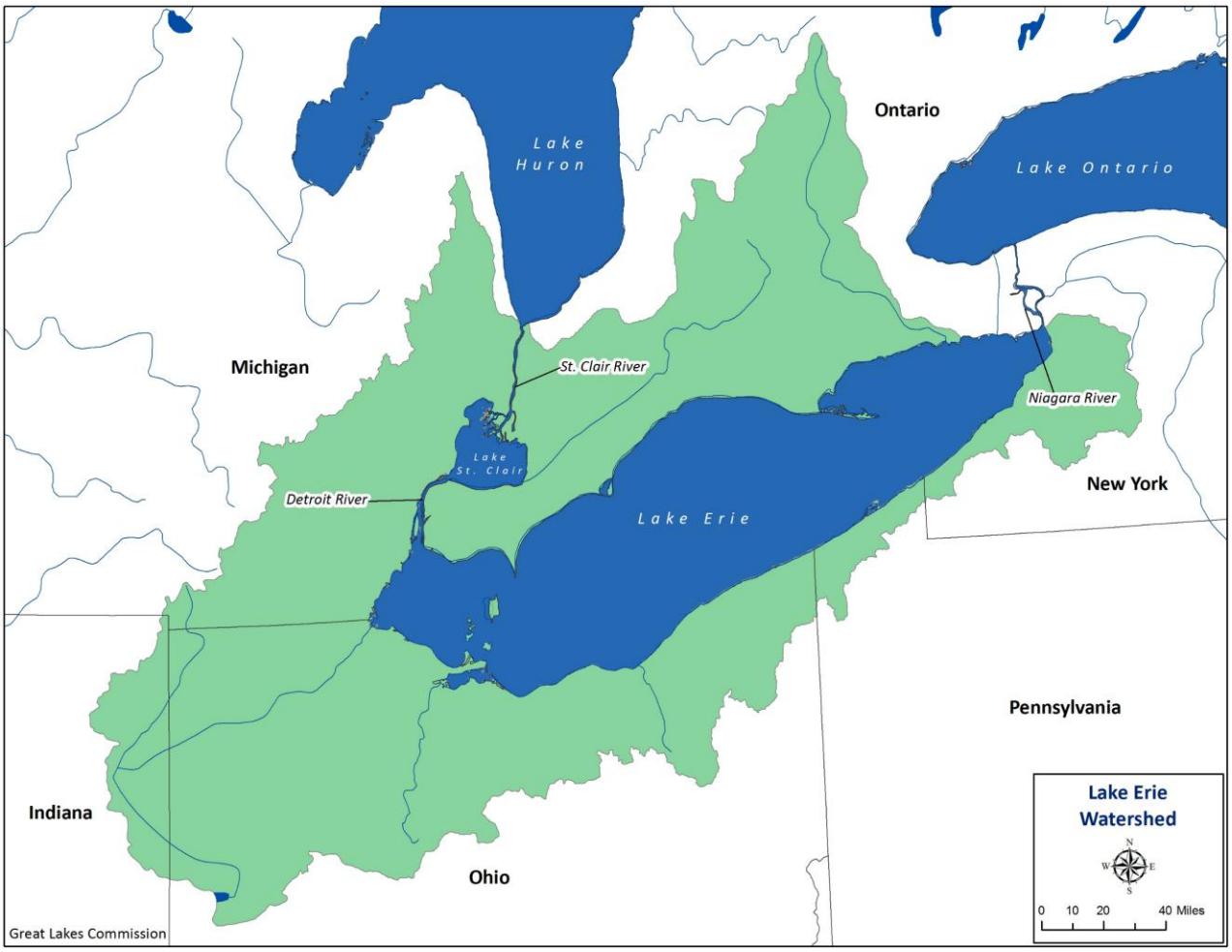

Figure 10. Lake Erie Watershed

Overview of Watershed Characteristics

By surface area, Lake Erie is the 12th largest freshwater lake in the world. The shallowest of the Great Lakes, it has an average depth of 62 feet (19 meters) and a maximum depth of 210 feet (64 meters). The lake holds about 119 cubic miles (496 cubic kilometers) of water.[18] Lake Erie is warmer than the other Great Lakes, which contributes to its biological productivity. However, its small volume relative to the other Great Lakes and overall average shallow depth makes it more ecologically sensitive. The watershed is home to more than 12 million people.

Basic Stats of Lake Erie

Length: 241 mi/388 km

Breadth: 57 mi/92 km

Elevation: 569 ft/173 m

Depth: 62 ft/19 m average, 210 ft/64 m maximum

Volume: 119 cubic mi/496 cubic km

Lake surface area: 9,910 square mi/ 25,655 square km

Watershed drainage area: 22,700 square mi/58,788 square km

Outlets: Niagara River and Welland Canal

Retention/replacement time: 2.7 years

Approximate population in watershed: United States - 9,946,913; Canada - 2,452,606; Total - 12,399,519

[18] Great Lakes Commission, Lake Erie.

Water Withdrawals

Six jurisdictions – Indiana, Michigan, New York, Ohio, Ontario and Pennsylvania – share the Lake Erie watershed and collectively withdrew 5,589 mgd (21,155 mld) in 2024, excluding the reported in-stream hydroelectric water use of 50,623 mgd (191,630 mld). This represents a 1.6% increase from the 2023 total withdrawal amount of 5,498 mgd (20,814 mld). Excluding in-stream hydroelectric power generation, the primary water use sectors were self-supply thermoelectric power generation (once-through cooling) (2,803 mgd or 10,611 mld) at 50% of total withdrawals from the Lake Erie watershed; public water supply (1,503 mgd or 5,690 mld) at 27%; and self-supply industrial (994 mgd or 3,761 mld) at 18% in 2024.

Excluding in-stream hydroelectric water use, Lake Erie surface water was the primary source of withdrawals in the watershed, accounting for 67% of total withdrawals (3,747 mgd or 14,182 mld) in 2024. Of the remaining withdrawals, 28% came from other surface water (1,556 mgd or 5,888 mld) and 5% came from groundwater (287 mgd or 1,085 mld).

Water Diversions and Consumptive Uses

The reported net water loss from the Lake Erie watershed totaled 4,006 mgd (15,164 mld) in 2024. The largest loss from the Lake Erie watershed was from the Welland Canal intrabasin diversion, which diverted 3,654 mgd (13,831 mld) to the Lake Ontario watershed for navigation purposes. Because this diversion is entirely into Lake Ontario, no water is lost from the Great Lakes-St. Lawrence River basin. The Welland Canal was constructed in 1830 as a ship canal connecting Lake Erie to Lake Ontario. Figure 11 shows the flow through the Welland Canal over the past five years.

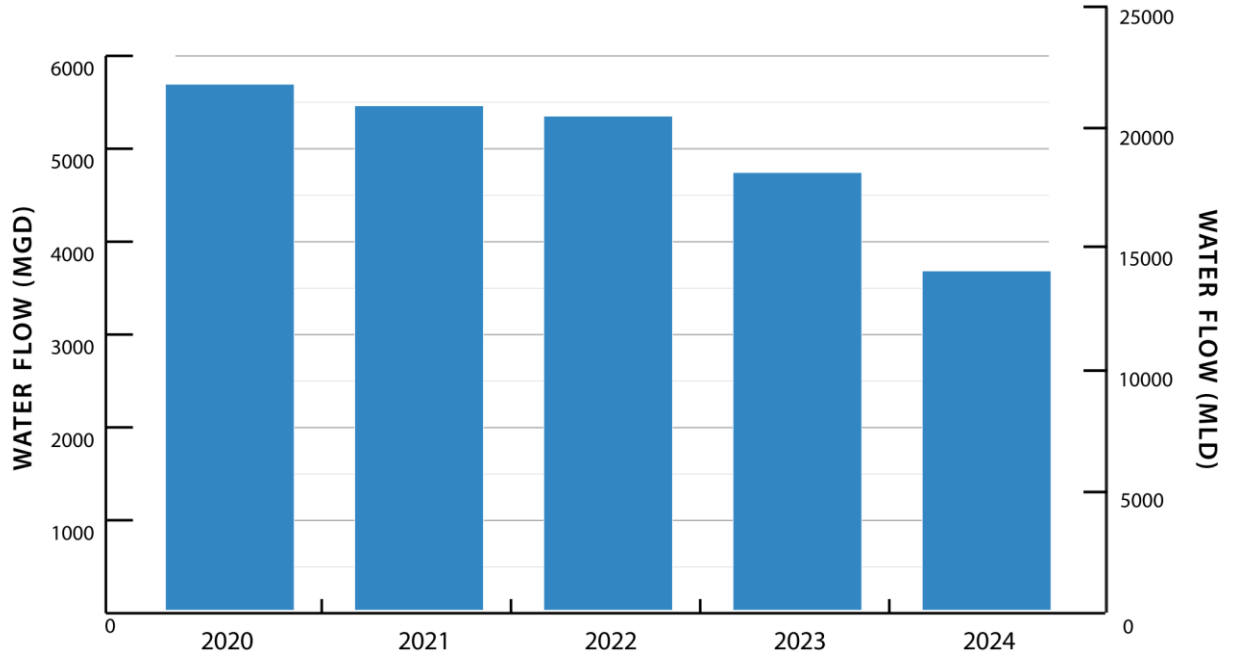

Figure 11. Water flow through the Welland Canal over the past five years

Additionally, incoming intrabasin diversions were reported in Ontario and Michigan for the public water supply sector, totaling 40 mgd or 151 mld, though Michigan's diversion represented a small portion of the total (about 0.2%). Interbasin diversions, both into and out of the basin, were also reported, resulting in a net water gain of 18 mgd (67 mld) for the Lake Erie watershed.[19]

Consumptive use in the Lake Erie watershed totaled 409 mgd (1,550 mld) in 2024, a 4% decrease from 2023 (425 mgd or 1,609 mld). The major consumptive uses in the Lake Erie watershed were for public water supply (194 mgd or 734 mld) at 47% of the total and self-supply industrial use (89 mgd or 338 mld) at 22% in 2024.

[19] Incoming diversions are reported as negative values in the database and on tables in this report.

Table 8a. Lake Erie Watershed 2024 Water Use Data Summary in mgd

Sector	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	Total	Intrabasin	Interbasin	
Public Water Supply	1,135	229	140	1,503	-40	10	194
Self-Supply Commercial and Institutional	1	0	0	1	0	0	0
Self-Supply Irrigation	2	44	15	61	0	0	55
Self-Supply Livestock	0	4	9	13	0	0	1
Self-Supply Industrial	248	632	114	994	0	0	89
Self-Supply Thermoelectric Power Production (Once-through cooling)	2,186	617	0	2,803	0	0	38
Self-Supply Thermoelectric Power Production (Recirculated cooling)	173	1	0	173	0	0	29
Off-Stream Hydroelectric Power Production	0	0	0	0	0	0	0
In-Stream Hydroelectric Water Use	50,000	623	0	50,623	0	0	0
Other Self Supply	2	29	9	40	3,654	-27	3
Total	**53,747**	**2,179**	**287**	**56,212**	**3,614**	**-18**	**409**

In millions of gallons per day; Water Sources: Great Lakes surface water (GLSW), other surface water (OSW) and groundwater (GW); totals may not sum exactly due to rounding.

Table 8b. Lake Erie Watershed 2024 Water Use Data Summary in mld

Sector	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	Total	Intrabasin	Interbasin	
Public Water Supply	4,295	866	529	5,690	-151	37	734
Self-Supply Commercial and Institutional	3	1	1	5	0	0	1
Self-Supply Irrigation	7	166	57	231	0	0	207
Self-Supply Livestock	0	15	32	48	0	-1	3
Self-Supply Industrial	938	2,393	430	3,761	0	0	338
Self-Supply Thermoelectric Power Production (Once-through cooling)	8,276	2,335	0	10,611	0	0	145
Self-Supply Thermoelectric Power Production (Recirculated cooling)	654	2	0	656	0	0	108
Off-Stream Hydroelectric Power Production	0	0	0	0	0	0	0
In-Stream Hydroelectric Water Use	189,271	2,359	0	191,630	0	0	0
Other Self Supply	9	110	35	153	13,831	-103	13
Total	**203,453**	**8,248**	**1,085**	**212,785**	**13,681**	**-67**	**1,550**

In millions of liters per day; Water Sources: Great Lakes surface water (GLSW), other surface water (OSW) and groundwater (GW); totals may not sum exactly due to rounding.

Lake Ontario

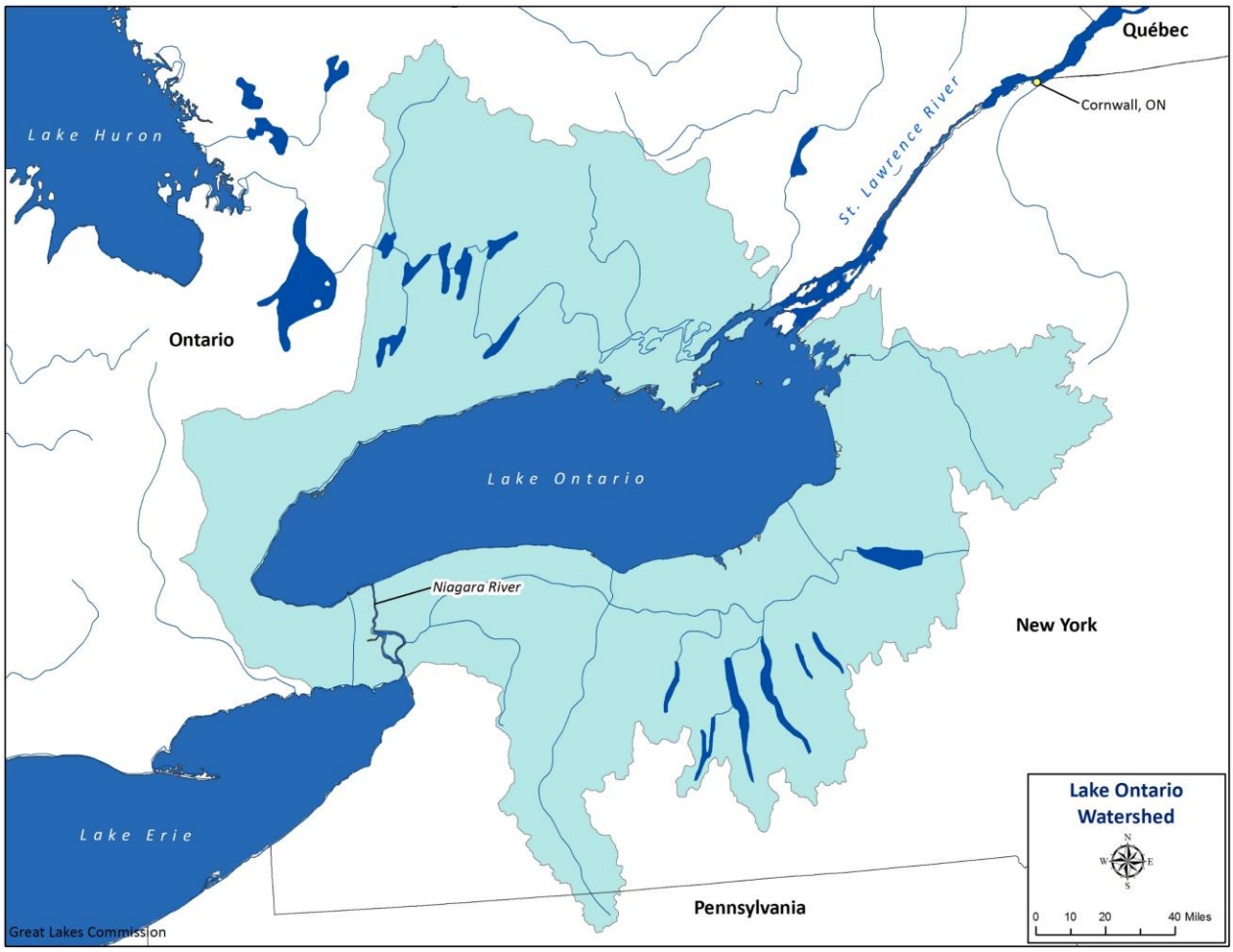

Figure 12. Lake Ontario Watershed

Overview of Watershed Characteristics

Lake Ontario is the easternmost of the Great Lakes and the smallest in surface area (covering 7,340 square miles or 19,009 square kilometers). It is extremely deep (802 feet or 244 meters maximum) and while smaller than Lake Erie in surface area, it exceeds it in volume by nearly three and a half times (395 cubic miles or 1,646 cubic kilometers).[20] Lake Ontario is the 14th largest lake in the world by surface area and the 11th largest by volume.

Basic Stats of Lake Ontario

Length: 193 mi/311 km

Breadth: 53 mi/85 km

Elevation: 243 ft/74 m

Depth: 283 ft/86 m average, 802 ft/ 244 m maximum

Volume: 395 cubic mi/1,646 cubic km

Lake surface area: 7,340 square mi/19,009 square km

Watershed drainage area: 23,400 square mi/ 60,601 square km

Outlet: St. Lawrence River to the Atlantic Ocean

Retention/replacement time: six years

Approximate population in watershed: United States - 2,997,484; Canada - 8,169,080; Total - 11,166,564

[20] Great Lakes Commission, Lake Ontario.

Water Withdrawals

Three jurisdictions – New York, Ontario and Pennsylvania – share the Lake Ontario watershed and collectively withdrew 9,683 mgd (36,654 mld) in 2024, excluding the in-stream hydroelectric water use of 139,394 mgd (527,662 mld). This represents a 1.5% increase from the 2023 total withdrawal of 9,543 mgd (36,123 mld). Excluding in-stream hydroelectric power generation, the primary water uses were for self-supply thermoelectric power generation (once-through cooling) (6,822 mgd or 25,825 mld) at 70% of total withdrawals from the Lake Ontario watershed; public water supply (983 mgd or 3,720 mld) at 10%; and other self-supply (748 mgd or 2,831 mld) at 8% in 2024.

Lake Ontario surface water was the primary source of withdrawals in the watershed, accounting for 59% of total withdrawals (5,666 mgd or 21,450 mld) in 2024. Of the remaining withdrawals, 41% came from other surface water (3,954 mgd or 14,969 mld) and less than one percent came from groundwater (62 mgd or 235 mld).

Water Diversions and Consumptive Uses

The reported net water gain in the Lake Ontario watershed was 3,264 mgd (12,356 mld)[21] in 2024, representing a 24% decrease from the 2023 net gain of 4,321 mgd (16,358 mld). The net gain in 2024 was predominately attributable to the Welland Canal (3,654 mgd or 13,831 mld), which diverts water from the Lake Erie watershed to Lake Ontario for navigation purposes. While this represents a net gain for the Lake Ontario watershed, it has a net zero effect on the Great Lakes-St. Lawrence River basin. An additional net intrabasin diversion of 1.2 mgd (4.5 mld) into the Lake Ontario watershed from the Lake Huron watershed was reported, associated with the public water supply sector in Ontario.

Outgoing interbasin diversions of 40.7 mgd (154 mld) from Lake Ontario were reported in New York, associated with the Erie Barge Canal (32 mgd or 121 mld) and the city of Rome's public water supply (8.7 mgd or 33 mld). Consumptive use in the Lake Ontario watershed totaled 350 mgd (1,326 mld) in 2024, a decrease of less than one percent from 2023. The primary consumptive uses in the Lake Ontario watershed were from public water supply (121 mgd or 456 mld) at 35% of the total consumptive use; self-supply thermoelectric power production (once-through cooling) (74 mgd or 281 mld) at 21%; and self-supply industrial use (72 mgd or 274 mld) at 21% in 2024.

[21] Incoming diversions are reported as negative values in the database and on tables in this report.

Table 9a. Lake Ontario Watershed 2024 Water Use Data Summary in mgd

Sector	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	Total	Intrabasin	Interbasin	
Public Water Supply	613	352	18	983	-1	9	121
Self-Supply Commercial and Institutional	0	33	0	34	0	0	5
Self-Supply Irrigation	0	22	1	22	0	0	20
Self-Supply Livestock	0	28	5	33	0	0	4
Self-Supply Industrial	347	190	37	574	0	0	72
Self-Supply Thermoelectric Power Production (Once-through cooling)	4,275	2,548	0	6,822	0	0	74
Self-Supply Thermoelectric Power Production (Recirculated cooling)	432	0	0	432	0	0	22
Off-Stream Hydroelectric Power Production	0	34	0	34	0	0	0
In-Stream Hydroelectric Water Use	41,143	98,250	0	139,394	0	0	0
Other Self Supply	0	748	0	748	-3,654	32	32
Total	**46,810**	**102,205**	**62**	**149,076**	**-3,655**	**41**	**350**

In millions of gallons per day; Water Sources: Great Lakes surface water (GLSW), other surface water (OSW) and groundwater (GW); totals may not sum exactly due to rounding.

Table 9b. Lake Ontario Watershed 2024 Water Use Data Summary in mld

Sector	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	Total	Intrabasin	Interbasin	
Public Water Supply	2,319	1,333	69	3,720	-4	33	458
Self-Supply Commercial and Institutional	0	126	2	128	0	0	19
Self-Supply Irrigation	0	82	3	85	0	0	75
Self-Supply Livestock	0	106	20	126	0	0	15
Self-Supply Industrial	1,313	718	141	2,172	0	0	274
Self-Supply Thermoelectric Power Production (Once-through cooling)	16,181	9,644	0	25,825	0	0	281
Self-Supply Thermoelectric Power Production (Recirculated cooling)	1,637	0	0	1,637	0	0	82
Off-Stream Hydroelectric Power Production	0	129	0	129	0	0	0
In-Stream Hydroelectric Water Use	155,745	371,917	0	527,662	0	0	0
Other Self Supply	0	2,831	0	2,831	-13,831	121	123
Total	**177,194**	**386,886**	**235**	**564,316**	**-13,836**	**154**	**1,326**

In millions of liters per day; Water Sources: Great Lakes surface water (GLSW), other surface water (OSW) and groundwater (GW); totals may not sum exactly due to rounding.

St. Lawrence River

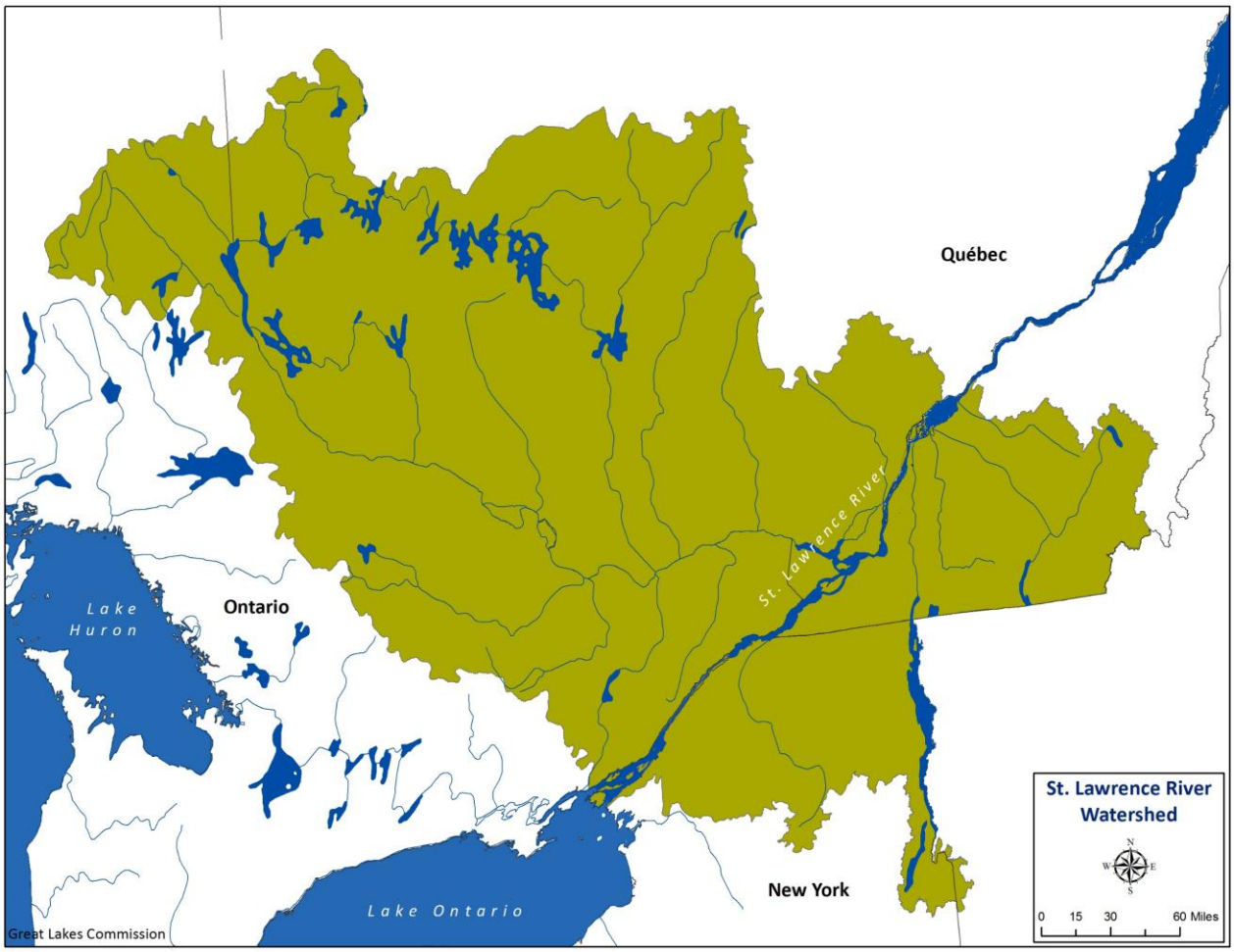

Figure 13. St. Lawrence River Watershed

Overview of Watershed Characteristics

Running 744 miles (1,197 kilometers) in length, the St. Lawrence River is considered a major river of North America. Mostly located in the province of Québec, it links the Great Lakes to the Atlantic Ocean. Though the St. Lawrence River is more than 700 miles long, the database only tracks water use within the watershed of the freshwater portion of the river, extending from Lake Ontario to Trois-Rivières, Québec.[22]

Basic Stats of the St. Lawrence River

Length: 744 mi/1,197 km

Elevation: 245 ft/75 m at the source and 0 ft/0 m at the mouth

Average annual flow (Montréal): 7,660 cubic meters/second

Volume: 393 cubic mi/1,639 cubic km

Watershed drainage area: 519,000 square mi/1,344,200 square km

Outlet: Gulf of St. Lawrence/Atlantic Ocean

[22] Great Lakes Commission, St. Lawrence River and Seaway.

Water Withdrawals

Three jurisdictions – New York, Ontario and Québec – share the St. Lawrence River watershed and collectively withdrew 1,396 mgd (5,284 mld) of water in 2024, excluding the in-stream hydroelectric water use of 65,290,232 mgd (247,150,412 mld).[23] St. Lawrence River withdrawals decreased by 7% from the 2023 withdrawal total of 1,503 mgd (5,689 mld). Excluding in-stream hydroelectric water use, the primary water uses were public supply (947 mgd or 3,586 mld) and self-supply industrial use (354 mgd or 1,338 mld), collectively making up 93% of St. Lawrence River watershed withdrawals in 2024.

Excluding in-stream hydroelectric water use, St. Lawrence River surface water accounted for 50% of total withdrawals (695 mgd or 2,631 mld) in 2024. Of the remaining withdrawals in the St. Lawrence River watershed, 42% came from other surface water (585 mgd or 2,215 mld) and 8% came from groundwater (116 mgd or 438 mld).

Water Diversions and Consumptive Uses

The reported net water loss in the St. Lawrence River watershed totaled 214 mgd (810 mld) in 2024, a 10% decrease from 2023 (238 mgd or 902 mld). This net loss includes interbasin diversions for public water supply in New York (1.9 mgd or 7.1 mld) and Québec (2.8 mgd or 10.6 mld) and consumptive uses totaling 209 mgd (792 mld). The largest consumptive uses were for public water supply (170 mgd or 642 mld) at 81% of the total consumptive use in the St. Lawrence River watershed and self-supply industrial use (29 mgd or 111 mld) at 14% of the total.

[23] Because of an updated calculation method, withdrawals for in-stream hydroelectric power production in New York will appear to be much higher in 2024 than in previous years. In 2023, this value should be 63,618,908 mgd rather than 2,133,792 mgd as was reported in the 2023 Annual Report.

Table 10a. St. Lawrence River Watershed 2024 Water Use Data Summary in mgd

Sector	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	Total	Intrabasin	Interbasin	
Public Water Supply	536	351	60	947	-1	9	121
Self-Supply Commercial and Institutional	0	11	1	12	0	0	5
Self-Supply Irrigation	0	5	2	7	0	0	20
Self-Supply Livestock	0	24	11	35	0	0	4
Self-Supply Industrial	122	191	40	354	0	0	72
Self-Supply Thermoelectric Power Production (Once-through cooling)	31	0	0	32	0	0	74
Self-Supply Thermoelectric Power Production (Recirculated cooling)	0	0	0	0	0	0	22
Off-Stream Hydroelectric Power Production	0	0	0	0	0	0	0
In-Stream Hydroelectric Water Use	65,233,930	56,302	0	65,290,232	0	0	0
Other Self Supply	5	3	1	9	-3,654	32	32
Total	**65,234,625**	**56,887**	**116**	**65,291,628**	**-3,655**	**41**	**350**

In millions of gallons per day; Water Sources: Great Lakes surface water (GLSW), other surface water (OSW) and groundwater (GW); totals may not sum exactly due to rounding.

Table 10b. St. Lawrence River Watershed 2024 Water Use Data Summary in mld

Sector	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	Total	Intrabasin	Interbasin	
Public Water Supply	2,028	1,329	229	3,586	-4	33	458
Self-Supply Commercial and Institutional	2	40	3	45	0	0	19
Self-Supply Irrigation	2	18	9	28	0	0	75
Self-Supply Livestock	0	90	42	132	0	0	15
Self-Supply Industrial	461	725	153	1,338	0	0	274
Self-Supply Thermoelectric Power Production (Once-through cooling)	118	2	0	120	0	0	281
Self-Supply Thermoelectric Power Production (Recirculated cooling)	0	0	0	0	0	0	82
Off-Stream Hydroelectric Power Production	0	0	0	0	0	0	0
In-Stream Hydroelectric Water Use	246,937,288	213,125	0	247,150,413	0	0	0
Other Self Supply	20	12	3	35	-13,831	121	123
Total	**246,939,919**	**215,340**	**438**	**247,155,697**	**-13,836**	**154**	**1,326**

In millions of liters per day; Water Sources: Great Lakes surface water (GLSW), other surface water (OSW) and groundwater (GW); totals may not sum exactly due to rounding.

Jurisdiction Reports

Illinois

The Illinois portion of the Lake Michigan watershed is only about 100 square miles, which accounts for less than 0.2 percent of the total area of the state. The Lake Michigan coastline of Illinois is 63 miles long, which is less than 0.4 percent of the 1,640 miles of Lake Michigan's total shoreline. Despite its small size, the Illinois Lake Michigan service area is home to half the total population of Illinois and the lake is the largest public drinking water supply in the state, serving nearly seven million people.

The total withdrawal amount from the basin for Illinois in 2024 was 989 mgd (3,744 mld) representing a 2% increase from 2023 withdrawals (971 mgd or 3,677 mld). The largest reported uses of water were for public water supply at 788 mgd or 2,981 mld (80% of the total withdrawal amount) and other self-supply at 151 mgd or 572 mld (15% of the total withdrawal amount). The source for all withdrawals was Lake Michigan surface water, except for a miniscule groundwater withdrawal in the self-supply irrigation sector.

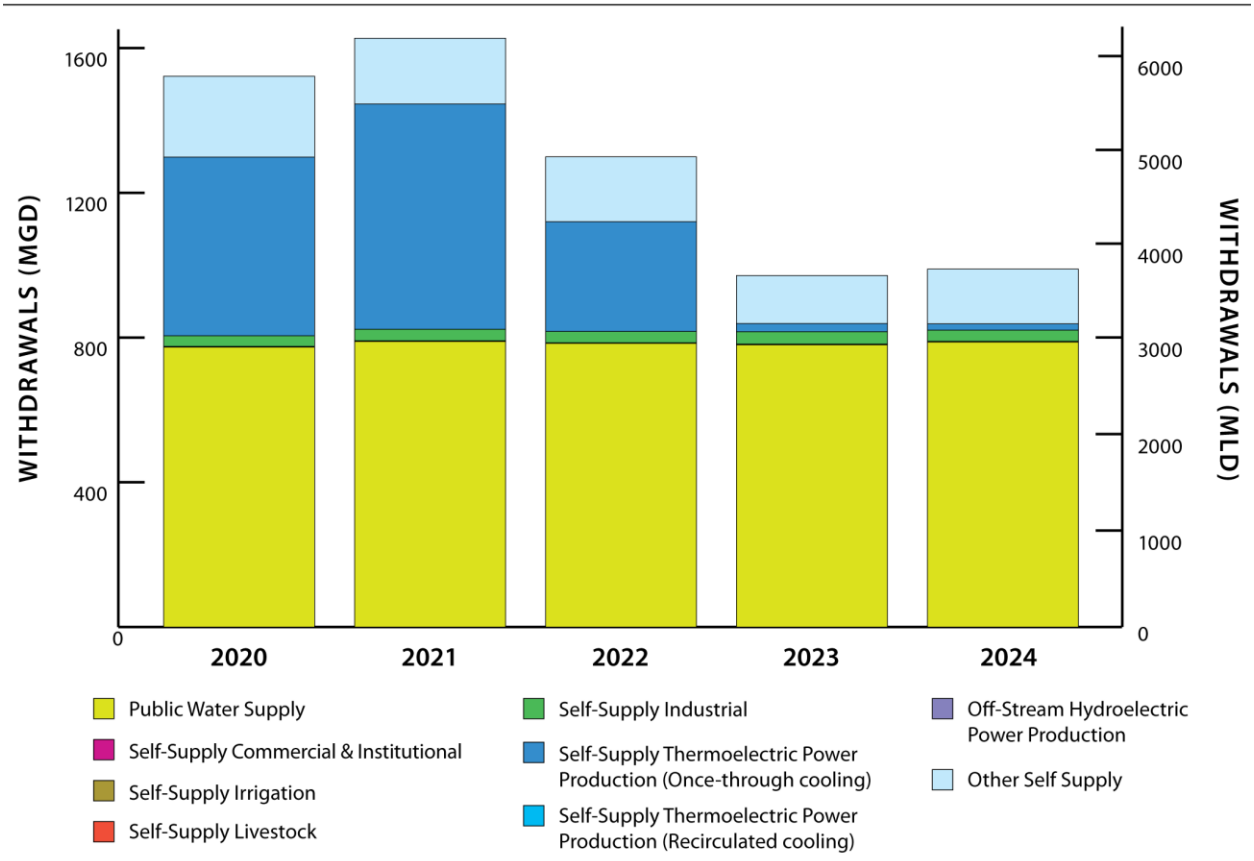

Figure 14. Illinois water withdrawals by sector over the past five years

A total of 941 mgd (3,563 mld) were diverted through the Illinois Diversion in 2024. The Illinois Diversion diverts water from Lake Michigan through the Chicago Area Waterway System (CAWS) into the Mississippi River watershed and is comprised of three elements: public water supply, stormwater runoff and direct diversion. The amount of water diverted for public water supply was 788 mgd (2,981 mld), with an additional 2.4 mgd (9.3 mld) diverted for both the self-supply commercial and institutional and self-supply industrial sectors.

Direct diversion occurs at three lakefront structures: the Chicago River Controlling Structure, the O'Brien Lock and Dam and the Wilmette Pumping Station. Direct diversion consists of four elements: lockage, leakage, discretionary flow and navigational makeup. Lockage is used in moving vessels to and from Lake Michigan through locks and only occurs at the Chicago River Controlling Structure and the O'Brien Lock and Dam. Leakage is water estimated to pass through or around the three lakefront structures. Discretionary flow is used to dilute effluent from sewage discharges and improve water quality in the CAWS. Navigational makeup is used to maintain navigational depths in the CAWS and diverted 151 mgd (572 mld) in 2024.

Consumptive use in Illinois is negligible; less than 0.02 percent of water withdrawn is lost through consumptive use, totaling about 0.12 mgd (0.47 mld).

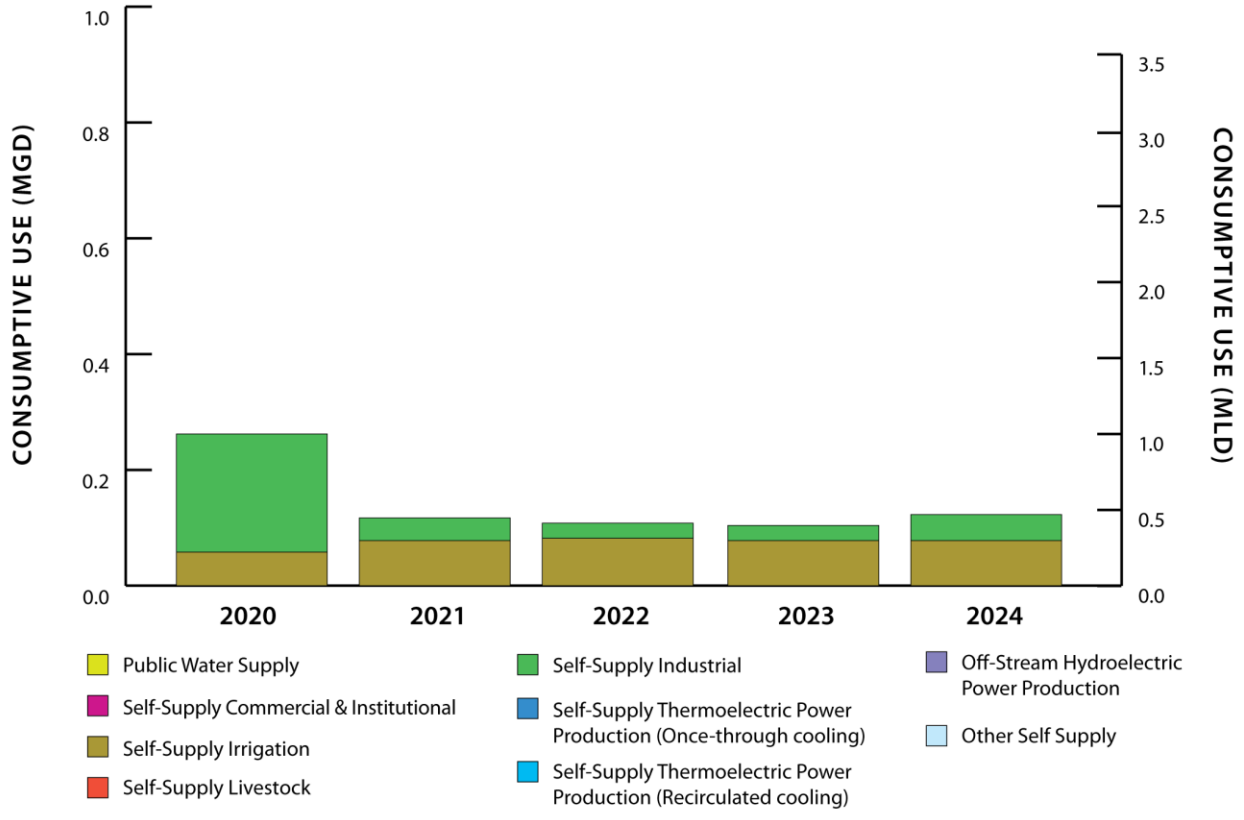

Figure 15. Illinois consumptive use by sector over the past five years

Data collected for this report came from the Illinois State Water Survey and from monthly pumpage reports and annual user reports submitted to the Illinois Department of Natural Resources. These data were generated with a 100% reporting compliance rate from permitted water withdrawal facilities.

Year-to-year changes from 2023 water use by Illinois facilities include:

- A 23% (5 mgd or 19 mld) decrease in water withdrawn for self-supply thermoelectric power production (once-through cooling), mainly because one power generating station closed in late 2024. This continues a trend of decreasing withdrawals in this sector dating back to 2021 when withdrawals equaled 623 mgd (2,357 mld), representing a 97% decrease in this sector from 2021 to 2024.
- A 14% (19 mgd or 70 mld) decrease in the amount of water diverted from the Winnetka Locks, the O'Brien Lock and Dam, and the Chicago Controlling Locks; this diversion is expected to vary year to year depending on precipitation and flooding amounts.

Table 11a. Illinois 2024 Water Use Data Summary in mgd

Sector	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	Total	Intrabasin	Interbasin	
Public Water Supply	788	0	0	788	0	788	0
Self-Supply Commercial and Institutional	2	0	0	2	0	2	0
Self-Supply Irrigation	0	0	0	0	0	0	0
Self-Supply Livestock	0	0	0	0	0	0	0
Self-Supply Industrial	31	0	0	31	0	1	0
Self-Supply Thermoelectric Power Production (Once-through cooling)	17	0	0	17	0	0	0
Self-Supply Thermoelectric Power Production (Recirculated cooling)	0	0	0	0	0	0	0
Off-Stream Hydroelectric Power Production	0	0	0	0	0	0	0
In-Stream Hydroelectric Water Use	0	0	0	0	0	0	0
Other Self Supply	151	0	0	151	0	151	0
Total	**989**	**0**	**0**	**989**	**0**	**941**	**0**

In millions of gallons per day; Water Sources: Great Lakes surface water (GLSW), other surface water (OSW) and groundwater (GW); totals may not sum exactly due to rounding.

Table 11b. Illinois 2024 Water Use Data Summary in mld

Sector	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	Total	Intrabasin	Interbasin	
Public Water Supply	2,981	0	0	2,981	0	2,981	0
Self-Supply Commercial and Institutional	7	0	0	7	0	7	0
Self-Supply Irrigation	0	0	0	0	0	0	0
Self-Supply Livestock	0	0	0	0	0	-1	0
Self-Supply Industrial	117	0	0	117	0	2	0
Self-Supply Thermoelectric Power Production (Once-through cooling)	66	0	0	66	0	0	0
Self-Supply Thermoelectric Power Production (Recirculated cooling)	0	0	0	0	0	0	0
Off-Stream Hydroelectric Power Production	0	0	0	0	0	0	0
In-Stream Hydroelectric Water Use	0	0	0	0	0	0	0
Other Self Supply	572	0	0	572	0	572	0
Total	**3,744**	**0**	**0**	**3,744**	**0**	**3,562**	**0**

In millions of liters per day; Water Sources: Great Lakes surface water (GLSW), other surface water (OSW) and groundwater (GW); totals may not sum exactly due to rounding.

Indiana

The state of Indiana uses the water resources of the Lake Michigan and Lake Erie watersheds. Indiana's portion of the Lake Michigan watershed encompasses a total of 241 square miles. Four Indiana counties lie partially within the Lake Michigan watershed, but three (Lake, Porter and LaPorte counties) constitute more than 99.5% of its land area. Abundant freshwater from Lake Michigan has promoted the development of an extensive urban and industrial belt along Indiana's coastline. Water supplies in Indiana's noncoastal counties in the Lake Michigan watershed are drawn primarily from groundwater. Indiana also shares a portion of the Maumee River watershed that flows into Lake Erie. The Maumee River watershed encompasses 1,283 square miles of northeast Indiana. Six Indiana counties lie partially within this watershed.

In 2024, reported water withdrawals from the basin for Indiana totaled 1,290 mgd (4,883 mld), representing a less than one percent increase from 2023 withdrawals (1,277 mgd or 4,835 mld). The largest withdrawals were used for the self-supply industrial (1,031 mgd or 3,902 mld) and public water supply (161 mgd or 608 mld) sectors; together, these two sectors made up over 92% of Indiana's total water withdrawals.

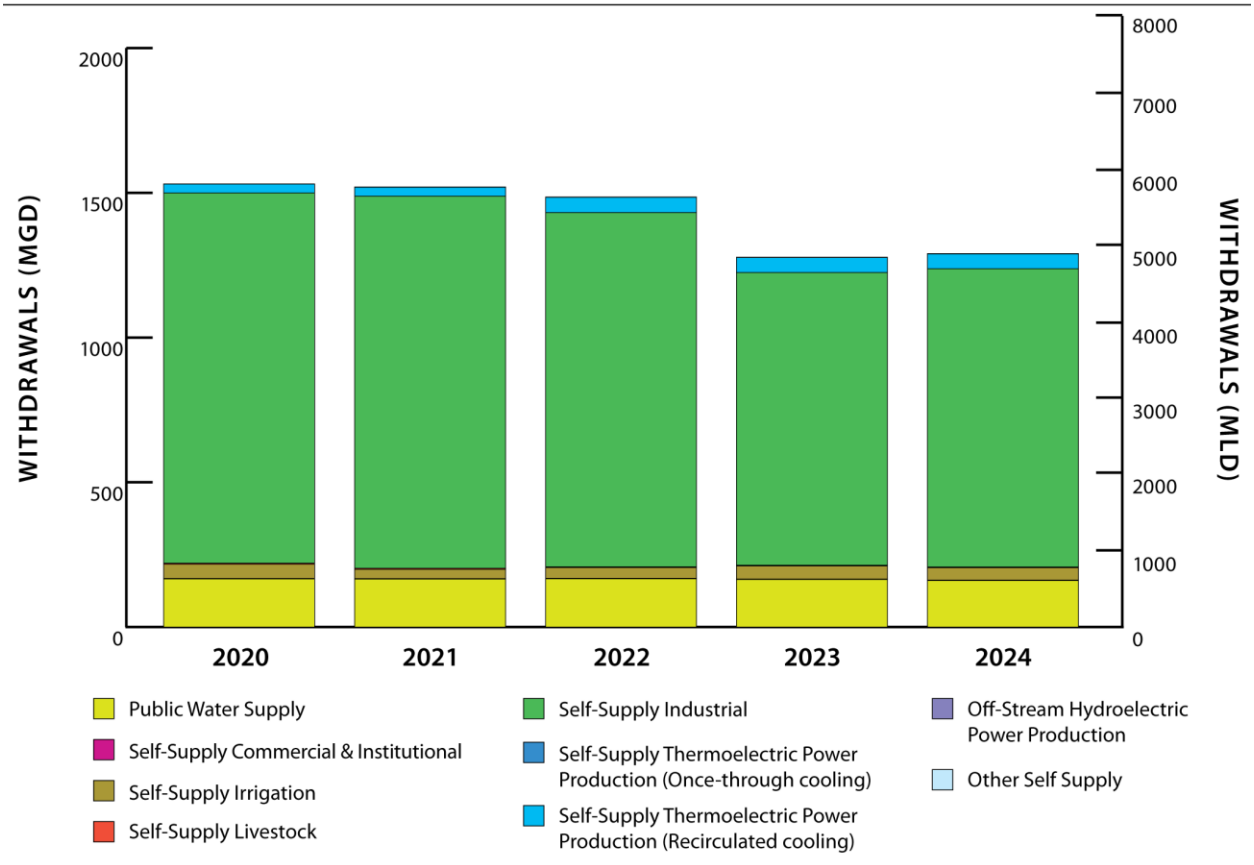

Figure 16. Indiana water withdrawals by sector over the past five years

The total reported interbasin diversion amount for Indiana was 82 mgd (310 mld) in 2024. Because a 65-square-mile portion of Indiana drains into the Illinois River (as a result of the Illinois Diversion), water transferred from the Lake Michigan watershed into this area is considered a diversion of water from the Great Lakes-St. Lawrence River basin. Most reported diversions for Indiana (49 mgd or 185 mld) were distributed for public water supply purposes from Lake Michigan surface water and discharged to the Illinois Diversion area. Other diversions for public supply included a 1.7 mgd (6.4 mld) diversion from groundwater in the Lake Michigan watershed. The industrial sector comprised 23 mgd (85 mld) of the reported diversion from the Lake Michigan watershed into the Illinois River.

In the Lake Erie watershed, a portion of the city of Fort Wayne's public water supply distribution system is outside of the Great Lakes basin in the Upper Wabash watershed. The water distributed through that portion of the system (about 8 mgd or 32 mld from other surface water) was reported as a diversion from the Lake Erie watershed.

Consumptive use in Indiana totaled 270 mgd (1,021 mld) in 2024, with the self-supply industrial sector representing 74% of all consumptive use.

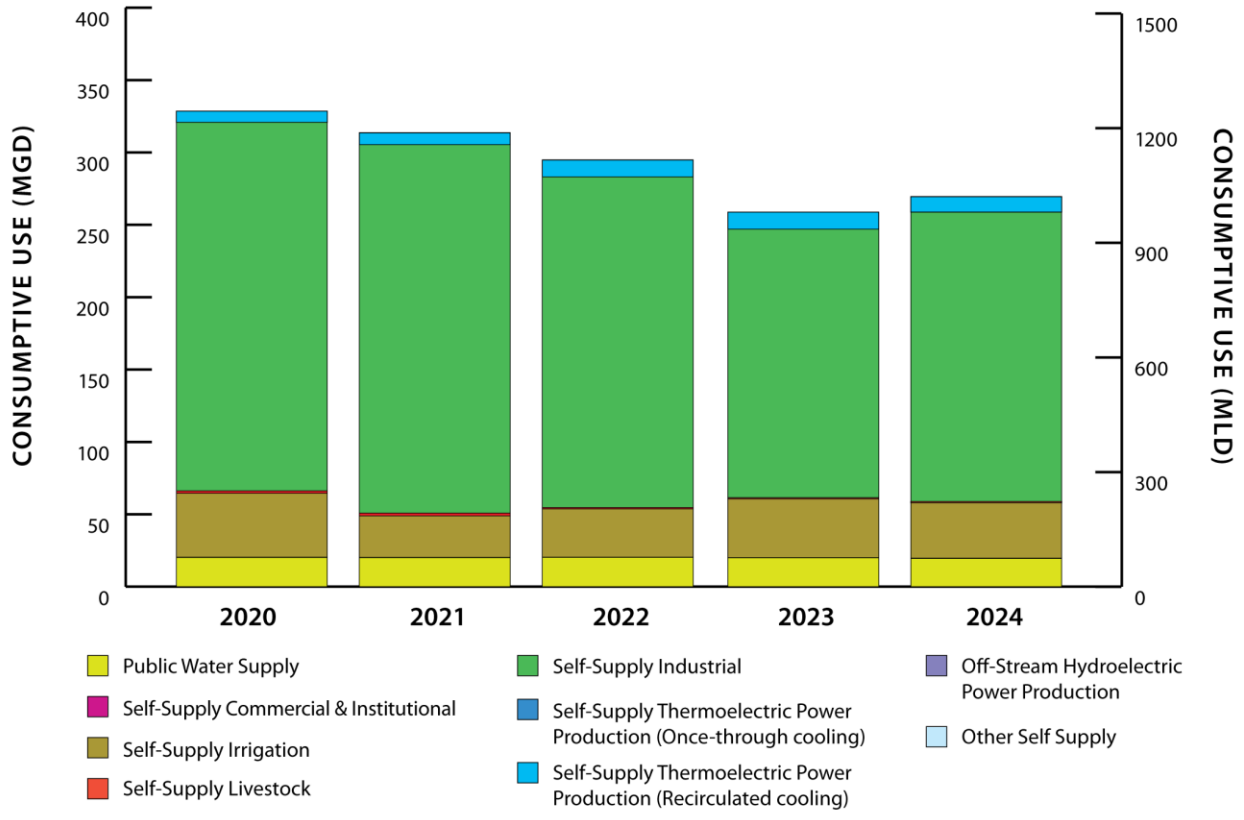

Figure 17. Indiana consumptive use by sector over the past five years

Data collected for this report came from the Indiana Department of Natural Resources. These data were generated from permitted water withdrawal facilities with reporting compliance rates ranging from 82-100% depending on the water use sector. Data were not estimated for facilities that did not report. Indiana does not require in-stream hydroelectric water users to register or report their water use.

Year-to-year changes from 2023 water use by Indiana facilities include:

- A 13% (5 mgd or 19 mld) decrease in groundwater withdrawals from the Lake Michigan watershed in the public water supply sector, due to interannual variability.
- A 10% (4 mgd or 14 mld) decrease in groundwater withdrawals from the Lake Michigan watershed in the self-supply irrigation sector, due to annual variation in irrigation needs.

Table 12a. Indiana 2024 Water Use Data Summary in mgd

Sector	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	Total	Intrabasin	Interbasin	
Public Water Supply	84	38	39	161	0	59	20
Self-Supply Commercial and Institutional	0	0	2	2	0	0	0
Self-Supply Irrigation	0	5	37	43	0	0	38
Self-Supply Livestock	0	0	2	2	0	0	1
Self-Supply Industrial	1,016	5	10	1,031	0	23	200
Self-Supply Thermoelectric Power Production (Once-through cooling)	0	0	0	0	0	0	0
Self-Supply Thermoelectric Power Production (Recirculated cooling)	10	40	2	51	0	0	11
Off-Stream Hydroelectric Power Production	0	0	0	0	0	0	0
In-Stream Hydroelectric Water Use	0	0	0	0	0	0	0
Other Self Supply	0	0	1	1	0	0	0
Total	**1,109**	**88**	**93**	**1,290**	**0**	**82**	**270**

In millions of gallons per day; Water Sources: Great Lakes surface water (GLSW), other surface water (OSW) and groundwater (GW); totals may not sum exactly due to rounding.

Table 12b. Indiana 2024 Water Use Data Summary in mld

Sector	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	Total	Intrabasin	Interbasin	
Public Water Supply	317	143	147	608	0	223	74
Self-Supply Commercial and Institutional	0	0	6	6	0	0	1
Self-Supply Irrigation	0	20	141	161	0	0	145
Self-Supply Livestock	0	0	8	8	0	0	3
Self-Supply Industrial	3,845	20	37	3,902	0	88	757
Self-Supply Thermoelectric Power Production (Once-through cooling)	0	0	0	0	0	0	0
Self-Supply Thermoelectric Power Production (Recirculated cooling)	36	151	8	195	0	0	41
Off-Stream Hydroelectric Power Production	0	0	0	0	0	0	0
In-Stream Hydroelectric Water Use	0	0	0	0	0	0	0
Other Self Supply	0	0	3	3	0	0	0
Total	**4,198**	**334**	**351**	**4,883**	**0**	**310**	**1,021**

In millions of liters per day; Water Sources: Great Lakes surface water (GLSW), other surface water (OSW) and groundwater (GW); totals may not sum exactly due to rounding.

Michigan

Home to more than 10 million people, Michigan borders four of the Great Lakes (Superior, Michigan, Huron and Erie). Virtually the entire land area of the state lies within the Great Lakes basin and Michigan has over 3,200 miles of Great Lakes shoreline – more freshwater coastline than any other state.[24]

In 2024, the total reported water withdrawal from the basin for Michigan was 7,219 mgd (27,326 mld), representing a less than half of one percent decrease from 2023 withdrawals (7,254 mgd or 27,461 mld). The largest water use was for the self-supply thermoelectric power production (once-through cooling) sector which withdrew 5,378 mgd (20,357 mld), constituting about 74% of Michigan's total withdrawal. Almost 50% of the total withdrawal amount (3,606 mgd or 13,649 mld) came from the Lake Michigan watershed, mainly used for thermoelectric power production. Another 45% of Michigan's total withdrawal amount came from the Lake Erie watershed (3,260 mgd or 12,342 mld), followed by the Lake Huron watershed at 4% (313 mgd or 1,185 mld) and the Lake Superior watershed at 0.6 percent (40 mgd or 150 mld).

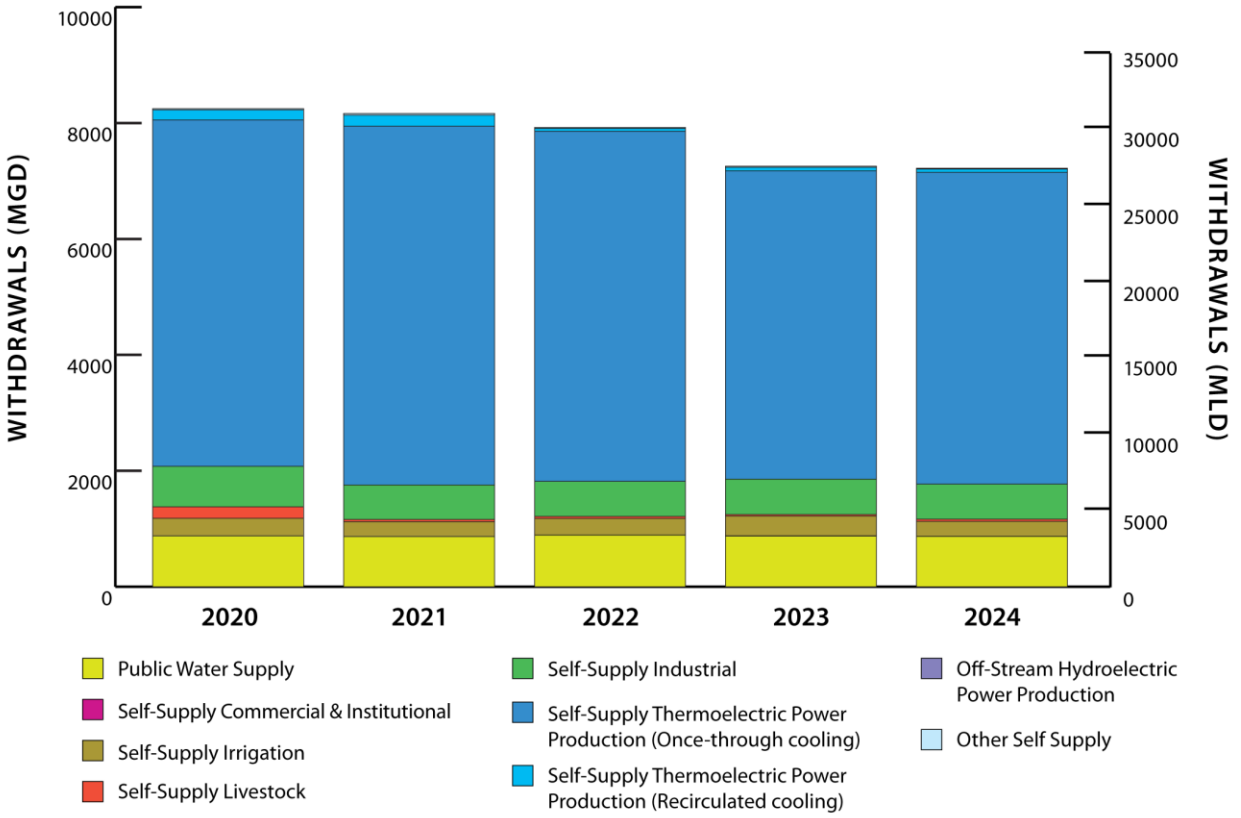

Figure 18. Michigan water withdrawals by sector over the past five years

[24] National Oceanic and Atmospheric Administration (NOAA) Office for Coastal Management, Shoreline Mileage of the United States. https://coast.noaa.gov/data/docs/states/shorelines.pdf

Consumptive use in Michigan totaled 452 mgd or 1,709 mld (approximately 6 percent of total withdrawals) in 2024, with self-supply irrigation being the largest contributor to consumptive use at 220 mgd (832 mld).

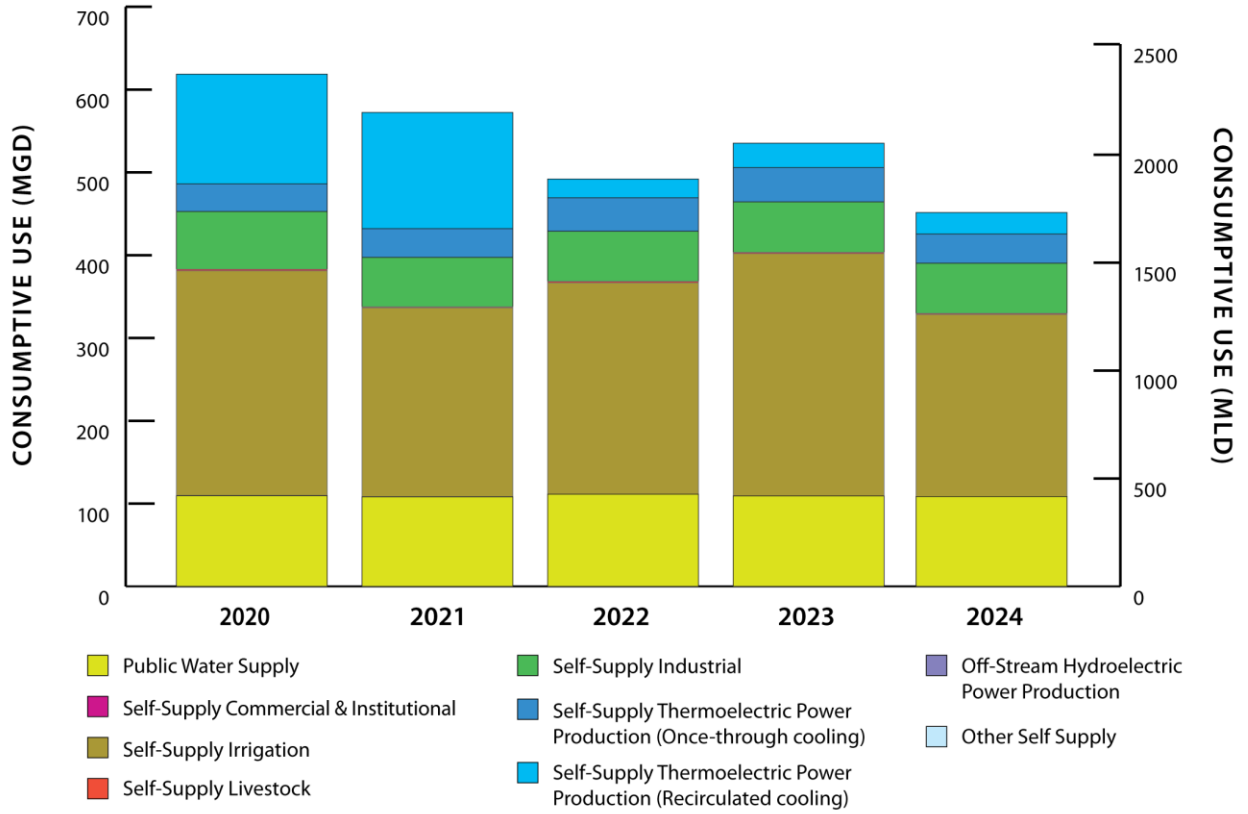

Figure 19. Michigan consumptive use by sector over the past five years

Data collected for this report came from user reports to the Michigan Department of Environment, Great Lakes, and Energy, either directly or via the Michigan Department of Agriculture and Rural Development. These data were generated with estimated reporting compliance rates ranging from 80-100% of total water users, depending on the water use sector. Water use for both in-stream and off-stream hydroelectric power generation is exempt from reporting requirements under Michigan statute.

Year-to-year changes from 2023 water use by Michigan facilities include:

- A 74% (63 mgd or 237 mld) decrease in other surface water withdrawals in the Lake Huron watershed for thermoelectric power production (once-through cooling), due to the partial decommissioning of one coal-fired power plant.
- A 25% (86 mgd or 326 mld) decrease in self-supply irrigation withdrawals, and an accompanying 25% decrease in consumptive use (73 mgd or 276 mld), primarily due to timely precipitation that occurred throughout the growing season of 2024 that necessitated less irrigation.

Table 13a. Michigan 2024 Water Use Data Summary in mgd

Sector	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	Total	Intrabasin	Interbasin	
Public Water Supply	658	13	198	868	0	0	109
Self-Supply Commercial and Institutional	1	1	2	3	0	0	0
Self-Supply Irrigation	1	61	195	256	0	0	220
Self-Supply Livestock	0	21	16	36	0	0	1
Self-Supply Industrial	195	328	84	607	0	0	61
Self-Supply Thermoelectric Power Production (Once-through cooling)	5,156	221	1	5,378	0	0	35
Self-Supply Thermoelectric Power Production (Recirculated cooling)	49	6	2	57	0	0	26
Off-Stream Hydroelectric Power Production	0	0	0	0	0	0	0
In-Stream Hydroelectric Water Use	0	0	0	0	0	0	0
Other Self Supply	0	3	10	12	0	0	0
Total	**6,060**	**652**	**507**	**7,219**	**0**	**0**	**452**

In millions of gallons per day; Water Sources: Great Lakes surface water (GLSW), other surface water (OSW) and groundwater (GW); totals may not sum exactly due to rounding.

Table 13b. Michigan 2024 Water Use Data Summary in mld

Sector	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	Total	Intrabasin	Interbasin	
Public Water Supply	2,491	48	748	3,287	0	0	411
Self-Supply Commercial and Institutional	2	4	6	12	0	0	0
Self-Supply Irrigation	2	229	740	971	0	0	832
Self-Supply Livestock	0	79	59	138	0	0	5
Self-Supply Industrial	739	1,241	316	2,297	0	0	230
Self-Supply Thermoelectric Power Production (Once-through cooling)	19,517	836	4	20,357	0	0	133
Self-Supply Thermoelectric Power Production (Recirculated cooling)	187	22	8	217	0	0	98
Off-Stream Hydroelectric Power Production	0	0	0	0	0	0	0
In-Stream Hydroelectric Water Use	0	0	0	0	0	0	0
Other Self Supply	0	11	36	47	0	0	0
Total	**22,938**	**2,470**	**1,918**	**27,326**	**0**	**0**	**1,709**

In millions of liters per day; Water Sources: Great Lakes surface water (GLSW), other surface water (OSW) and groundwater (GW); totals may not sum exactly due to rounding.

Minnesota

The Minnesota portion of the Lake Superior watershed encompasses approximately 6,800 square miles.[25] Major river watersheds in the basin include the Cloquet, Nemadji and St. Louis River systems, as well as the north shore tributaries to Lake Superior.

Excluding in-stream hydroelectric water use (2,010 mgd or 7,608 mld), the total withdrawal amount from the basin for Minnesota in 2024 was 1,925 mgd (7,285 mld), representing a 12% increase from the total withdrawal in 2023 (1,713 mgd or 6,484 mld). The sector with the largest withdrawal was off-stream hydroelectric power production (1,644 mgd or 6,223 mld), representing more than 85% of Minnesota's total withdrawal. The second largest water use was for the self-supply industrial sector at 155 mgd (586 mld).

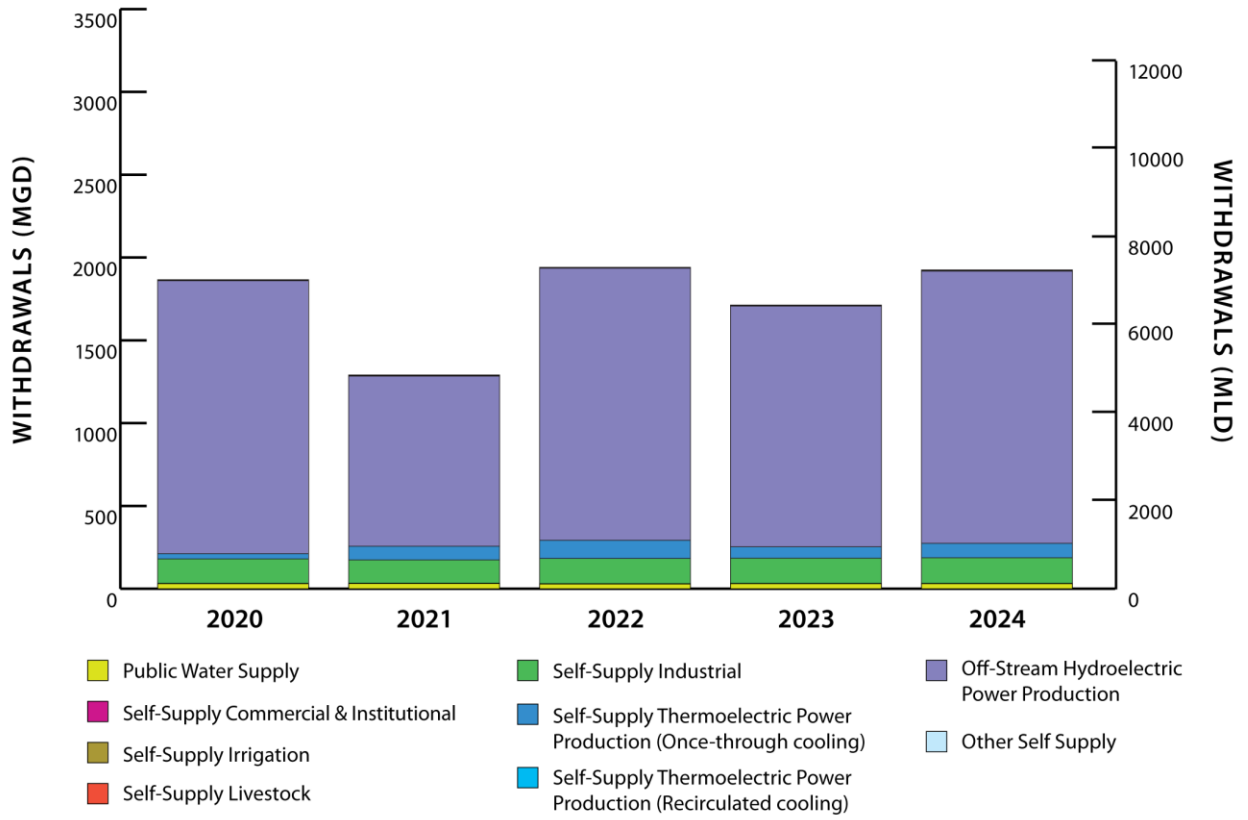

Figure 20. Minnesota water withdrawals by sector over the past five years (excluding in-stream hydroelectric water use)

More than 94% of total withdrawals came from other surface water within the Lake Superior watershed (1,815 mgd or 6,872 mld), while just over 5% (105 mgd or 396 mld) came directly from Lake Superior. Less than 0.3 percent of withdrawals (5 mgd or 17 mld) were from groundwater. The large relative use of other surface water comes from water withdrawals for off-stream hydroelectric power production along the St. Louis River.

[25] Minnesota Pollution Control Agency. https://www.pca.state.mn.us/water/watersheds

The total reported interbasin diversion amount of 19 mgd (72 mld) was exclusively for self-supply industrial purposes. Consumptive use in Minnesota totaled 20 mgd (77 mld) in 2024, the majority of which was for industrial purposes (15 mgd or 58 mld).

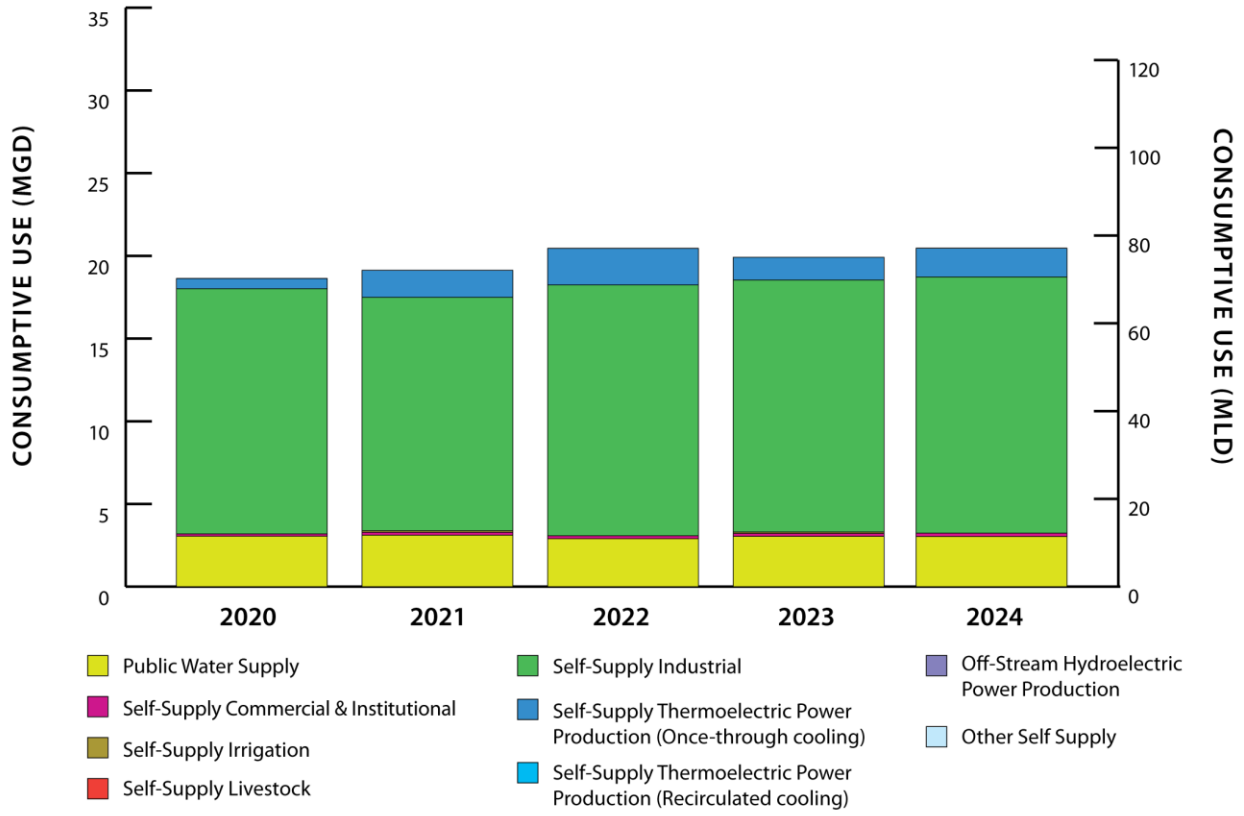

Figure 21. Minnesota consumptive use by sector over the past five years

The water use data were provided by the Minnesota Department of Natural Resources, which collected measured water use data from water withdrawal permit holders with 100% reporting compliance from permitted water withdrawal facilities.

Year-to-year changes from 2023 water use by Minnesota facilities include:

- A 13% (190 mgd or 719 mld) increase in water withdrawals for off-stream hydroelectric power production, most likely due to increased river flow from more precipitation in 2024.
- A 54% (19 mgd or 72 mld) increase in water withdrawals from other surface water in the Lake Superior watershed for thermoelectric power production (once-through cooling), mainly due to increased energy demand at one power producing facility.

Table 14a. Minnesota 2024 Water Use Data Summary in mgd

Sector	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	Total	Intrabasin	Interbasin	
Public Water Supply	25	1	4	30	0	0	3
Self-Supply Commercial and Institutional	2	0	0	2	0	0	0
Self-Supply Irrigation	0	0	0	0	0	0	0
Self-Supply Livestock	0	0	0	0	0	0	0
Self-Supply Industrial	45	110	0	155	0	19	15
Self-Supply Thermoelectric Power Production (Once-through cooling)	33	54	0	87	0	0	2
Self-Supply Thermoelectric Power Production (Recirculated cooling)	0	0	0	0	0	0	0
Off-Stream Hydroelectric Power Production	0	1,644	0	1,644	0	0	0
In-Stream Hydroelectric Water Use	0	2,010	0	2,010	0	0	0
Other Self Supply	0	6	0	7	0	0	0
Total	**105**	**3,825**	**5**	**3,934**	**0**	**19**	**20**

In millions of gallons per day; Water Sources: Great Lakes surface water (GLSW), other surface water (OSW) and groundwater (GW); totals may not sum exactly due to rounding.

Table 14b. Minnesota 2024 Water Use Data Summary in mld

Sector	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	Total	Intrabasin	Interbasin	
Public Water Supply	94	5	16	115	0	0	11
Self-Supply Commercial and Institutional	7	1	0	8	0	0	1
Self-Supply Irrigation	0	0	0	0	0	0	0
Self-Supply Livestock	0	0	0	0	0	0	0
Self-Supply Industrial	170	416	0	586	0	72	59
Self-Supply Thermoelectric Power Production (Once-through cooling)	125	203	0	329	0	0	7
Self-Supply Thermoelectric Power Production (Recirculated cooling)	0	0	0	0	0	0	0
Off-Stream Hydroelectric Power Production	0	6,223	0	6,223	0	0	0
In-Stream Hydroelectric Water Use	0	7,608	0	7,608	0	0	0
Other Self Supply	0	24	0	25	0	0	0
Total	**396**	**14,480**	**17**	**14,893**	**0**	**72**	**77**

In millions of liters per day; Water Sources: Great Lakes surface water (GLSW), other surface water (OSW) and groundwater (GW); totals may not sum exactly due to rounding.

New York

Approximately 80% of New York state's fresh surface water, over 700 miles of shoreline, and nearly 48% of New York's land area are contained in the watersheds of Lake Erie, Lake Ontario and the St. Lawrence River—including the Lake Champlain and Lake George watersheds. More than four million New Yorkers depend on the fresh water of these watersheds for drinking water.[26]

Excluding in-stream hydroelectric water use (65,287,867 mgd or 247,141,461 mld),[27] the total withdrawal amount from the basin for New York in 2024 was 3,251 mgd (12,305 mld), representing a less than one percent increase from 2023 withdrawals (3,235 mgd or 12,244 mld). New York facilities withdrew the most water from the Lake Ontario watershed, making up 86% of New York's total withdrawal from the basin at 2,809 mgd (10,635 mld).

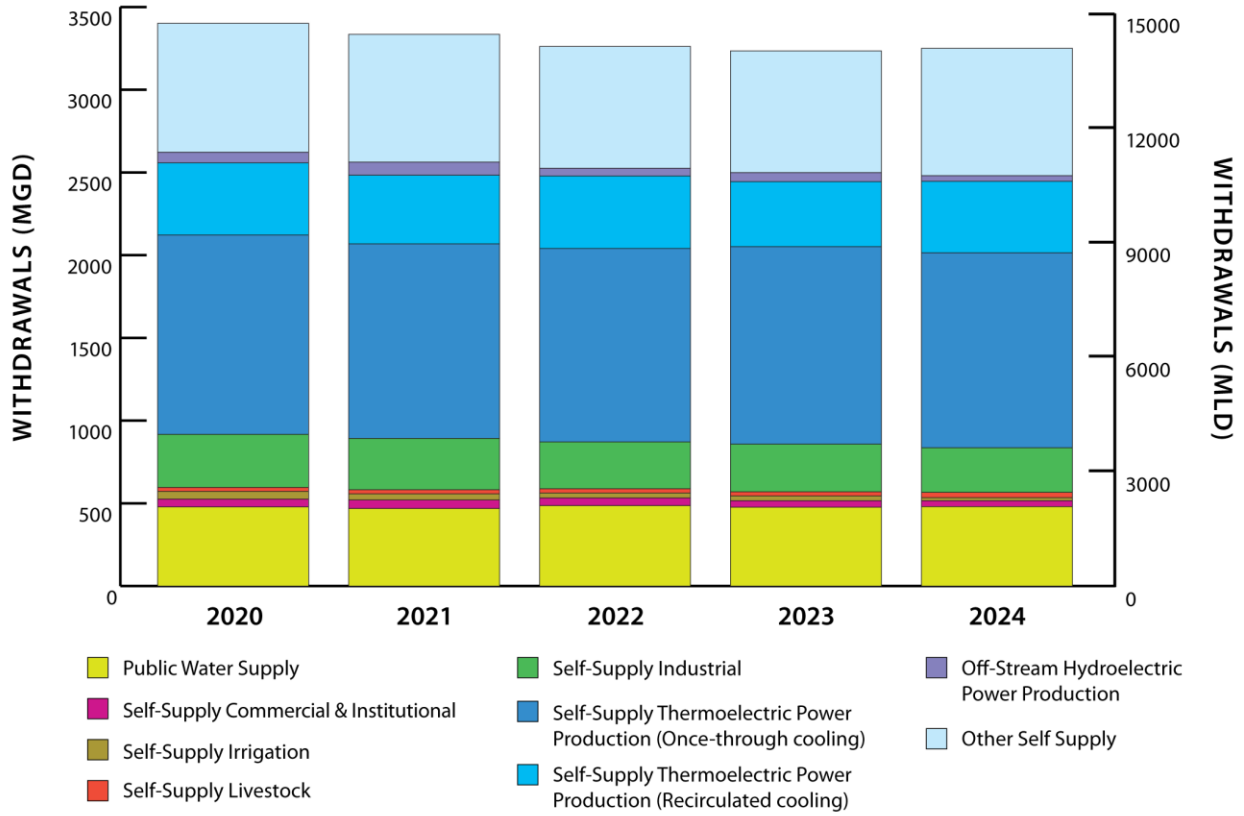

Figure 22. New York water withdrawals by sector over the past five years (excluding in-stream hydroelectric water use)

[26] Great Lakes Basin Advisory Council. 2010. Our Great Lakes Water Resources: Conserving and Protecting Our Water Today for Use Tomorrow Final Report. http://www.dec.ny.gov/docs/regions_pdf/glbacfrpt.pdf

[27] Because of an updated calculation method, withdrawals for in-stream hydroelectric power production in New York will appear to be much higher in 2024 than in previous years. In 2023, this value should be 63,618,908 mgd rather than 2,133,792 mgd as was reported in the 2023 Annual Report.

The self-supply thermoelectric power production sectors (both once-through and recirculated cooling) withdrew 1,611 mgd (6,097 mld), constituting 50% of New York's total withdrawal amount in 2024. Other self-supply was the next largest water use sector, withdrawing 769 mgd (2,913 mld) and accounting for 24% of total withdrawals.

In New York, excluding in-stream hydroelectric power production, Great Lakes surface water was the primary source of water for the Lake Erie and Lake Ontario watersheds, while other surface water was the primary source of water for the St. Lawrence River watershed.

The 2024 net total interbasin diversion amount for New York was 43 mgd (161 mld), the majority of which (32 mgd or 121 mld) was from Lake Ontario for the Erie Barge Canal. The balance of the diversion, 11 mgd or 40 mld, was for public supply. Consumptive use in New York totaled 225 mgd (853 mld) in 2024, with the largest uses attributed to the self-supply industrial sector at 60 mgd (229 mld) and public water supply at 58 mgd (218 mld).

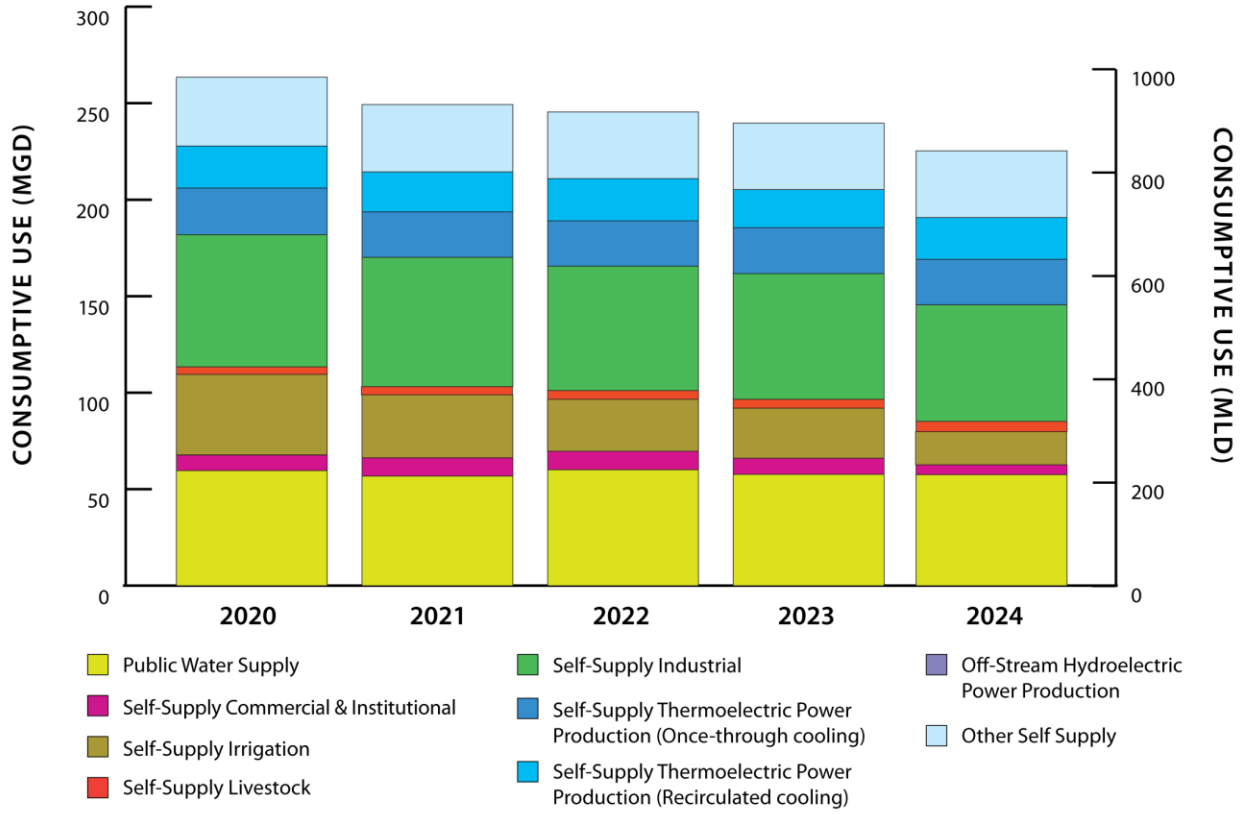

Figure 23. New York consumptive use by sector over the past five years

The water use data were provided by the New York State Department of Environmental Conservation which collected measured water use data with 100% reporting compliance from permitted water withdrawal facilities. New York has focused on enhanced permit management and QA/QC practices, achieving 100% reporting compliance for all sectors among facilities with system capacities above the regulatory threshold each year since 2020. New York's five-year implementation of initial permits for non-public water withdrawals was completed in 2018. New York State has permitted public water supplies since 1905. The permits include an ongoing requirement to report water use annually, which should support continued adherence in compliance.

Additionally, reporting facilities are required to complete a water conservation program and corresponding report section that includes conservation and efficiency measures. These measures include source metering, water auditing, leak detection and repair, recycling and reuse and reductions during periods of drought.

Year-to-year changes from 2023 water use by New York facilities include:

- A 34% (10 mgd or 37 mld) decrease in water withdrawals for the self-supply irrigation sector due to regular fluctuations in this sector.
- A 10% (39 mgd or 149 mld) increase in water withdrawals for the self-supply thermoelectric power (recirculated cooling) sector due to regular fluctuations in this sector.

Table 15a. New York 2024 Water Use Data Summary in mgd

Sector	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	Total	Intrabasin	Interbasin	
Public Water Supply	299	165	16	480	0	11	58
Self-Supply Commercial and Institutional	0	35	1	36	0	0	5
Self-Supply Irrigation	0	18	1	19	0	0	17
Self-Supply Livestock	0	29	2	32	0	0	5
Self-Supply Industrial	97	168	5	270	0	0	60
Self-Supply Thermoelectric Power Production (Once-through cooling)	1,071	107	0	1,178	0	0	24
Self-Supply Thermoelectric Power Production (Recirculated cooling)	432	0	0	432	0	0	22
Off-Stream Hydroelectric Power Production	0	34	0	34	0	0	0
In-Stream Hydroelectric Water Use	65,206,959	80,908	0	65,287,867	0	0	0
Other Self Supply	0	769	0	769	0	32	35
Total	**65,208,858**	**82,234**	**26**	**65,291,118**	**0**	**43**	**225**

In millions of gallons per day; Water Sources: Great Lakes surface water (GLSW), other surface water (OSW) and groundwater (GW); totals may not sum exactly due to rounding.

Table 15b. New York 2024 Water Use Data Summary in mld

Sector	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	Total	Intrabasin	Interbasin	
Public Water Supply	1,132	623	62	1,817	0	40	218
Self-Supply Commercial and Institutional	0	133	3	136	0	0	19
Self-Supply Irrigation	1	67	4	72	0	0	65
Self-Supply Livestock	0	111	9	119	0	0	20
Self-Supply Industrial	365	636	20	1,022	0	0	229
Self-Supply Thermoelectric Power Production (Once-through cooling)	4,054	406	0	4,460	0	0	89
Self-Supply Thermoelectric Power Production (Recirculated cooling)	1,637	0	0	1,637	0	0	82
Off-Stream Hydroelectric Power Production	0	129	0	129	0	0	0
In-Stream Hydroelectric Water Use	246,835,192	306,270	0	247,141,462	0	0	0
Other Self Supply	0	2,913	0	2,913	0	121	131
Total	**246,842,381**	**311,288**	**98**	**247,153,767**	**0**	**161**	**853**

In millions of liters per day; Water Sources: Great Lakes surface water (GLSW), other surface water (OSW) and groundwater (GW); totals may not sum exactly due to rounding.

Ohio

Ohio's portion of the Lake Erie watershed drains 11,649 square miles and is home to 4.65 million people. Ohio's 312-mile shoreline includes the cities of Toledo, Sandusky and Cleveland. Agricultural row crops account for 59% of the land use in the Ohio watersheds draining to Lake Erie, followed by urban residential and commercial land use at a combined 16%. Another 16% are forested lands and wetlands, and pastureland makes up another 5% of total land use.[28]

The 2024 total reported withdrawal amount from the basin for Ohio was 1,076 mgd (4,072 mld), representing a less than one percent decrease from total 2023 withdrawals (1,079 mgd or 4,084 mld). The primary water use sectors were public water supply at 518 mgd (1,962 mld), representing 48% of total withdrawals, and self-supply thermoelectric power production (once-through and recirculated cooling) at 323 mgd (1,223 mld), representing 30% of total withdrawals. Lake Erie surface water was the source for 54% of Ohio's total withdrawal amount. However, within specific sectors, other surface water in the Lake Erie watershed was the predominant source, comprising 89% of self-supply irrigation water withdrawals and 89% of self-supply thermoelectric power production (once-through cooling) water withdrawals.

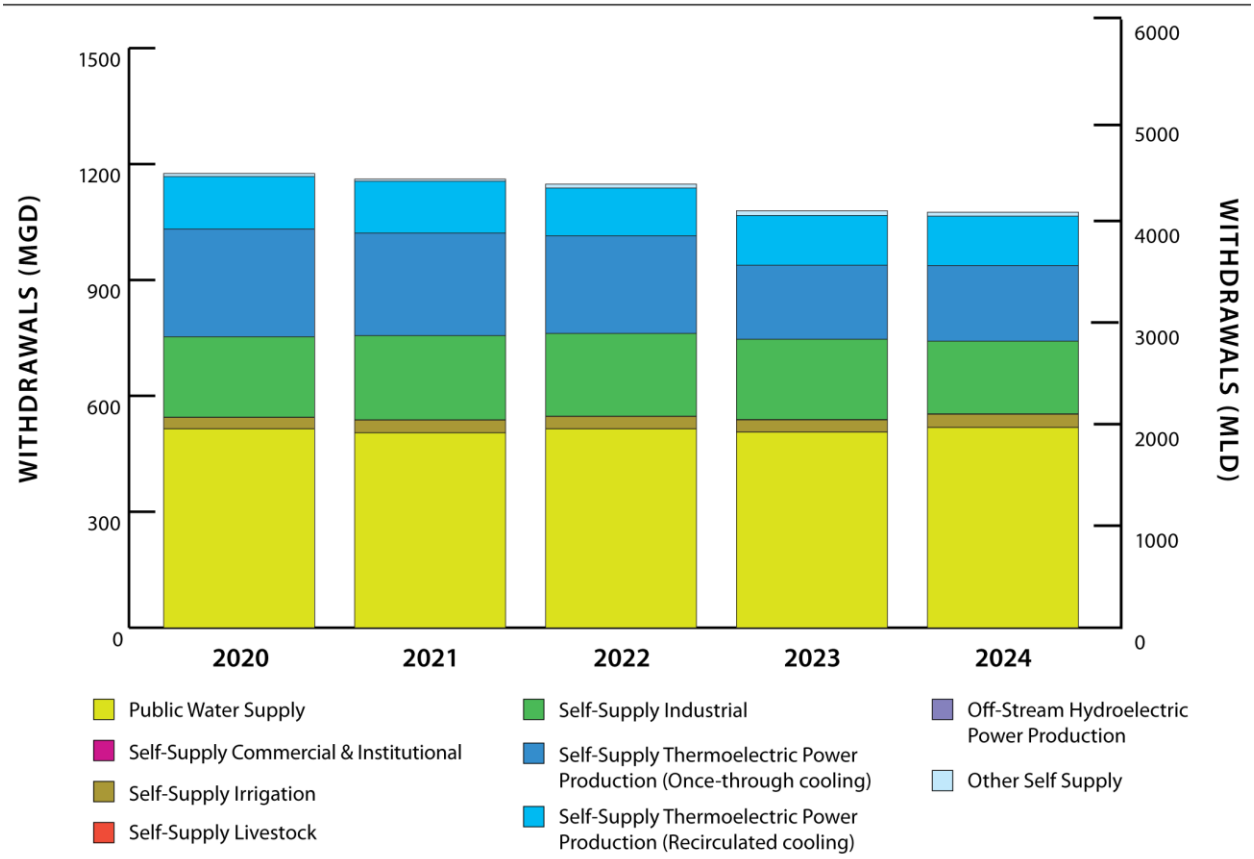

Figure 24. Ohio water withdrawals by sector over the past five years

[28] Ohio Environmental Protection Agency. 2010. Ohio Lake Erie Phosphorus Task Force Final Report. http://www.epa.ohio.gov/portals/35/lakeerie/ptaskforce/Task_Force_Final_Report_April_2010.pdf

Ohio's net total diversion amount was 26 mgd (98 mld) into the Lake Erie watershed.[29] Diversions out of the Lake Erie watershed totaled 11 mgd (43 mld)—all for public water supply purposes—and were offset by 37 mgd (141 mld) of incoming diversions—primarily associated with the other self-supply sector (27 mgd or 103 mld)—and diversion returns. An additional small incoming diversion (0.2 mgd or 0.8 mld) was reported for the self-supply livestock sector.

Consumptive use in Ohio totaled 129 mgd (486 mld) in 2024, with 61% attributed to public water supply.

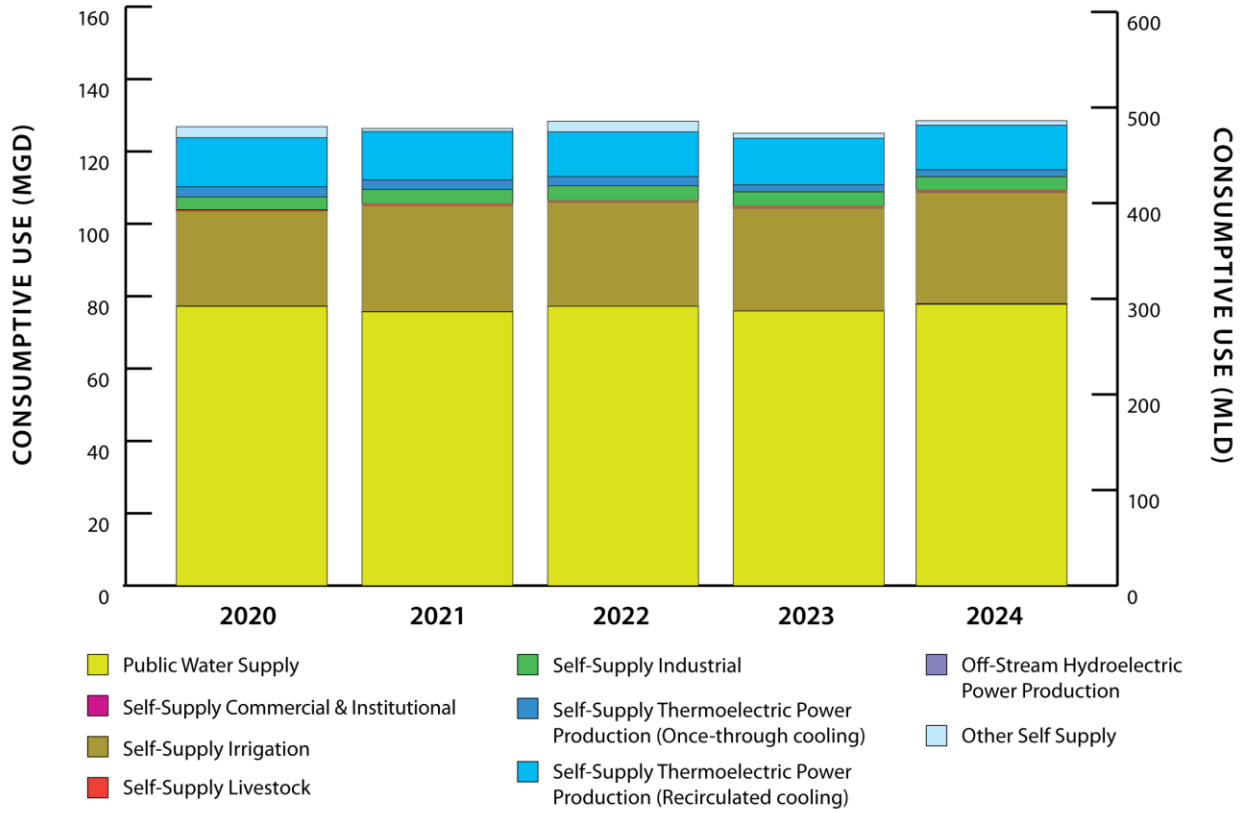

Figure 25. Ohio consumptive use by sector over the past five years

[29] Incoming diversions are reported as negative values in the database and on tables.

The water use data were provided by the Ohio Department of Natural Resources, which collected water use data with 100% reporting compliance from permitted water withdrawal facilities.

Year-to-year changes from 2023 water use by Ohio facilities include:

- A 2.4 percent (12 mgd or 46 mld) increase in withdrawals for the public water supply sector; while relatively small, this increase is due to recent economic development and the addition of data centers which often utilize public water supplies for cooling.
- In 2024, Ohio faced its worst drought since the historic drought of 1988. ODNR worked with all levels of government to provide necessary information and locations of emergency supplies. Increased drought events, coupled with increased water demand for emerging industry continues to be examined through various regional water studies, the Ohio Groundwater Observation Well network, and demand trend analyses.

Table 16a. Ohio 2024 Water Use Data Summary in mgd

Sector	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	Total	Intrabasin	Interbasin	
Public Water Supply	380	109	30	518	0	1	78
Self-Supply Commercial and Institutional	0	0	0	0	0	0	0
Self-Supply Irrigation	1	30	3	34	0	0	31
Self-Supply Livestock	0	0	1	1	0	0	1
Self-Supply Industrial	49	97	43	188	0	0	4
Self-Supply Thermoelectric Power Production (Once-through cooling)	22	174	0	196	0	0	2
Self-Supply Thermoelectric Power Production (Recirculated cooling)	127	0	0	127	0	0	12
Off-Stream Hydroelectric Power Production	0	0	0	0	0	0	0
In-Stream Hydroelectric Water Use	0	0	0	0	0	0	0
Other Self Supply	2	4	4	10	0	-27	1
Total	**582**	**414**	**80**	**1,076**	**0**	**-26**	**129**

In millions of gallons per day; Water Sources: Great Lakes surface water (GLSW), other surface water (OSW) and groundwater (GW); totals may not sum exactly due to rounding.

Table 16b. Ohio 2024 Water Use Data Summary in mld

Sector	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	Total	Intrabasin	Interbasin	
Public Water Supply	1,437	412	114	1,962	0	5	294
Self-Supply Commercial and Institutional	1	1	0	2	0	0	1
Self-Supply Irrigation	2	115	12	129	0	0	116
Self-Supply Livestock	0	0	3	3	0	-1	3
Self-Supply Industrial	187	366	161	713	0	0	14
Self-Supply Thermoelectric Power Production (Once-through cooling)	83	657	0	741	0	0	7
Self-Supply Thermoelectric Power Production (Recirculated cooling)	482	0	0	482	0	0	46
Off-Stream Hydroelectric Power Production	0	0	0	0	0	0	0
In-Stream Hydroelectric Water Use	0	0	0	0	0	0	0
Other Self Supply	9	15	15	39	0	-103	5
Total	**2,201**	**1,567**	**304**	**4,072**	**0**	**-98**	**486**

In millions of liters per day; Water Sources: Great Lakes surface water (GLSW), other surface water (OSW) and groundwater (GW); totals may not sum exactly due to rounding.

Ontario

More than 98% of Ontario residents live within the Great Lakes-St. Lawrence River basin. Ontario's portion of the Great Lakes forms the longest freshwater coastline in the world, stretching more than 6,200 miles (10,000 kilometers) across five major watersheds in the Great Lakes-St. Lawrence River system: Lake Superior, Lake Huron, Lake Erie, Lake Ontario and the St. Lawrence River.[30]

Excluding in-stream hydroelectric water use (254,836 mgd or 964,658 mld), a total of 15,240 mgd or 57,691 mld was withdrawn from the basin by Ontario in 2024, representing an increase of just over 1% from 2023 water withdrawals (15,025 mgd or 56,875 mld). Water used for self-supply thermoelectric power production (once-through cooling) accounted for 84% of the total withdrawal amount at 12,757 mgd (48,290 mld) in 2024. The next largest withdrawals were for public water supply at 1,234 mgd (4,669 mld) and the self-supply industrial sector at 1,167 mgd (4,418 mld).

Water withdrawals from the Lake Huron (7,271 mgd or 27,525 mld) and Lake Ontario (6,873 mgd or 26,019 mld) watersheds collectively accounted for about 93% of Ontario's total withdrawal amount. Great Lakes surface water was the primary source for withdrawals in the Lake Ontario watershed, while other surface water was the primary source for withdrawals in the Lake Erie, Lake Huron, Lake Superior, and St. Lawrence River watersheds.

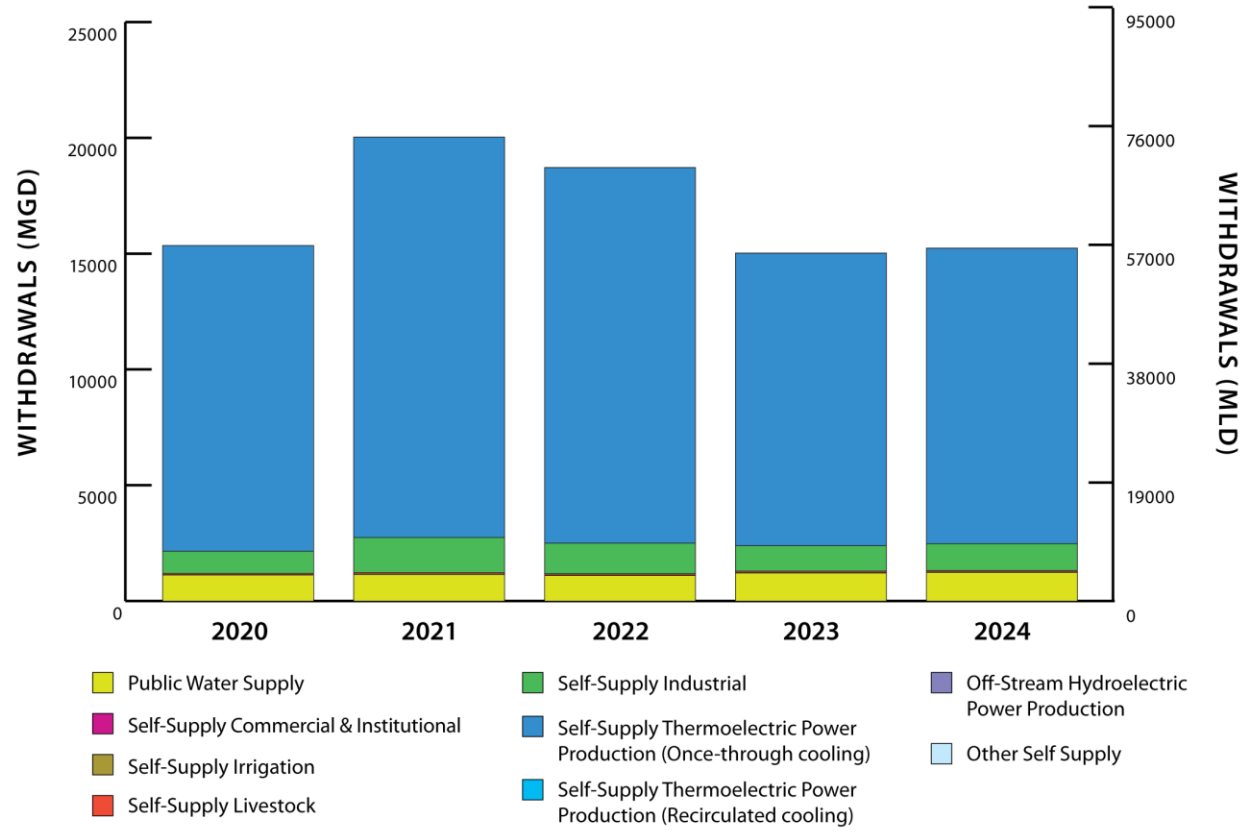

Figure 26. Ontario water withdrawals by sector over the past five years

[30] Ontario's Great Lakes Strategy, 2016. https://www.ontario.ca/page/ontarios-great-lakes-strategy

No diversions out of the Great Lakes-St. Lawrence River basin were reported for Ontario, while 3,173 mgd (12,010 mld) of water were diverted into the Lake Superior basin,[31] associated with the Long Lac and Ogoki diversions. This represents a 34% increase from Long Lac and Ogoki diversions in 2023. The Welland Canal is entirely within Ontario and functions as two intrabasin transfers (one out of the Lake Erie basin and one into the Lake Ontario basin). These transfers effectively cancel each other out, resulting in a net zero intrabasin transfer (meaning no water is lost from the Great Lakes basin). For more information about the volume of these transfers, see the Lake Erie basin section above. Similarly, additional intrabasin diversions for public drinking water supply between Lakes Huron, Erie and Ontario were reported but did not result in a net transfer.

Consumptive use in Ontario totaled 378 mgd (1,429 mld) in 2024. The three water use sectors with the largest consumptive uses were public water supply at 148 mgd (560 mld), self-supply thermoelectric power production (once-through cooling) at 115 mgd (435 mld), and self-supply industrial at 103 mgd (391 mld). Consumptive use associated with intrabasin diversions for public water supply accounted for less than 2% of the total consumptive use at 6 mgd (24 mld).

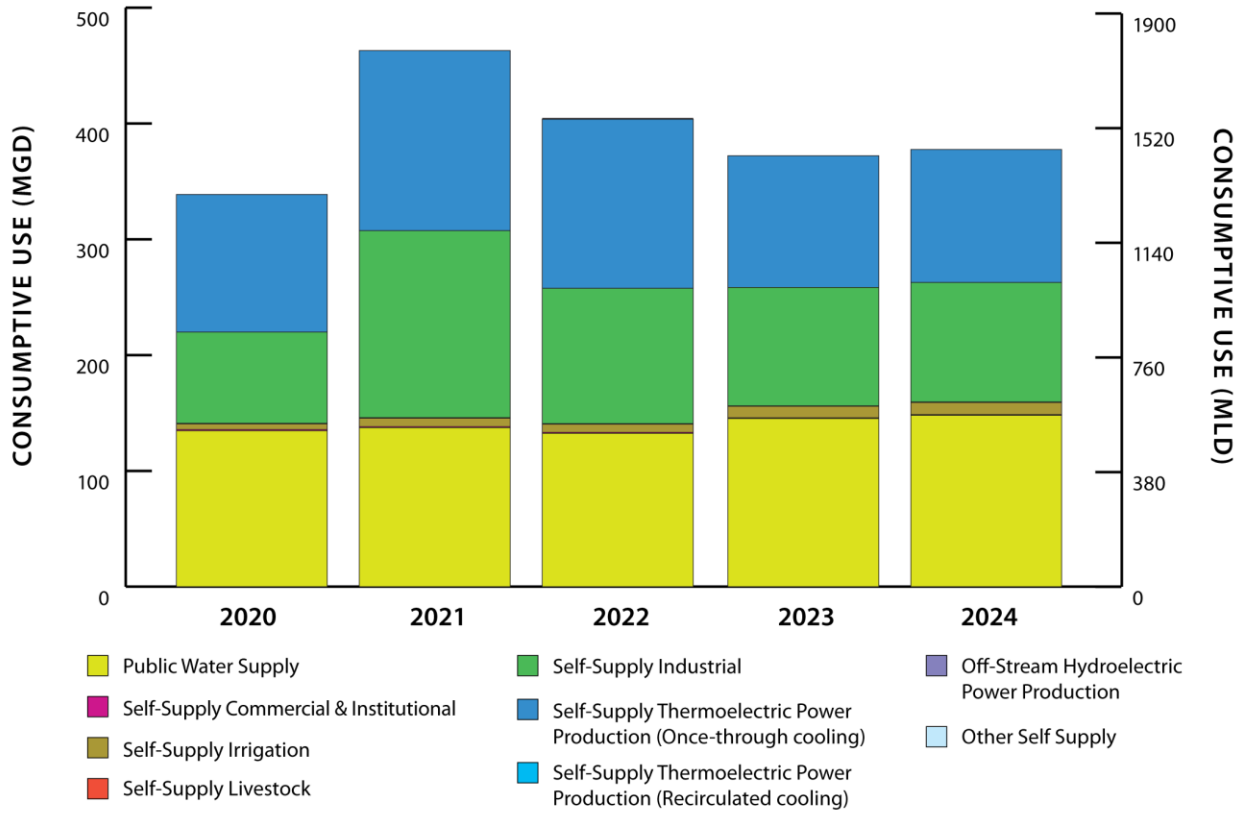

Figure 27. Ontario consumptive use by sector over the past five years

[31] Incoming diversions are reported as negative values in the database and on tables.

The water use data were provided by the Ontario Ministry of Natural Resources and the Ontario Ministry of the Environment, Conservation and Parks and were collected primarily through the provincial water taking and reporting system. Reporting compliance varied among water use sectors from 89-100%.

Year-to-year changes from 2023 water use by Ontario facilities include:

- A 30% (108 mgd or 410 mld) increase in withdrawals from the Lake Ontario basin for the self-supply industrial sector, mainly due to an increase in facilities meeting the reporting threshold.
- A 76% (105 mgd or 397 mld) increase in withdrawals from other surface water in the Lake Erie basin for the self-supply thermoelectric power (once-through cooling) sector, due to a relatively large taking increase, given the few number of facilities that use water from this source, basin, and sector.
- A 22% (1,059 mgd or 4,010 mld) decrease in water transferred from the Lake Erie basin into the Lake Ontario basin via the Welland Canal.[32]

[32] Please refer to the Lake Erie Watershed Summary section of this report for further information regarding the flow of water from Lake Erie into Lake Ontario via the Welland Canal.

Table 17a. Ontario 2024 Water Use Data Summary in mgd*

Sector	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	Total	Intrabasin	Interbasin	
Public Water Supply	671	446	116	1,234	0	0	148
Self-Supply Commercial and Institutional	1	3	1	5	0	0	1
Self-Supply Irrigation	1	9	2	12	0	0	10
Self-Supply Livestock	0	31	28	59	0	0	0
Self-Supply Industrial	338	704	124	1,167	0	0	103
Self-Supply Thermoelectric Power Production (Once-through cooling)	6,018	6,739	0	12,757	0	0	115
Self-Supply Thermoelectric Power Production (Recirculated cooling)	0	0	0	0	0	0	0
Off-Stream Hydroelectric Power Production	0	0	0	0	0	0	0
In-Stream Hydroelectric Water Use	136,975	117,860	0	254,836	0	-3,173	0
Other Self Supply	0	4	3	7	0	0	0
Total	**144,005**	**125,797**	**275**	**270,076**	**0**	**-3,173**	**378**

In millions of gallons per day; Water Sources: Great Lakes surface water (GLSW), other surface water (OSW) and groundwater (GW); totals may not sum exactly due to rounding.

**The intrabasin diversions reported effectively cancel each other out, resulting in a net zero intrabasin transfer. For more information about the volume of these transfers, see the Lake Watershed Summaries section above.*

Table 17b. Ontario 2024 Water Use Data Summary in mld*

Sector	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	Total	Intrabasin	Interbasin	
Public Water Supply	2,539	1,690	441	4,669	0	0	560
Self-Supply Commercial and Institutional	4	12	3	20	0	0	2
Self-Supply Irrigation	4	36	7	47	0	0	40
Self-Supply Livestock	0	116	107	222	0	0	2
Self-Supply Industrial	1,280	2,667	471	4,418	0	0	391
Self-Supply Thermoelectric Power Production (Once-through cooling)	22,781	25,508	0	48,290	0	0	435
Self-Supply Thermoelectric Power Production (Recirculated cooling)	0	0	0	0	0	0	0
Off-Stream Hydroelectric Power Production	0	0	0	0	0	0	0
In-Stream Hydroelectric Water Use	518,507	446,150	0	964,658	0	-12,010	0
Other Self Supply	0	13	11	25	0	0	0
Total	**545,117**	**476,192**	**1,040**	**1,022,349**	**0**	**-12,010**	**1,429**

In millions of liters per day; Water Sources: Great Lakes surface water (GLSW), other surface water (OSW) and groundwater (GW); totals may not sum exactly due to rounding.

**The intrabasin diversions reported effectively cancel each other out, resulting in a net zero intrabasin transfer. For more information about the volume of these transfers, see the Lake Watershed Summaries section above.*

Pennsylvania

The Pennsylvania portion of the Lake Erie watershed spans 511 square miles and is home to approximately 237,000 people concentrated along the 77 miles of Lake Erie coastline.[33] Pennsylvania also contains 99 square miles in the Lake Ontario basin, encompassing the headwaters of the Genesee River. Approximately 2,400 people live in Pennsylvania's portion of the Lake Ontario basin. The largest land uses in Pennsylvania's portion of the basin are agriculture and forest.[34]

The total withdrawal amount from the basin for Pennsylvania in 2024 was 26 mgd (100 mld), representing a 4% decrease from the 2023 reported withdrawal of 28 mgd (105 mld). Water withdrawals for public water supply totaled 24 mgd (91 mld), accounting for 91% of the total withdrawal amount.

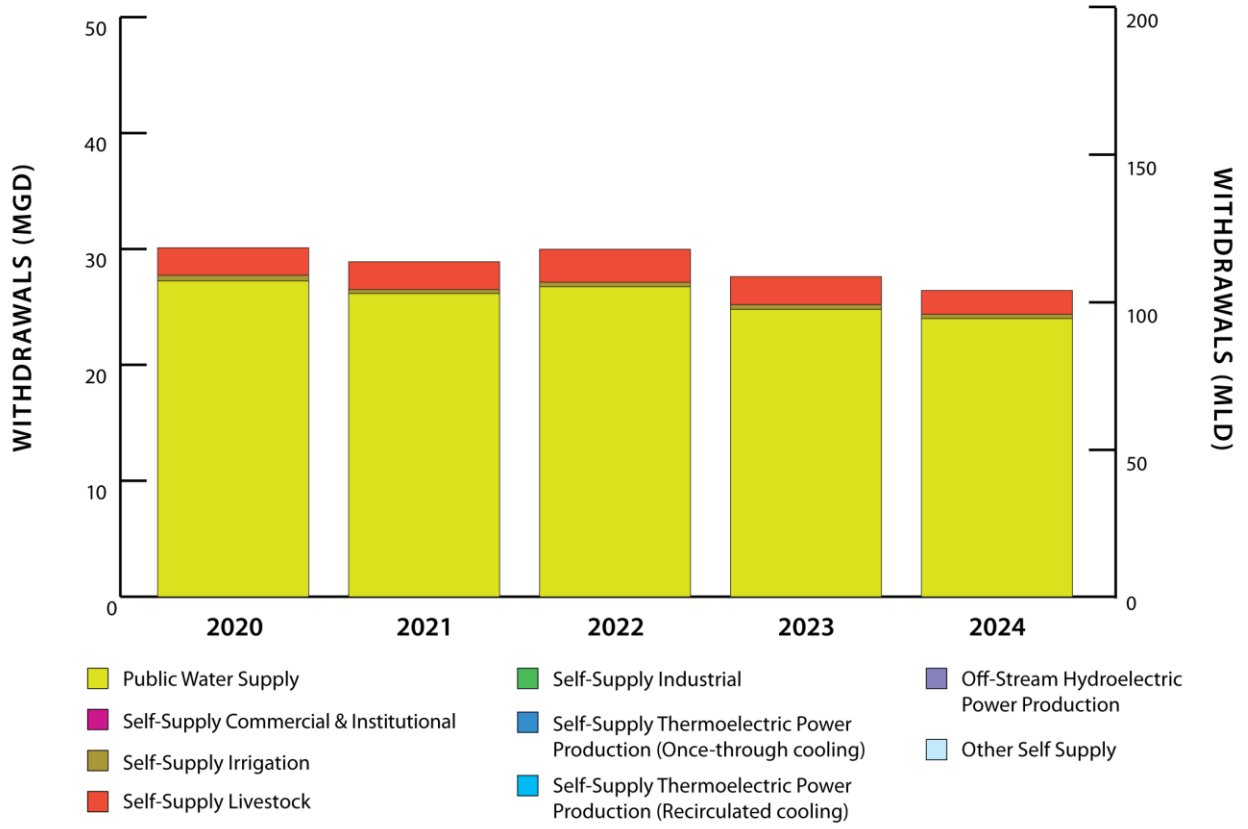

Figure 28. Pennsylvania water withdrawals by sector over the past five years

[33] Pennsylvania Department on Environmental Protection Coastal Resources Management Program, https://www.dep.pa.gov/Business/Water/Compacts%20and%20Commissions/Coastal%20Resources%20Management%20Program/Pages/About-the-Program.aspx

[34] Pennsylvania Department of Environmental Protection, Pennsylvania's Watershed Regions: Great Lakes, http://files.dep.state.pa.us/Water/Division%20of%20Planning%20and%20Conservation/StateWaterPlan/WaterAtlas/05-great_lakes_region.pdf

No diversions were reported in Pennsylvania in 2024.

Consumptive use in Pennsylvania totaled 2.8 mgd (11 mld) in 2024. The public water supply sector made up the majority (85%) of the total consumptive use.

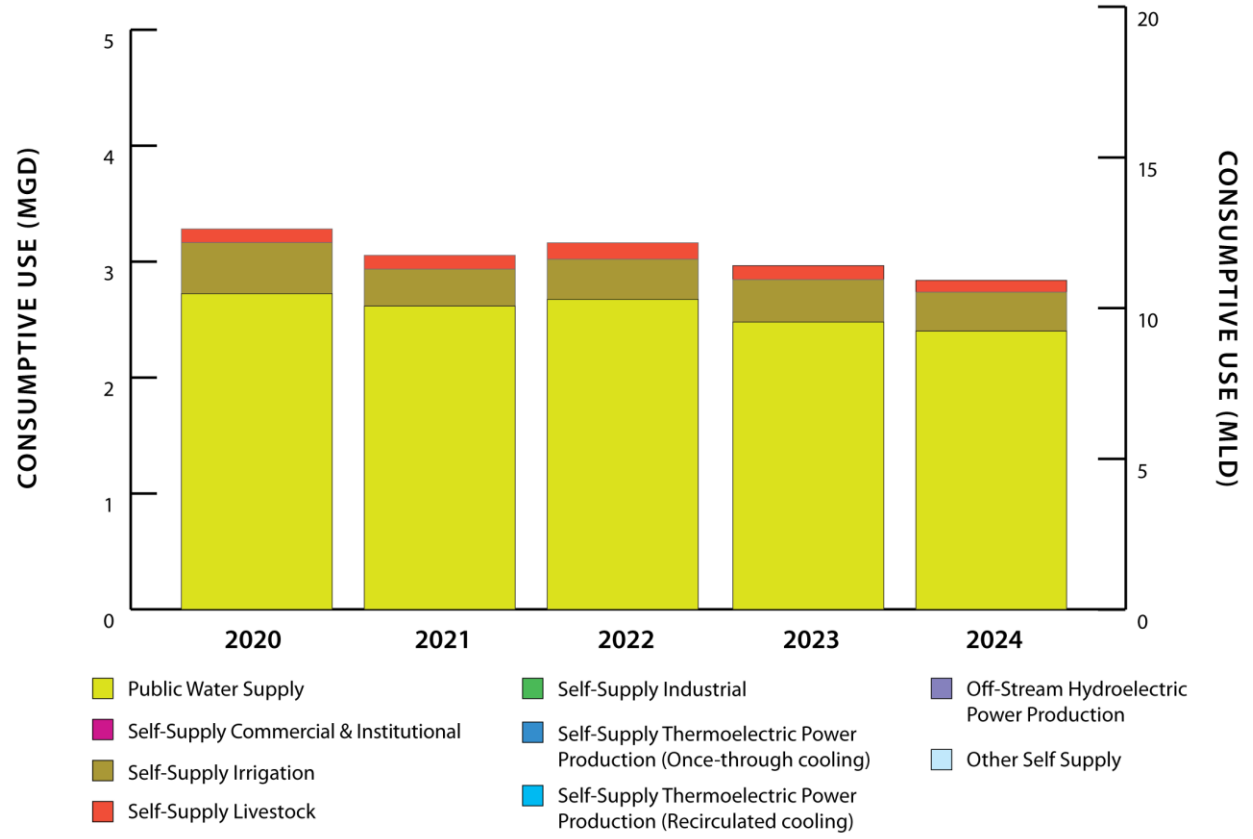

Figure 29. Pennsylvania consumptive use by sector over the past five years

The water use data were provided by the Pennsylvania Department of Environmental Protection, which collected water use data with 100% reporting compliance from permitted water withdrawal facilities. Depending upon the sector, withdrawals were metered, partially metered or calculated.

Year-to-year changes from 2023 water use by Pennsylvania facilities include:

- A 3% (0.8 mgd or 3 mld) decrease in water withdrawn for public supply due to normal fluctuations in use for this sector.
- A 15% (0.37 mgd or 1.4 mld) decrease in water withdrawn for the self-supply livestock sector due to normal fluctuations in use for this sector.
- An 8% (0.03 mgd or 0.13 mld) decrease in water withdrawn for the self-supply irrigation sector due to normal fluctuations in use for this sector.

Table 18a. Pennsylvania 2024 Water Use Data Summary in mgd

Sector	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	Total	Intrabasin	Interbasin	
Public Water Supply	22	0	2	24	0	0	2
Self-Supply Commercial and Institutional	0	0	0	0	0	0	0
Self-Supply Irrigation	0	0	0	0	0	0	0
Self-Supply Livestock	0	1	1	2	0	0	0
Self-Supply Industrial	0	0	0	0	0	0	0
Self-Supply Thermoelectric Power Production (Once-through cooling)	0	0	0	0	0	0	0
Self-Supply Thermoelectric Power Production (Recirculated cooling)	0	0	0	0	0	0	0
Off-Stream Hydroelectric Power Production	0	0	0	0	0	0	0
In-Stream Hydroelectric Water Use	0	0	0	0	0	0	0
Other Self Supply	0	0	0	0	0	0	0
Total	**22**	**2**	**2**	**26**	**0**	**0**	**3**

In millions of gallons per day; Water Sources: Great Lakes surface water (GLSW), other surface water (OSW) and groundwater (GW); totals may not sum exactly due to rounding.

Table 18b. Pennsylvania 2024 Water Use Data Summary in mld

Sector	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	Total	Intrabasin	Interbasin	
Public Water Supply	85	0	6	91	0	0	9
Self-Supply Commercial and Institutional	0	0	0	0	0	0	0
Self-Supply Irrigation	0	1	0	1	0	0	1
Self-Supply Livestock	0	5	3	8	0	0	0
Self-Supply Industrial	0	0	0	0	0	0	0
Self-Supply Thermoelectric Power Production (Once-through cooling)	0	0	0	0	0	0	0
Self-Supply Thermoelectric Power Production (Recirculated cooling)	0	0	0	0	0	0	0
Off-Stream Hydroelectric Power Production	0	0	0	0	0	0	0
In-Stream Hydroelectric Water Use	0	0	0	0	0	0	0
Other Self Supply	0	0	0	0	0	0	0
Total	**85**	**6**	**9**	**100**	**0**	**0**	**11**

In millions of liters per day; Water Sources: Great Lakes surface water (GLSW), other surface water (OSW) and groundwater (GW); totals may not sum exactly due to rounding.

Québec

Much of Québec's population lives in the Great Lakes-St. Lawrence River watershed. The portion of the St. Lawrence River included in the Great Lakes-St. Lawrence Basin Agreement territory includes the Montréal metropolitan area that represents nearly 50% of Québec's population. Some of the tributaries with the greatest flow within that portion are the Outaouais (Ottawa) River, the Richelieu River and the St. François River.

In 2024, the total withdrawal amount from the basin for Québec was 1,086 mgd (4,109 mld), representing an 8% decrease from the 2023 withdrawal total of 1,184 mgd (4,481 mld). The primary water use sectors in Québec were public water supply, which made up 72% of total withdrawals at 777 mgd (2,940 mld), and self-supply industrial, which made up 25% of the total at 268 mgd (1,015 mld).

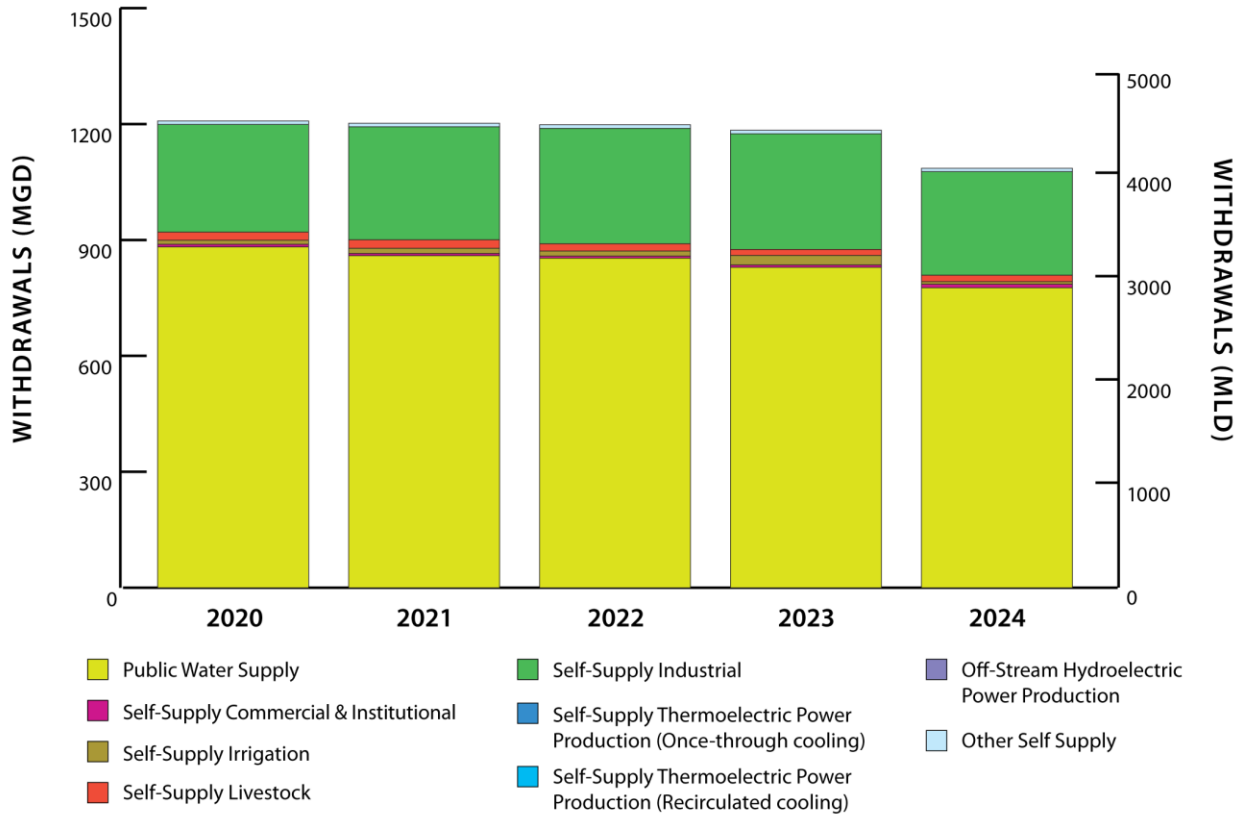

Figure 30. Québec water withdrawals by sector over the past five years

The total diversion amount was 2.8 mgd (10 mld) from the St. Lawrence River watershed for public supply purposes.

Consumptive use in Québec totaled 180 mgd (683 mld) in 2024, comprising 17% of the total withdrawal amount. The primary water use sectors contributing to the total consumptive use were public supply at 148 mgd (560 mld) and self-supply industrial at 25 mgd (94 mld).

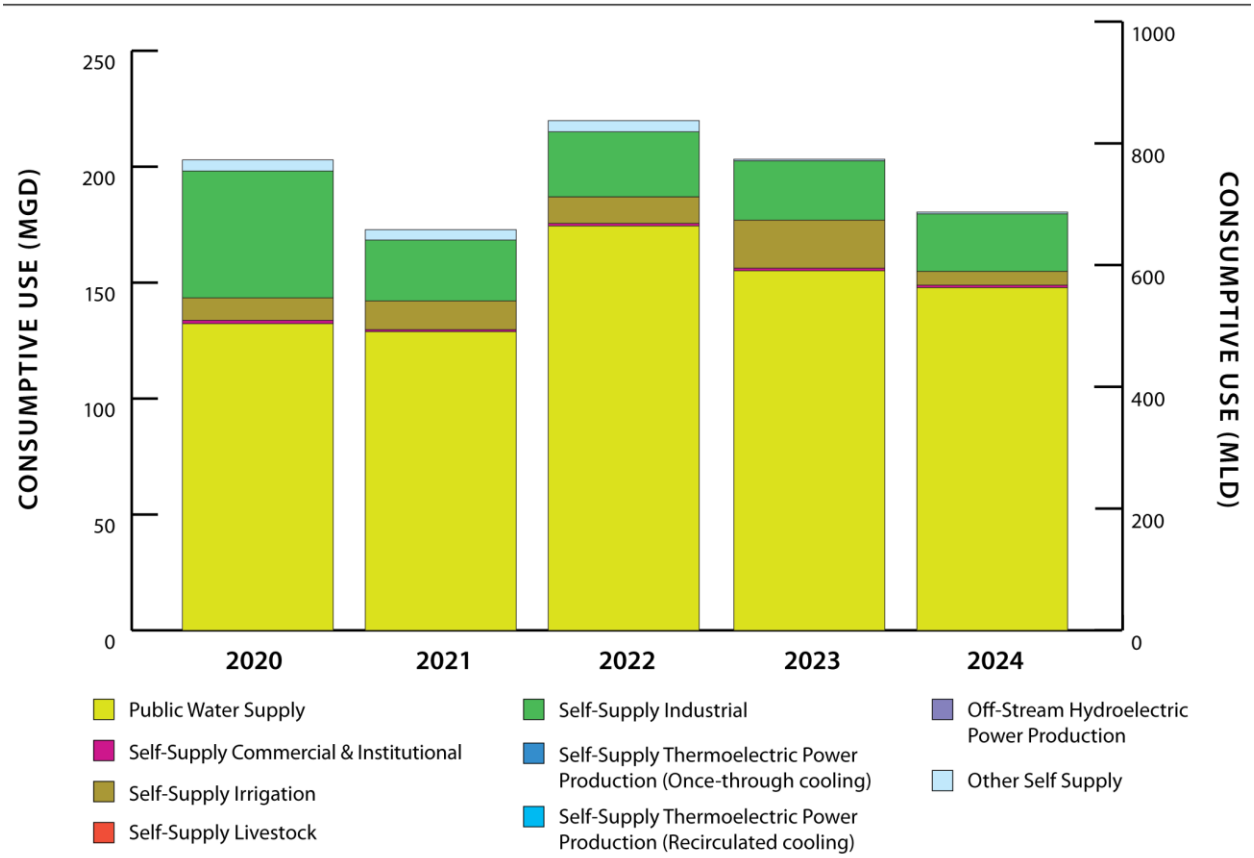

Figure 31. Québec consumptive use by sector over the past five years

Starting with the 2012 water use data reporting year, the province of Québec began its data collection program which gathers estimated or metered water use data reported by water users. Québec began collecting water use reports from the irrigation (agricultural users), livestock and aquaculture sectors in 2016. Data quality and compliance rates are a continual focus for improvement in Québec. Compliance rates varied by water use sector from 51% in the self-supply livestock sector to 95% for public water supply.

Year-to-year changes from 2023 water use by Québec facilities include:

- A 6% (53 mgd or 199 mld) decrease in water withdrawals for public water supply; this continues a trend of decreasing water withdrawals for public supply in Québec each year since 2018.
- A 10% (31 mgd or 117 mld) decrease in withdrawals for the self-supply industrial sector, most likely due to regulations aimed at improving water conservation for industrial users that began being implemented on January 1, 2024.

Table 19a. Québec 2024 Water Use Data Summary in mgd*

Sector	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	Total	Intrabasin	Interbasin	
Public Water Supply	522	205	50	777	0	3	148
Self-Supply Commercial and Institutional	0	8	0	9	0	0	1
Self-Supply Irrigation	0	4	2	7	0	0	6
Self-Supply Livestock	0	13	3	17	0	0	0
Self-Supply Industrial	118	131	20	268	0	0	25
Self-Supply Thermoelectric Power Production (Once-through cooling)	0	0	0	0	0	0	0
Self-Supply Thermoelectric Power Production (Recirculated cooling)	0	0	0	0	0	0	0
Off-Stream Hydroelectric Power Production	0	0	0	0	0	0	0
In-Stream Hydroelectric Water Use	0	0	0	0	0	0	0
Other Self Supply	5	3	0	9	0	0	1
Total	**646**	**364**	**75**	**1,086**	**0**	**3**	**180**

In millions of gallons per day; Water Sources: Great Lakes surface water (GLSW), other surface water (OSW) and groundwater (GW); totals may not sum exactly due to rounding.

*Québec does use water to produce hydroelectricity, but because it is not technically a withdrawal, water used for this purpose is not required to be reported to the Great Lakes Regional Water Use Database.

Table 19b. Québec 2024 Water Use Data Summary in mld*

Sector	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	Total	Intrabasin	Interbasin	
Public Water Supply	1,977	774	188	2,940	0	11	560
Self-Supply Commercial and Institutional	2	31	1	33	0	0	4
Self-Supply Irrigation	2	16	8	26	0	0	23
Self-Supply Livestock	0	51	12	63	0	0	0
Self-Supply Industrial	445	494	75	1,015	0	0	94
Self-Supply Thermoelectric Power Production (Once-through cooling)	0	0	0	0	0	0	0
Self-Supply Thermoelectric Power Production (Recirculated cooling)	0	0	0	0	0	0	0
Off-Stream Hydroelectric Power Production	0	0	0	0	0	0	0
In-Stream Hydroelectric Water Use	0	0	0	0	0	0	0
Other Self Supply	20	12	1	33	0	0	3
Total	**2,446**	**1,378**	**285**	**4,109**	**0**	**11**	**683**

In millions of liters per day; Water Sources: Great Lakes surface water (GLSW), other surface water (OSW) and groundwater (GW); totals may not sum exactly due to rounding.

*Québec does use water to produce hydroelectricity, but because it is not technically a withdrawal, water used for this purpose is not required to be reported to the Great Lakes Regional Water Use Database.

Wisconsin

Wisconsin has more than 1,000 miles of Great Lakes shoreline along Lake Michigan and Lake Superior. More than one third of the state's land area lies within the basin, where half the population of the state also lives. Over 1.6 million Wisconsin residents get their drinking water from Lake Michigan or Lake Superior.[35]

The total reported water withdrawal from the basin for Wisconsin in 2024 was 3,564 mgd (13,490 mld), representing a 4% decrease from 2023 withdrawals (3,697 mgd or 13,993 mld). The Lake Michigan watershed comprised 99% of the total withdrawal amount, with a majority from Lake Michigan surface water. The primary water use sectors were self-supply thermoelectric power production (once-through cooling) at 87% of total withdrawals, and public water supply at 9% of total withdrawals.

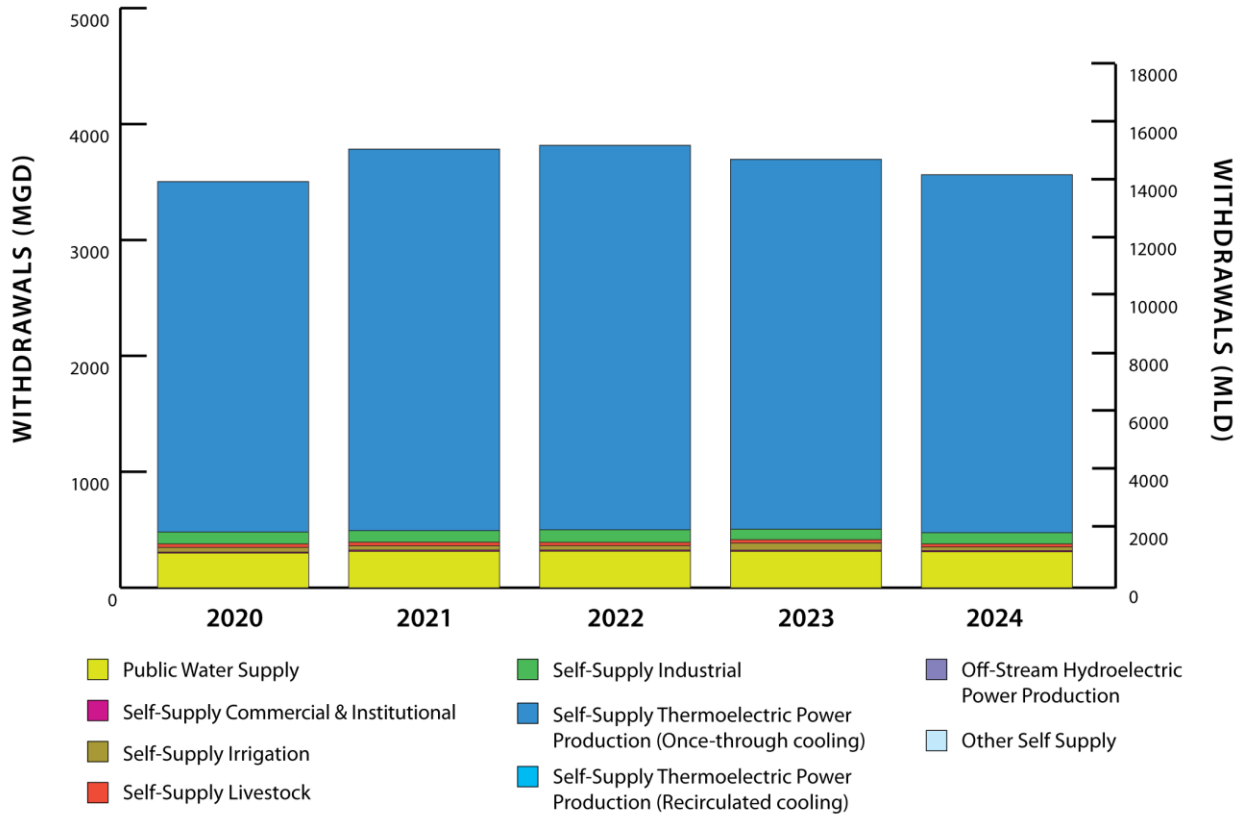

Figure 32. Wisconsin water withdrawals by sector over the past five years

The reported net diversion was 0.23 mgd (0.87 mld) from the Lake Michigan watershed. Diversions out of the Lake Michigan watershed totaled 13.24 mgd (50.12 mld), 99% of which were for public water supply purposes. Of the total diversion amount, 13.01 mgd (49.25 mld) were returned to the Lake Michigan basin, meaning more water was diverted from the Lake Michigan watershed than was returned. In fall 2023, the City of Waukesha began diverting water from Lake Michigan for public supply; 2024 was the first full year

[35] Wisconsin Department of Natural Resources. About Wisconsin's Great Lakes | Lake Michigan and Lake Superior | Wisconsin DNR

in which the City of Waukesha diverted water from Lake Michigan. The Waukesha diversion returns all diverted water to Lake Michigan by discharging its treated wastewater to the Root River, a tributary of Lake Michigan.[36]

Consumptive use in Wisconsin totaled 109 mgd (414 mld) in 2024, primarily from the public water supply (34%), self-supply thermoelectric power production (once-through cooling) (28%), and self-supply irrigation (20%) sectors.

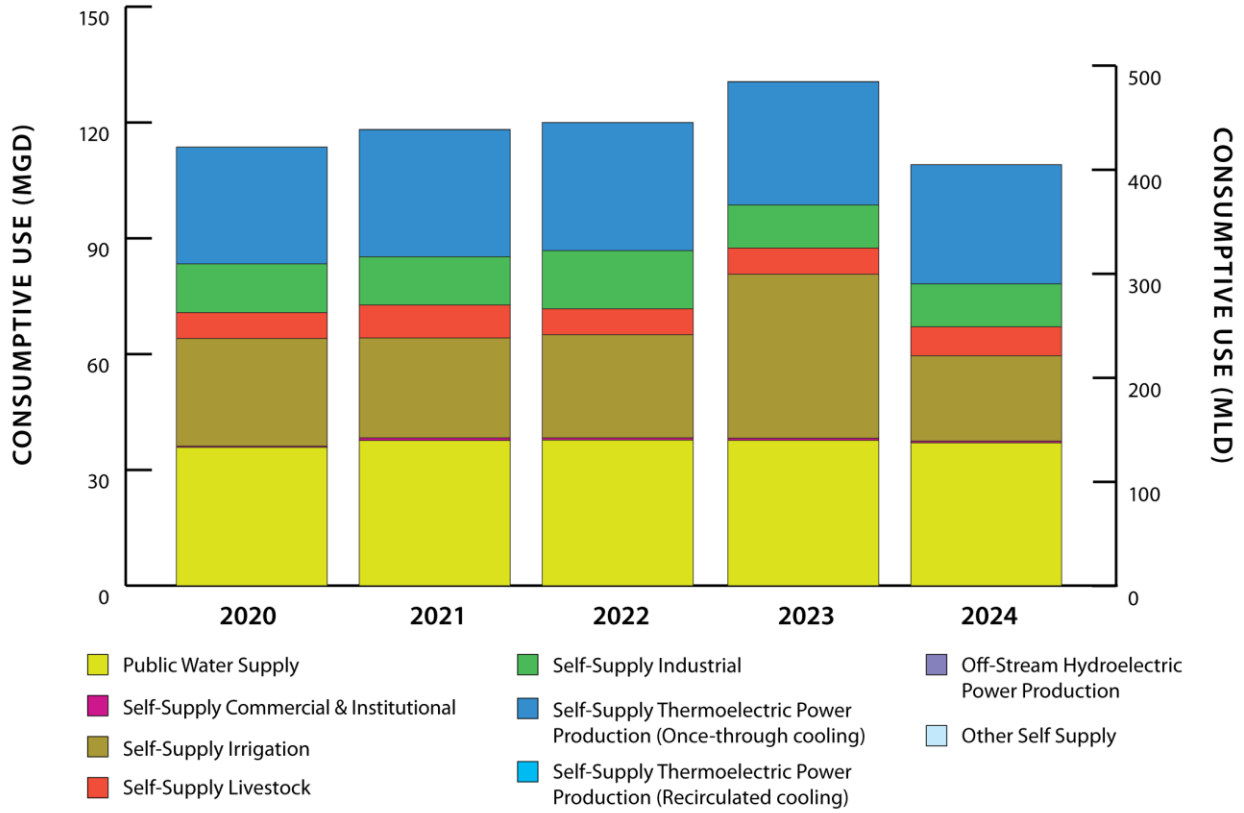

Figure 33. Wisconsin consumptive use by sector over the past five years

The water use data were provided by the Wisconsin Department of Natural Resources. Reporting compliance varied among water use sectors from 94-100%. Data were not estimated for the facilities that did not report water use.

Year-to-year changes from 2023 water use by Wisconsin facilities include:

- An 86% (5.2 mgd or 19.7 mld) increase in water diverted from the Lake Michigan watershed for public supply, due to the City of Waukesha diverting an annual average of 5 mgd in 2024.
- A 48% (29 mgd or 110 mld) decrease in water withdrawals for self-supply irrigation, primarily because 2024 saw a return to expected conditions following a drought year in 2023.

[36] Wisconsin Department of Natural Resources. City of Waukesha Diversion.

Table 20a. Wisconsin 2024 Water Use Data Summary in mgd

Sector	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	Total	Intrabasin	Interbasin	
Public Water Supply	243	22	46	310	0	0	37
Self-Supply Commercial and Institutional	2	6	2	10	0	0	0
Self-Supply Irrigation	0	2	30	32	0	0	22
Self-Supply Livestock	0	10	17	26	0	0	7
Self-Supply Industrial	2	82	13	97	0	0	11
Self-Supply Thermoelectric Power Production (Once-through cooling)	2,943	144	0	3,087	0	0	31
Self-Supply Thermoelectric Power Production (Recirculated cooling)	0	0	0	0	0	0	0
Off-Stream Hydroelectric Power Production	0	0	0	0	0	0	0
In-Stream Hydroelectric Water Use	0	0	0	0	0	0	0
Other Self Supply	0	0	1	1	0	0	0
Total	**3,190**	**265**	**108**	**3,564**	**0**	**0**	**109**

In millions of gallons per day; Water Sources: Great Lakes surface water (GLSW), other surface water (OSW) and groundwater (GW); totals may not sum exactly due to rounding.

Table 20b. Wisconsin 2024 Water Use Data Summary in mld

Sector	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	Total	Intrabasin	Interbasin	
Public Water Supply	920	82	173	1,175	0	1	141
Self-Supply Commercial and Institutional	7	23	6	37	0	0	2
Self-Supply Irrigation	0	7	113	120	0	0	84
Self-Supply Livestock	0	36	64	100	0	0	28
Self-Supply Industrial	9	310	49	368	0	0	42
Self-Supply Thermoelectric Power Production (Once-through cooling)	11,141	545	0	11,686	0	0	117
Self-Supply Thermoelectric Power Production (Recirculated cooling)	0	0	0	0	0	0	0
Off-Stream Hydroelectric Power Production	0	0	0	0	0	0	0
In-Stream Hydroelectric Water Use	0	0	0	0	0	0	0
Other Self Supply	0	1	4	5	0	0	0
Total	**12,077**	**1,005**	**409**	**13,490**	**0**	**1**	**414**

In millions of liters per day; Water Sources: Great Lakes surface water (GLSW), other surface water (OSW) and groundwater (GW); totals may not sum exactly due to rounding.

Appendices

Appendix A. Water Use Sector Definitions

Public Water Supply

Water distributed to the public through a physically connected system of treatment, storage and distribution facilities serving a group of largely residential customers that may also serve industrial, commercial and other institutional operators. Water withdrawn directly from the basin and not through such a system shall not be considered to be used for Public Water Supply purposes.

Self-Supply Commercial and Institutional

Commercial uses include water used by motels, hotels, restaurants, office buildings and institutions, both civilian and military, that would not otherwise be considered Public Water Supplies. This category also includes water for mobile homes, hospitals, schools, air conditioning and other similar uses not covered under a public supply. In addition, this category includes amusement and recreational water uses such as snowmaking and water slides.

Self-Supply Irrigation

Water artificially applied on lands to assist in the growing of crops and pastures or in the maintenance of recreational lands, such as parks and golf courses.

Self-Supply Livestock

Water used by animals such as horses, cattle, sheep, goats, hogs and poultry. Water used in fish hatchery operations is also included under this category.

Self-Supply Industrial

Industrial water includes water used in the manufacture of metals, chemicals, paper, food and beverage, and other products, as well as water used for mining. Mining water use is that used in the extraction or washing of minerals, including solids, such as coal and ores, and liquids, such as crude petroleum and natural gas. Water used in quarrying and milling is also included in the industrial category. Brine extraction from oil and gas operations is not included. Withdrawals and consumptive uses for industrial and mining purposes (including dewatering operations) recorded under another category (e.g., public supply) will not be recorded here. Once initially reported, water used in a closed cycle (recirculation) will not be reported as a withdrawal. "Make-up water"[1] will be reported once upon entering the system. Other situations should be evaluated on a case-by-case basis.

Self-Supply Thermoelectric Power Production (Once-through Cooling)

Cooling water and ancillary water use such as boiler make-up water and contact cooling water at electrical power generating facilities that use once-through cooling systems. Withdrawals and consumptive uses already recorded under another category (e.g., public supply) will not be reported here.

[1] For industrial boiler systems, make-up water is the raw water, softened water or demineralized water required for steam generation. http://www.pdhcenter.com/courses/m165/m165content.pdf

Self-Supply Thermoelectric Power Production (Recirculated Cooling)

Cooling water and ancillary water use such as boiler make-up water and contact cooling water at electrical power generating facilities that use water recirculating cooling tower systems. This category also includes water used at Combined Cycle Gas Turbine (CCGT) power plants. Withdrawals and consumptive uses already recorded under another category (e.g., public supply) will not be reported here. Once initially reported, water used in a closed cycle (recirculation) will not be reported as a withdrawal. "Make-up water" will be reported once upon entering the system.

Off-Stream Hydroelectric Power Production

Water removed from a stream channel and used to drive turbines that generate electric power. This category also includes "off-stream use" for pumped-storage systems [e.g., reservoir storage] that return water to the source.

In-Stream Hydroelectric Water Use

This category includes "run of the river" use, which is not considered a water withdrawal or consumptive use. Reporting for this category is voluntary.

Other Self-Supply

Water used for purposes not reported in the above categories. Examples include, but are not limited to, withdrawals for fish/wildlife, environmental, navigation and water quality purposes. Specifically, this category includes water used for maintaining water levels for navigation, fish and wildlife habitat creation and enhancement (excluding fish hatchery operations included in the self-supply livestock sector), flow augmentation (or diversion), sanitation, pollution confinement, other water quality purposes and agricultural activities (services) other than those directly related to irrigation.

Appendix B. General Definitions from the Compact and Agreement

Basin or Great Lakes-St. Lawrence River Basin means the watershed of the Great Lakes and the St. Lawrence River upstream from Trois-Rivières, Québec.

Consumptive Use means that portion of the water withdrawn or withheld from the basin that is lost or otherwise not returned to the basin due to evaporation, incorporation into products or other processes.

Diversion means a transfer of water from the basin into another watershed, or from the watershed of one of the Great Lakes into that of another by any means of transfer, including, but not limited to, a pipeline, canal, tunnel, aqueduct, channel, modification of the direction of a water course, a tanker ship, tanker truck or rail tanker, but does not apply to water that is used in the basin or a Great Lake watershed to manufacture or produce a product that is then transferred out of the basin or watershed.

Divert has a corresponding meaning.

Withdrawal means the taking of water from surface water or groundwater.

Source Watershed means the watershed from which a withdrawal originates. If water is withdrawn directly from a Great Lake or from the St. Lawrence River, then the source watershed shall be considered to be the watershed of that Great Lake or the watershed of the St. Lawrence River, respectively. If water is withdrawn from the watershed of a stream that is a direct tributary to a Great Lake or a direct tributary to the St. Lawrence River, then the source watershed shall be considered to be the watershed of that Great Lake or the watershed of the St. Lawrence River, respectively, with a preference to the direct tributary stream watershed from which it was withdrawn.