

Water Use in the Great Lakes-St. Lawrence River Basin

Great Lakes Regional Database Project - January 2016



The Great Lakes and St. Lawrence River Basin is a significant source of water for more than 36 million people, driving a strong economy and supporting a diverse ecosystem. Knowing how people use the water will help us better manage this precious resource for future generations.

Water Withdrawals in the Great Lakes-St. Lawrence River Basin

How are withdrawals measured?

Water use data are calculated in million gallons per day (mgd)

1 gallon



35 gallons



660,430 gallons



1 million gallons



(One and a half Olympic-sized swimming pool)

In comparison:

How much water was withdrawn and used in the Great Lakes-St. Lawrence River Basin?

44,493 mgd in 2014, the most current year for which data were collected. That is 67,369 Olympic-sized swimming pools. Water use fluctuates from year to year. The average amount of water withdrawals from 2012 to 2014 (the last three years of data collection) is 43,115 mgd.

How much water left the Great Lakes St. Lawrence river Basin?

383 mgd including diversions out of the Basin and consumptive uses. That is the equivalent of 580 Olympic-sized swimming pools. Like withdrawals, water loss also fluctuates from year to year. The average amount of water withdrawals from 2012 to 2014 is 2,197 mgd.

Basic Statistics of the Lakes

Here are the basic statistics about each body of water of the Great Lakes Basin

	Unit	Superior	Michigan	Huron	Erie	Ontario	St. Lawrence River
Depth max	ft	1,330	923	750	210	802	-
Depth average	ft	483	279	195	62	283	-
Volume	mi ³	2,900	1,180	849	116	393	393
Lake surface area	mi ²	31,700	22,300	23,000	9,910	7,340	-
Watershed drainage area	mi ²	49,300	45,600	50,700	22,700	23,400	519,000
Retention	years	191	62	21	2.7	6	-
Population in watershed total	person	673,000	12,052,743	2,960,359	12,532,977	569,178	-

For comparison, if the volume of Lake Superior was contained in a gallon, would be.

Lake Michigan



32 loads bottle of detergent

Lake Huron



1 liter soda bottle

Lake Erie



Juice box

Lake Ontario



Normal-size travel mug

For more information, contact Steve Cole, Chief Information Officer at the Great Lakes Commission (scole@glc.org or 734-971-9135)

How is water use data collected?

The Great Lakes Regional Water Use Database provides comparable water use information on water withdrawal, diversion and consumptive uses in the Great Lakes-St. Lawrence River Basin since 1988. It was established by the states and provinces of the Great Lakes Charter which called for the establishment and maintenance of a regional system for the collection of data on water use, diversion and consumptive use in the region. It continues to support the Great Lakes-St. Lawrence River Water Resources Compact and Agreement of 2008.

The Regional Database Tracks Water Use in 6 sectors (condensed)

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.

Industrial

Water used in manufacture of metals, chemicals, paper, food, beverage and other products.

Commercial & Institutional

Water used by motels, restaurants, office buildings and institutions, both civilian and military, also includes recreational water uses such as snowmaking and water slides.

Power

Water used for cooling (once-through and recirculated) in fossil and nuclear fueled power facility and off-stream hydroelectric power production (but not the one used for in-stream hydroelectric power).

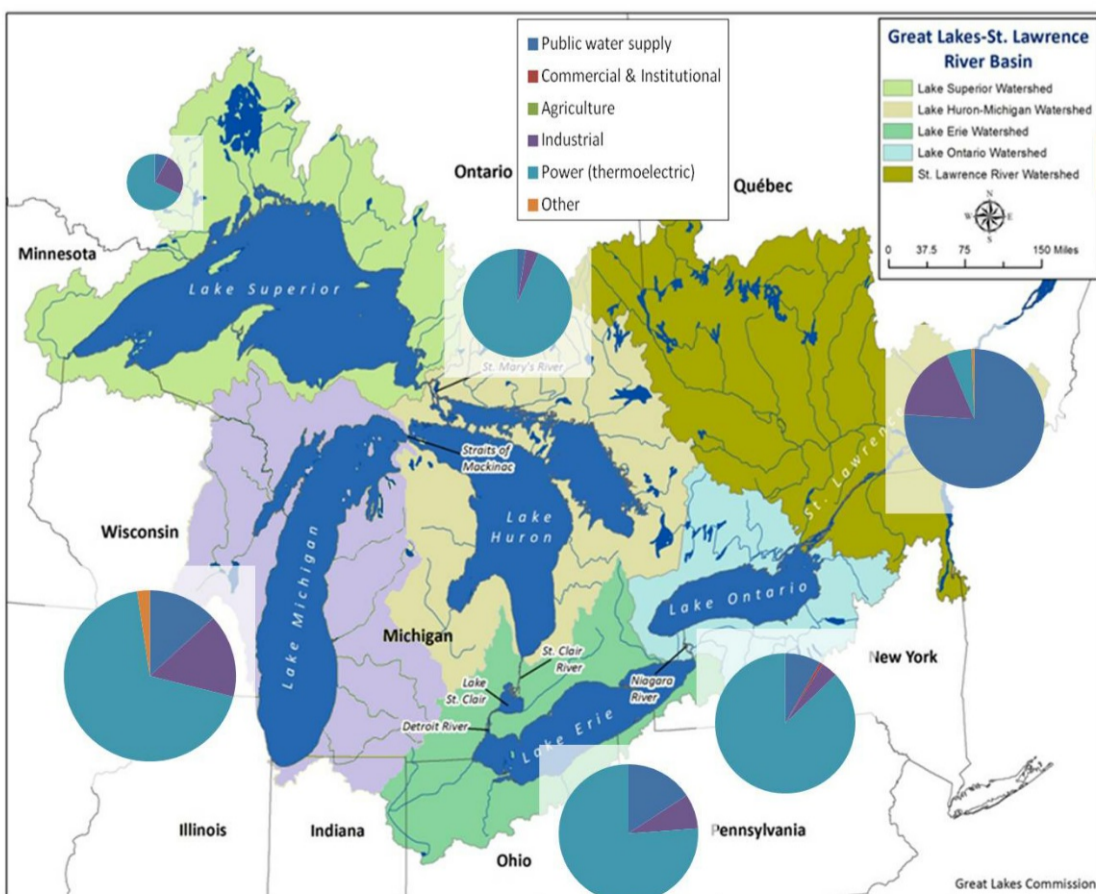
Agriculture

Water used for irrigation to assist in the growing of crops and pasture and maintenance of parks and water used by horses, cattle, sheep, and other commercially important animals.

Other

Water used for other purposes; examples include, but are not limited to, withdrawals for fish/wildlife, environmental, recreation, navigation and water quality purposes.

Water Use Across the Region



The dominant sector for withdrawal for most of the watersheds is the Power sector, with the exception of the Public water supply in the St. Lawrence River Watershed.

Furthermore, withdrawals for Thermolectric power, Public water supply and Industrial sectors are the primary water use sectors in all the watersheds, and together they make about 99% of total withdrawals in the region.

However, if in stream hydroelectric water use is considered, then this sector is the primary water use sector for Lake Erie (84%), Lake Ontario (83%) and the St. Lawrence River (99%).

In terms of quantity, Lake Superior's total withdrawal is the smallest and varies between 8% and 12% of the other watershed's withdrawals.

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