

ANNUAL REPORT  
of the  
*GREAT LAKES REGIONAL WATER USE  
DATABASE REPOSITORY*  
*REPRESENTING 1999 WATER USE DATA IN LITERS*

*Prepared by*

**The Great Lakes Commission**

*August 04*

## ***ACKNOWLEDGEMENTS***

The principal author of this report is Marilyn Ratliff, Great Lakes Commission Database Administrator. Thomas R. Crane, Program Manager of Resource Management, edited the report and provided project oversight. Special thanks go to Dr. Michael J. Donahue, Great Lakes Commission President/CEO, for his overall project guidance.

The Great Lakes Commission wishes to thank the members of the Water Withdrawal and Use Technical Subcommittee (TSC) formed under the Water Resources Management Decision Support System for the Great Lakes project for their involvement and participation in the preparation of this report. This project was completed in May of 2003 with the release of the report titled *Toward a Water Resources Management Decision Support System for the Great Lakes St. Lawrence River Basin*. The TSC remains in place to assist in the preparation of this and future annual water use reports.

## ***FOREWARD***

The Great Lakes Regional Water Use Database partially fulfills the recommendation in the Great Lakes Charter of 1985 that calls for a uniform, consistent base of data of Great Lakes water withdrawals, diversions and consumptive uses. Water use data are submitted to the repository on an annual basis and reports are provided to assist the jurisdictions in Great Lakes-St. Lawrence River water resources planning and management. As specified by the Water Resources Management Committee in its 1987 report, *Managing the Waters of the Great Lakes Basin*, the database catalogs withdrawals by water use category, sub-basin, and jurisdiction.

The operation and use of this database represents one of several ongoing activities on behalf of the Great Lakes states and provinces to fulfill obligations of the Charter and Charter Annex of 2001. Continued state and provincial involvement in refining and expanding the database is necessary to ensure that the database can support other ongoing Charter initiatives, such as improving consumptive use information, conducting trend analysis, developing uniform and consistent demand forecasting applications and promoting regional water conservation programs.

The database became operational in the summer of 1988 following a multi-year cooperative effort. Design and development involved input from many state, provincial, and federal agencies, with the U.S. Geological Survey providing much of the leadership.

The customized program was developed in 1987 by Acres International on the MS/DOS platform using a modified version of DbaseIII. With the rapid advancement of computer hardware and software and the evolving needs of the Great Lakes state and provincial water resources management programs, the old system soon became outdated. In July 1998, the Great Lakes Commission and Eastern Michigan University's Institute for Geospatial Research and Education (formerly the Center for Environmental Information Technology and Application) began work on the revised database. The new system was developed using Visual Basic for Applications, based on Microsoft Access®, and contains all of the functions of the old system (including data entry, a data check facility and report generation), in addition to new features such as a flexible data interface and automatic data checking.

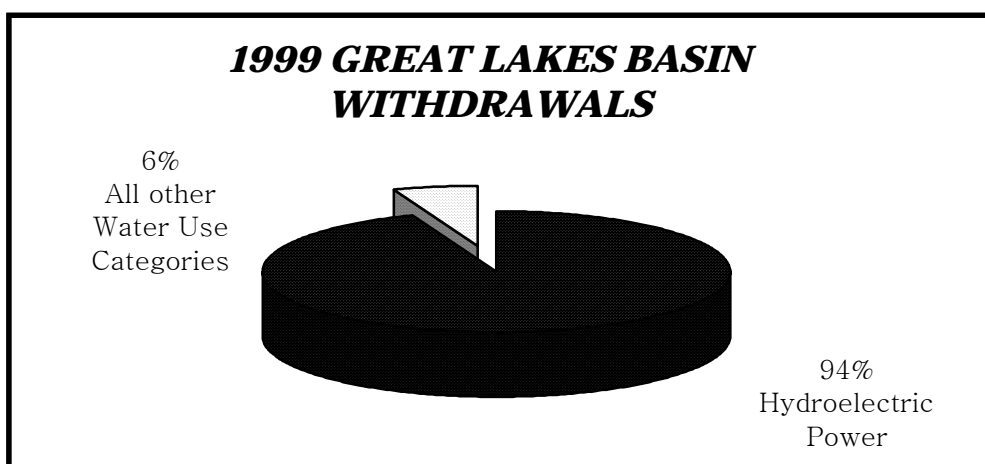
# ***I. GREAT LAKES BASIN OVERVIEW***

## **Introduction**

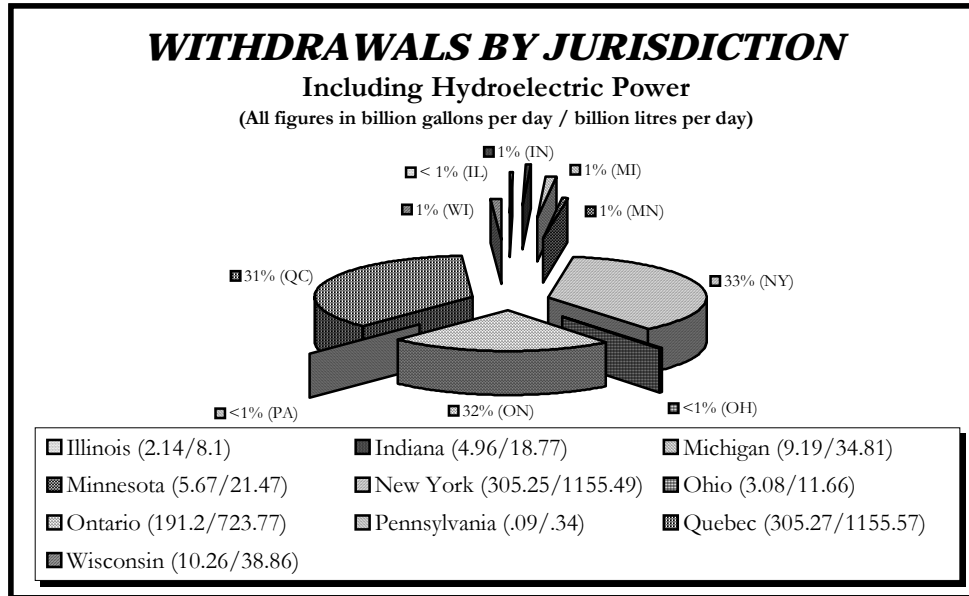
All data are submitted in one of two different unit measures--millions of U.S. gallons per day (mgd) or millions of litres per day (mld)—and values are initially set to zero. Numeric values are required for all categories of use. A value of zero indicates either zero water use or water use which does not meet the Charter trigger level for water use reporting of 100,000 gallons per day (380,000 litres per day) average over a 30-day period.

The quality of data for each entry is rated as a 1, 2 or 3 indicating the level of accuracy as 1) measured 2) partially measured or 3) estimated; and a 1 or 2 indicating the level of aggregation as 1) originating from site-specific sources or 2) from higher level aggregate sources such as county or census databases. Both measures of quality are based on percentages of total volume.

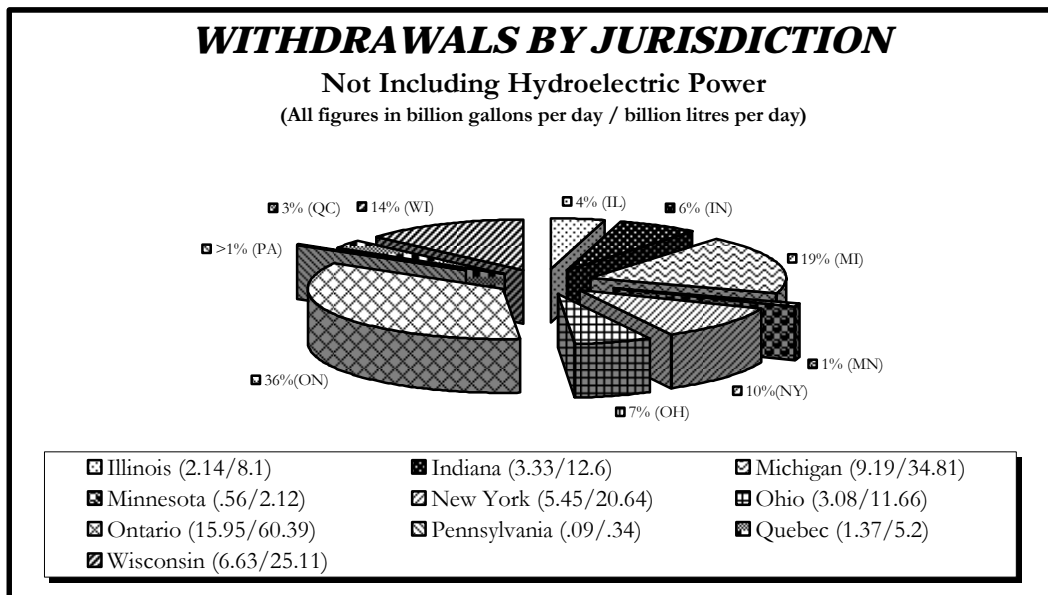
For this report, Self-supply – hydroelectric (water used in the generation of electricity at plants where turbine generators are driven by falling water) is treated as a withdrawal, even though all water for this purpose is considered to be returned to the Basin. As the following chart illustrates, this is the largest single category of use and represents 94% of the total amount of water “withdrawn” per year.



Each of the ten jurisdictions' water uses is represented in the following charts. The first chart includes Self-supply – hydroelectric use. In total, water withdrawals for 1999 were approximately 837 billion gallons per day, or about 3,169 billion litres per day.



This second chart more accurately reflects the true water use within the Basin, as it excludes Self-supply – hydroelectric use. Water withdrawals for the eight remaining off-stream categories totaled 48 billion gallons per day, or 181 billion litres per day.



## Topics of Interest

### Diversions

Two types of diversions are reported by the water use database: Interbasin and Intrabasin (see General Definitions and Abbreviations on page 7); both types can be either incoming or outgoing. Tables in this report treat diversions from a water balance perspective: diversion totals are the sum of both Inter- and Intrabasin incoming and outgoing diversions. Future reports will show these diversions separately, yielding more meaningful data. For a summary of both Interbasin and Intrabasin diversions and removals, please see *Great Lakes Diversions and Other Removals* by Frank Quinn and Jeff Edstrom, **Canadian Water Resources Journal**, 2000, vol. 25, #2. Copies of this article can be obtained through the CWRJ website--[www.cwra.org/Publications](http://www.cwra.org/Publications)--or by calling (519) 622-4764.

Of the two types, interbasin diversions (transfers that take place between the Great Lakes Basin and another watershed) have traditionally been of greater interest. Outgoing interbasin diversions--those without a minus sign--indicate water leaving the Great Lakes Basin; incoming interbasin diversions--indicated with a minus sign--indicate water entering the Great Lakes Basin.

### Consumptive Use

Collecting and reporting defensible data for consumptive uses of Great Lakes water continues to be a major challenge for the Great Lakes jurisdictions. For a scholarly summary, please see:

#### **Annotated Bibliography of Consumptive Use in the Great Lakes Region and Basin**

[www.glc.org/wateruse/wrmdss/finalreport/pdf/CU\\_biblio.pdf](http://www.glc.org/wateruse/wrmdss/finalreport/pdf/CU_biblio.pdf); and

#### **Measuring and Estimating Consumptive Use of Great Lakes Water**

[www.glc.org/wateruse/wrmdss/finalreport/pdf/CU\\_briefing.pdf](http://www.glc.org/wateruse/wrmdss/finalreport/pdf/CU_briefing.pdf).

The states and provinces currently use a variety of methods to obtain consumptive use figures, including measurement and estimation at the facility level. However, the most common practice is to calculate consumptive use for each water use category by multiplying the withdrawal amount by an agreed-upon percentage (consumptive use coefficient). The following table shows the consumptive use coefficients that were used for this report. Total consumptive use in 1999 was calculated to be 2.13 bgd (8.05 bld). For consumptive use quantities, please refer to the tables in chapters II through V.

<b><i>Water Use Category</i></b>	<b>ILLINOIS</b>	<b>INDIANA</b>	<b>MICHIGAN</b>	<b>MINNESOTA</b>	<b>NEW YORK</b>	<b>OHIO</b>	<b>ONTARIO</b>	<b>PENNSYLVANIA</b>	<b>QUEBEC</b>	<b>WISCONSIN</b>
<b>Public Supply</b>	10-15%	15%	10-15%	10-15%	10%	10-15%	15%	10%	10-15%	10-15%
<b>Self-Supply Domestic</b>	10-15%	15%	10-15%	10-15%	10%	10-15%	15%	10%	10-15%	10-15%
<b>Self-Supply Irrigation</b>	90%	90%	90%	90%	90%	90%	78%	90%	90%	70%
<b>Self-Supply Livestock</b>	80%	80%	80%	80%	90%	80%	80%	80%	80%	90%
<b>Self-Supply Industrial</b>	Varies by plant & SIC code	6%	10-15%	Varies by plant & SIC code	25%	10%; salt mining is 90%	Varies by plant & SIC code	Varies by plant & SIC code	10% for pulp & paper industry	10.2% for manufacturing & mining
<b>Self-Supply Thermoelectric (Fossil Fuel)</b>	Individually estimated based on the quantity of make-up water	2%	1-2% for plants using once-through cooling; individual analysis for wet cooling towers	2%	2%	Individually estimated based on the quantity of make-up water	.9% based on reports of increased local lake evaporation due to discharge of heated water to lakes	NA (Pennsylvania has no facilities in the basin)	10%; estimates obtained from USGS report	.5-1%
<b>Self-Supply Thermoelectric (Nuclear)</b>	Individually estimated based on the quantity of make-up water	NA (Indiana has no facilities in the basin)	1-2% for plants using once-through cooling; individual analysis for wet cooling towers	NA (Minnesota has no facilities in the basin)	5%	14% based on reports of increased local lake evaporation due to discharge of heated water to lakes	.9% based on reports of increased local lake evaporation due to discharge of heated water to lakes	NA (Pennsylvania has no facilities in the basin)	NA (Quebec has no facilities in the basin)	.5-1%
<b>Hydroelectric</b>	Coefficient for all states and provinces is 0%									
<b>Self-Supply Other</b>	Varies based on use	12%	Varies based on use	Varies based on use	Varies based on use	Varies based on use	Varies based on use	Varies based on use	Varies based on use	Varies based on use

## Definitions and Abbreviations

### General Definitions and Abbreviations

- ▶ **bgd**: billion gallons per day
- ▶ **bld**: billion litres per day
- ▶ **consumptive use**: that portion of water withdrawn or withheld from the Great Lakes Basin and assumed to be lost or otherwise not returned to the Great Lakes Basin due to evapotranspiration, incorporation into products, or other processes
- ▶ **Great Lakes surface water (GLSW)**: the Great Lakes, their connecting channels (the St. Clair River, the Detroit River, the Niagara River and the St. Mary's River), and the St. Lawrence River
- ▶ **groundwater (GW)**: all subsurface water
- ▶ **interbasin diversion**: the amount of water transferred from the Great Lakes Basin into another watershed
- ▶ **intra-basin diversion**: the amount of water transferred from the watershed of one of the Great Lakes into another
- ▶ **level of accuracy**: the quality of data based on percentage of total volume and rated as 1) measured; 2) partially measured or: 3) estimated,
- ▶ **level of aggregation**: the quality of data based on percentage of total volume and rated as 1) originating from site-specific sources or 2) originating from higher level aggregate sources, such as county or census databases
- ▶ **mgd**: million gallons per day
- ▶ **mld**: million litres per day
- ▶ **other surface water (OSW)**: tributary streams, lakes, ponds, and reservoirs within the Great Lakes Basin
- ▶ **principal facility**: facilities withdrawing in excess of the Great Lakes Charter uniform trigger level of 100,000 U.S. gallons/day (380,000 liters/day) average over a 30-day period. A principal facility is determined by the total withdrawal (or consumption) of all sources combined (Great Lakes surface water, other surface water, and groundwater) rather than a single source. The combined withdrawals (or consumption) of separate wells or operations undertaken by the same facility or company will be evaluated separately for the purpose of determining principal facility status unless those operations are covered under the same registration (or permit) or are physically contiguous. Principal facilities are a subset of all facilities in the Database.
- ▶ **tgd**: trillion gallons per day
- ▶ **tld**: trillion litres per day
- ▶ **withdrawal amount**: water removed or taken from surface or groundwater (including hydroelectric use)



### Water Use Category Definitions

1. **Public Water Supply:** Water withdrawn for all uses by public and private water suppliers and delivered to users that do not supply their own water. (Water suppliers provide water for a variety of uses such as residential, commercial, industrial, and public water use.)
2. **Self-Supply Domestic: (residential, commercial, institutional):** Water used for normal household purposes. Also referred to as residential water use, this category includes water used for drinking, food preparation, bathing, washing clothes and dishes, flushing toilets, and watering lawns. Commercial uses include water used by motels, hotels, restaurants, office buildings and institutions, both civilian and military. This category also includes water for mobile homes, hospitals, schools, fire fighting, 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. The coefficient for domestic per capita water use is 75 gallons a day (U.S.) unless otherwise indicated by the reporting state or province.
3. **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.
4. **Self-Supply Livestock:** Water used by horses, cattle, sheep, goats, hogs, poultry, and other commercially important animals. Water used in fish hatchery operations are also included under this category.
5. **Self-Supply Industrial (manufacturing and mining):** Industrial water includes water used in the manufacture of metals, chemicals, paper, and allied products. Mining water use includes water used in the extraction or washing of minerals; for example 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. Water used in a closed cycle (recirculation) will not be reported as a withdrawal. Other situations should be evaluated on a case-by-case basis.
6. **Self-Supply Thermoelectric Power (fossil fuel plants):** Water used by plants fueled by fossil fuels such as coal, oil or natural gas. Withdrawals and consumptive uses already recorded under another category (e.g., public supply) will not be reported here.
7. **Self-Supply Thermoelectric Power (nuclear plants):** Water used by plants fueled by nuclear generation. Withdrawals and consumptive uses already recorded under another category (e.g., public supply) will not be reported here.
8. **Self-Supply Hydroelectric Power:** Water used to drive turbines that generate electric power. This category includes both “instream use” where water is used on a once-through basis and “offstream use” where water is recycled through pumped-storage systems. Neither use is considered a consumptive use.
9. **Self-Supply - Other:** Water used for purposes not reported in categories one through nine. Examples include, but are not limited to, withdrawals for fish/wildlife, environmental, recreation, navigation, and water quality purposes. Specifically, water used to maintain levels for navigation, for recreation, for fish and wildlife habitat creation and enhancement (excluding fish hatchery operations included under Category 5), for flow augmentation (or diversion), for sanitation, pollution confinement, and other water quality purposes and agricultural activities (services) other than those directly related to irrigation such as field drainage are included. Water used in temporary or immediate emergency situations (e.g., fighting forest or peat fires) is also reported here.

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## ***II. GREAT LAKES BASIN SUMMARY TABLES***

***Water Use by Jurisdiction***

***Water Use by Basin***

***Water Use by Category***

# SUMMARY REPORT - GREAT LAKES BASIN

Units: ML/d

Year Of Data: 1999

## Water-Use by Jurisdiction - All Facilities

Jurisdiction	Withdrawals				Diversions			Consumptive Use
	GLSW	OSW	GW	TOTAL	Intrabasin	Interbasin	TOTAL	
Illinois	8082.50	0.00	16.33	8098.83	0.00	5690.15	5690.15	0.00
Indiana	10257.14	7961.14	550.70	18768.98	0.00	-9.31	-9.31	799.93
Michigan	31185.47	1624.02	1997.18	34806.67	0.00	0.00	0.00	2025.99
Minnesota	1130.43	20315.16	20.49	21466.08	0.00	0.00	0.00	166.47
New York	471754.89	683212.32	527.72	1155494.93	2691.43	160.12	2851.55	1311.95
Ohio	10129.84	1002.19	529.31	11661.34	0.00	-36.91	-36.91	721.88
Ontario	550771.24	171937.57	1060.20	723769.02	-144159.41	16052.76	-160258.32	1565.69
Pennsylvania	309.08	10.98	16.99	337.05	0.00	-3.26	-3.26	52.78
Quebec	649532.00	505656.00	378.20	1155566.20	0.00	0.00	0.00	597.55
Wisconsin	23215.97	14769.20	870.95	38856.12	0.00	3.52	3.52	807.91
<b>Total:</b>	<b>1756368.57</b>	<b>1406488.57</b>	<b>5968.09</b>	<b>3168825.23</b>	<b>-141467.98</b>	<b>21857.08</b>	<b>-119610.90</b>	<b>8050.14</b>

## Water-Use by Jurisdiction - Principal Facilities

Jurisdiction	Withdrawals				Diversions			Consumptive Use
	GLSW	OSW	GW	TOTAL	Intrabasin	Interbasin	TOTAL	
Illinois	8082.50	0.00	16.33	8098.83	0.00	5690.15	5690.15	0.00
Indiana	10257.14	7959.43	430.63	18647.20	0.00	0.00	0.00	772.56
Michigan								
Minnesota	1130.12	20313.09	17.43	21460.64	0.00	0.00	0.00	165.55
New York	470159.91	2253.53	43.46	472456.89	2691.43	160.12	2851.55	896.76
Ohio	10128.02	974.71	244.92	11347.64	0.00	1.14	1.14	619.56
Ontario	12111.99	1475.86	341.40	13929.25	236.59	0.00	-15862.32	499.79
Pennsylvania	309.08	10.52	6.20	325.80	0.00	0.00	0.00	51.46
Quebec	649531.00	505640.00	184.00	1155355.00	0.00	0.00	0.00	498.10
Wisconsin	23154.38	14748.65	474.31	38377.34	0.00	1.21	1.21	583.41
<b>Total:</b>	<b>1184864.14</b>	<b>553375.79</b>	<b>1758.67</b>	<b>1739998.61</b>	<b>2928.02</b>	<b>5852.62</b>	<b>8780.64</b>	<b>4087.20</b>

# SUMMARY REPORT - GREAT LAKES BASIN

Units: ML/d

Year Of Data: 1999

## Water-Use by Basin - All Facilities

Basin	Withdrawals				Diversions			Consumptive Use
	GLSW	OSW	GW	TOTAL	Intrabasin	Interbasin	TOTAL	
Lake Superior	4173.68	122278.66	108.99	126561.32	0.00	16052.76	0.00	291.51
Lake Michigan	48298.83	23134.02	2835.52	74268.36	0.00	5684.36	5684.36	2575.30
Lake Huron	98362.61	42543.22	374.77	141280.60	181.59	0.00	181.59	636.89
Lake Erie	210239.61	1783.94	1374.14	213397.69	16098.91	-40.16	-40.16	2280.38
Lake Ontario	183076.44	336680.20	736.53	520493.17	-157748.48	160.12	-157588.36	1499.13
St. Lawrence River	1212217.39	880068.54	538.15	2092824.09	0.00	0.00	0.00	766.94
<b>Total:</b>	1756368.57	1406488.57	5968.09	3168825.23	-141467.98	21857.08	-119610.90	8050.14

## Water-Use by Basin - Principal Facilities

Basin	Withdrawals				Diversions			Consumptive Use
	GLSW	OSW	GW	TOTAL	Intrabasin	Interbasin	TOTAL	
Lake Superior	1332.64	21144.78	26.76	22504.18	0.00	0.00	0.00	196.39
Lake Michigan	41431.26	21743.82	866.69	64041.77	0.00	5691.36	5691.36	1318.27
Lake Huron	189.76	272.67	86.83	549.26	181.59	0.00	181.59	55.14
Lake Erie	189516.56	1283.67	493.61	191293.85	16098.91	1.14	1.14	1078.88
Lake Ontario	11971.05	2947.50	79.41	14997.96	-13352.48	160.12	-13192.36	879.57
St. Lawrence River	940422.86	505983.35	205.37	1446611.59	0.00	0.00	0.00	558.95
<b>Total:</b>	1184864.14	553375.79	1758.67	1739998.61	2928.02	5852.62	8780.64	4087.20

# SUMMARY REPORT - GREAT LAKES BASIN

Units: ML/d

Year Of Data: 1999

## Water-Use by Category - All Facilities

Category	Withdrawals				Diversions			Consumptive Use
	GLSW	OSW	GW	TOTAL	Intrabasin	Interbasin	TOTAL	
Public Supply	17169.75	4472.80	2249.02	23891.57	0.00	4242.71	4242.71	2514.24
Domestic Supply	142.35	181.60	1415.84	1739.79	0.00	0.00	0.00	220.85
Irrigation	31.06	576.54	1037.08	1644.67	0.00	0.00	0.00	1415.02
Livestock	40.57	56.45	379.65	476.67	0.00	0.00	0.00	378.53
Industrial	13259.99	4268.58	871.12	18399.69	0.00	11.40	11.40	1690.67
Fossil Fuel Power	72666.56	3341.35	12.84	76020.75	0.00	0.00	0.00	918.56
Nuclear Power	53716.58	0.00	0.49	53717.08	0.00	0.00	0.00	789.07
Hydroelectric Power	1595182.70	1392674.88	0.00	2987857.58	0.00	16052.76	0.00	0.00
Other	4159.01	916.38	2.06	5077.44	-141467.98	1550.21	-156016.68	123.22
<b>Total:</b>	<b>1756368.57</b>	<b>1406488.57</b>	<b>5968.09</b>	<b>3168825.23</b>	<b>-141467.98</b>	<b>21857.08</b>	<b>-119610.90</b>	<b>8050.14</b>

## Water-Use by Category - Principal Facilities

Category	Withdrawals				Diversions			Consumptive Use
	GLSW	OSW	GW	TOTAL	Intrabasin	Interbasin	TOTAL	
Public Supply	12132.00	3271.10	1013.78	16416.88	0.00	4252.96	4252.96	1607.30
Domestic Supply	6.07	181.50	226.49	414.05	0.00	0.00	0.00	45.29
Irrigation	0.00	93.72	131.28	225.00	0.00	0.00	0.00	179.91
Livestock	2.44	8.74	5.22	16.41	0.00	0.00	0.00	13.74
Industrial	8123.90	3844.95	379.26	12348.11	0.00	11.40	11.40	1214.24
Fossil Fuel Power	45313.83	2531.93	1.43	47847.20	0.00	0.00	0.00	504.13
Nuclear Power	13033.51	0.00	0.00	13033.51	0.00	0.00	0.00	399.40
Hydroelectric Power	1102093.38	542527.90	0.00	1644621.28	0.00	0.00	0.00	0.00
Other	4159.01	915.94	1.22	5076.16	2928.02	1588.26	-11582.64	123.18
<b>Total:</b>	<b>1184864.14</b>	<b>553375.79</b>	<b>1758.67</b>	<b>1739998.61</b>	<b>2928.02</b>	<b>5852.62</b>	<b>8780.64</b>	<b>4087.20</b>

### ***III. JURISDICTION TABLES AND ANALYSES***

Each jurisdictional summary includes a water use analysis and three tables:

Withdrawals, Diversions and Consumptive Uses

Withdrawals by Source

Jurisdiction Totals

***Illinois***

***Indiana***

***Michigan***

***Minnesota***

***New York***

***Ohio***

***Ontario***

***Pennsylvania***

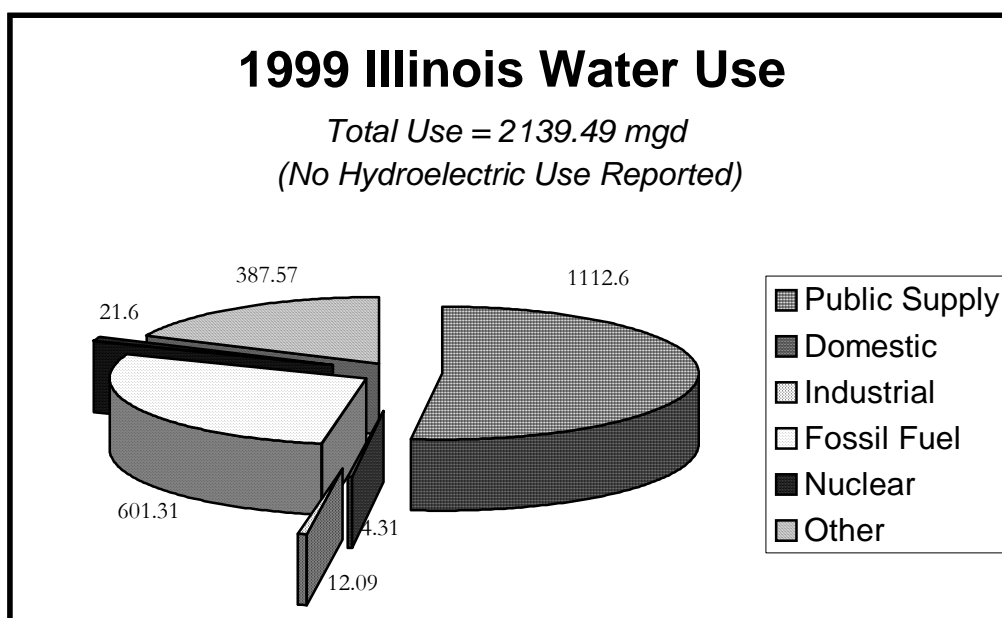
***Quebec***

***Wisconsin***

## Illinois

**Data Source:** Water use data for Illinois was provided by the Department of Natural Resources-Office of Water Resources, and the State Water Survey.

**Withdrawals:** Illinois' water withdrawals from Lake Michigan in 1999 totaled 2139.5 mgd--very similar to 1998 at 2327 mgd. Usage in all water use categories in 1999 was comparable to usage in 1998.



**Consumptive Use:** As in 1998, there was no consumptive value reported in any water use category.

**Diversions:** Total diversions from the Lake Michigan Basin in 1999 were 1507.5 mgd, a slight decrease from the 1998 figure of 1562.8 mgd. Public water supply accounted for about 74% of these diversions. All diversions for Illinois are outgoing interbasin diversions—water transferred from the Chicago River in the Great Lakes Basin to the Illinois River in the Mississippi River Basin.

**Data Quality:** Illinois' withdrawal data for this report were 100% measured; the level of aggregation was 100% site-specific.



# JURISDICTION REPORT- Illinois

Withdrawals by Source

Units: ML/d

Year Of Data: 1999

Basin	Category	All Facilities			Principal Facilities		
		GLSW	OSW	GW	GLSW	OSW	GW
Lake Michigan	Public Supply	4211.63	0.00	0.00	4211.63	0.00	0.00
	Domestic Supply	0.00	0.00	16.33	0.00	0.00	16.33
	Irrigation	0.00	0.00	0.00	0.00	0.00	0.00
	Livestock	0.00	0.00	0.00	0.00	0.00	0.00
	Industrial	45.78	0.00	0.00	45.78	0.00	0.00
	Fossil Fuel Power	2276.21	0.00	0.00	2276.21	0.00	0.00
	Nuclear Power	81.76	0.00	0.00	81.76	0.00	0.00
	Hydroelectric Power	0.00	0.00	0.00	0.00	0.00	0.00
	Other	1467.12	0.00	0.00	1467.12	0.00	0.00
	<b>Total:</b>	<b>8082.50</b>	<b>0.00</b>	<b>16.33</b>	<b>8082.50</b>	<b>0.00</b>	<b>16.33</b>
<b>Grand Total:</b>		<b>8082.50</b>	<b>0.00</b>	<b>16.33</b>	<b>8082.50</b>	<b>0.00</b>	<b>16.33</b>

# JURISDICTION REPORT- Illinois

Units: ML/d

Withdrawals, Diversions and Consumptive Use

Year Of Data: 1999

Basin	Category	All Facilities			Principal Facilities		
		Withdrawals	Diversions	Consumption	Withdrawals	Diversions	Consumption
<b>Lake Michigan</b>							
	Public Supply	4211.63	4211.63	0.00	4211.63	4211.63	0.00
	Domestic Supply	16.33	0.00	0.00	16.33	0.00	0.00
	Irrigation	0.00	0.00	0.00	0.00	0.00	0.00
	Livestock	0.00	0.00	0.00	0.00	0.00	0.00
	Industrial	45.78	11.40	0.00	45.78	11.40	0.00
	Fossil Fuel Power	2276.21	0.00	0.00	2276.21	0.00	0.00
	Nuclear Power	81.76	0.00	0.00	81.76	0.00	0.00
	Hydroelectric Power	0.00	0.00	0.00	0.00	0.00	0.00
	Other	1467.12	1467.12	0.00	1467.12	1467.12	0.00
	<b>Total:</b>	<b>8098.83</b>	<b>5690.15</b>	<b>0.00</b>	<b>8098.83</b>	<b>5690.15</b>	<b>0.00</b>
<b>Grand Total:</b>		<b>8098.83</b>	<b>5690.15</b>	<b>0.00</b>	<b>8098.83</b>	<b>5690.15</b>	<b>0.00</b>

# JURISDICTION REPORT- Illinois

Jurisdiction Totals

Units: ML/d

Year Of Data: 1999

## Total Report - All Facilities

Category	Withdrawals	Diversions	Consumption	GLSW	OSW	GW	Intrabasin	Interbasin
Public Supply	4211.63	4211.63	0.00	4211.63	0.00	0.00	0.00	4211.63
Domestic Supply	16.33	0.00	0.00	0.00	0.00	16.33	0.00	0.00
Irrigation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Livestock	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial	45.78	11.40	0.00	45.78	0.00	0.00	0.00	11.40
Fossil Fuel Power	2276.21	0.00	0.00	2276.21	0.00	0.00	0.00	0.00
Nuclear Power	81.76	0.00	0.00	81.76	0.00	0.00	0.00	0.00
Hydroelectric Power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	1467.12	1467.12	0.00	1467.12	0.00	0.00	0.00	1467.12

## Total Report - Principal Facilities

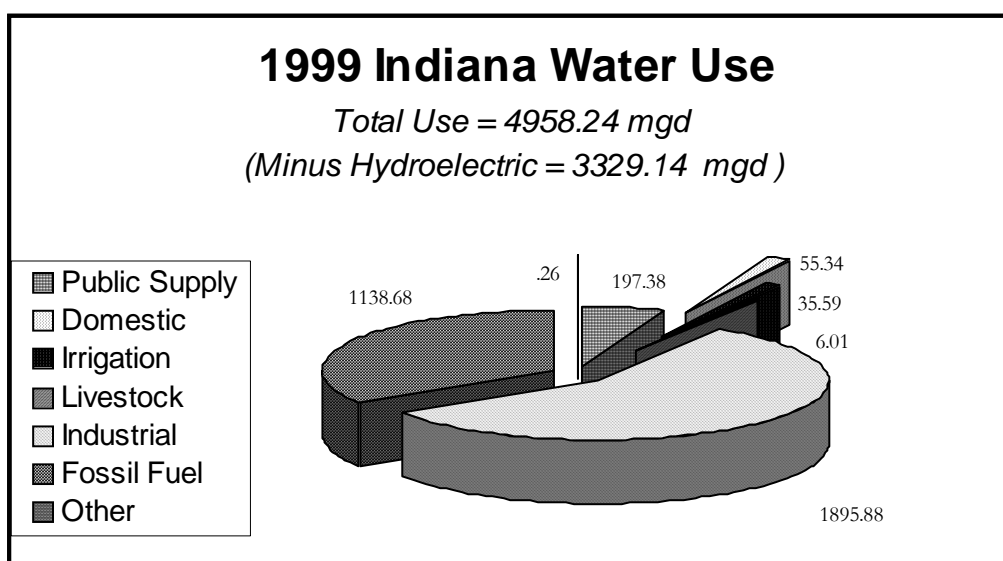
Category	Withdrawals	Diversions	Consumption	GLSW	OSW	GW	Intrabasin	Interbasin
Public Supply	4211.63	4211.63	0.00	4211.63	0.00	0.00	0.00	4211.63
Domestic Supply	16.33	0.00	0.00	0.00	0.00	16.33	0.00	0.00
Irrigation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Livestock	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial	45.78	11.40	0.00	45.78	0.00	0.00	0.00	11.40
Fossil Fuel Power	2276.21	0.00	0.00	2276.21	0.00	0.00	0.00	0.00
Nuclear Power	81.76	0.00	0.00	81.76	0.00	0.00	0.00	0.00
Hydroelectric Power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	1467.12	1467.12	0.00	1467.12	0.00	0.00	0.00	1467.12

## Indiana

**Data Source:** The Indiana Department of Natural Resources—Division of Water compiled the 1999 data for the Regional Water Use Database for the Lake Erie and Lake Michigan Basins.

The Indiana Business Research Center at Indiana University provides population estimates for counties used in calculating self-supply domestic withdrawals. The Indiana Agricultural Statistics service at Purdue University provides livestock estimates by county. The local office of USGS Water Resources Division provides estimates of percent of population by county on domestic wells. Hydroelectric data are from 1997.

**Withdrawals:** In 1999, total withdrawals were 4.9 bgd, down from the 1998 amount by .5 bgd. More than 98% of the water withdrawn was from Lake Michigan. Hydroelectric use was responsible for one third of Indiana's Lake Michigan withdrawals, with two plants on the St. Joseph River accounting for more than 95% of hydroelectric use. The primary purpose of Lake Erie withdrawals was public supply, which accounted for more than 69% of withdrawals in this Basin.



**Consumptive Use:** The total consumptive use of water in Indiana's portion of the Great Lakes Basin was 211.3 mgd, reflecting an annual trend showing an increase from the previous year (196.4 mgd in 1998 and 181 mgd in 1993). Industrial uses, as calculated, consume the most water in the Lake Michigan Basin (38% of total consumption), and in the Lake Erie Basin public supply accounts for just over 65% of all consumptive use (7 mgd of a total of 11.1 mgd).

**Diversions:** Diversions by public water suppliers into Lake Michigan from outside the Great Lakes Basin totaled 2.5 mgd.

### Data Quality

Indiana's withdrawal data for this report were 56.62% measured, 8.56% partially measured, and 34.82% calculated or estimated; the level of aggregation was 98.76% site-specific and 1.24% aggregated.

# JURISDICTION REPORT- Indiana

Withdrawals by Source

Units: ML/d

Year Of Data: 1999

Basin	Category	All Facilities			Principal Facilities		
		GLSW	OSW	GW	GLSW	OSW	GW
<b>Lake Michigan</b>							
	Public Supply	377.41	0.00	193.06	377.41	0.00	191.81
	Domestic Supply	0.00	82.11	104.67	0.00	82.11	24.68
	Irrigation	0.00	36.07	91.19	0.00	35.43	89.98
	Livestock	0.00	5.56	13.44	0.00	5.56	5.22
	Industrial	5570.39	1498.23	66.43	5570.39	1497.89	64.05
	Fossil Fuel Power	4309.35	0.00	0.00	4309.35	0.00	0.00
	Nuclear Power	0.00	0.00	0.00	0.00	0.00	0.00
	Hydroelectric Power	0.00	6166.81	0.00	0.00	6166.81	0.00
	Other	0.00	0.26	0.72	0.00	0.19	0.30
	<b>Total:</b>	<b>10257.14</b>	<b>7789.05</b>	<b>469.50</b>	<b>10257.14</b>	<b>7787.99</b>	<b>376.04</b>
<b>Lake Erie</b>							
	Public Supply	0.00	141.92	34.79	0.00	141.92	34.56
	Domestic Supply	0.00	0.00	22.71	0.00	0.00	1.48
	Irrigation	0.00	2.50	4.96	0.00	2.01	4.47
	Livestock	0.00	0.00	3.75	0.00	0.00	0.00
	Industrial	0.00	27.67	13.97	0.00	27.52	13.06
	Fossil Fuel Power	0.00	0.00	1.02	0.00	0.00	1.02
	Nuclear Power	0.00	0.00	0.00	0.00	0.00	0.00
	Hydroelectric Power	0.00	0.00	0.00	0.00	0.00	0.00
	Other	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Total:</b>	<b>0.00</b>	<b>172.08</b>	<b>81.20</b>	<b>0.00</b>	<b>171.44</b>	<b>54.59</b>

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<b>Basin</b>	<b>Category</b>	<b>All Facilities</b>			<b>Principal Facilities</b>		
		<b>GLSW</b>	<b>OSW</b>	<b>GW</b>	<b>GLSW</b>	<b>OSW</b>	<b>GW</b>
<b>Grand Total:</b>		10257.14	7961.14	550.70	10257.14	7959.43	430.63

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# JURISDICTION REPORT- Indiana

Units: ML/d  
 Withdrawals, Diversions and Consumptive Use Year Of Data: 1999

Basin	Category	All Facilities			Principal Facilities		
		Withdrawals	Diversions	Consumption	Withdrawals	Diversions	Consumption
<b>Lake Michigan</b>							
	Public Supply	570.46	-9.31	85.55	569.21	0.00	85.36
	Domestic Supply	186.77	0.00	28.01	106.79	0.00	16.01
	Irrigation	127.27	0.00	114.58	125.41	0.00	113.26
	Livestock	19.00	0.00	15.22	10.79	0.00	8.67
	Industrial	7135.05	0.00	428.09	7132.32	0.00	427.94
	Fossil Fuel Power	4309.35	0.00	86.19	4309.35	0.00	86.19
	Nuclear Power	0.00	0.00	0.00	0.00	0.00	0.00
	Hydroelectric Power	6166.81	0.00	0.00	6166.81	0.00	0.00
	Other	0.98	0.00	0.11	0.49	0.00	0.08
	<b>Total:</b>	<b>18515.70</b>	<b>-9.31</b>	<b>757.76</b>	<b>18421.18</b>	<b>0.00</b>	<b>737.51</b>
<b>Lake Erie</b>							
	Public Supply	176.70	0.00	26.50	176.48	0.00	26.46
	Domestic Supply	22.71	0.00	3.41	1.48	0.00	0.23
	Irrigation	7.46	0.00	6.74	6.47	0.00	5.87
	Livestock	3.75	0.00	2.99	0.00	0.00	0.00
	Industrial	41.64	0.00	2.50	40.58	0.00	2.46
	Fossil Fuel Power	1.02	0.00	0.04	1.02	0.00	0.04
	Nuclear Power	0.00	0.00	0.00	0.00	0.00	0.00
	Hydroelectric Power	0.00	0.00	0.00	0.00	0.00	0.00
	Other	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Total:</b>	<b>253.28</b>	<b>0.00</b>	<b>42.17</b>	<b>226.03</b>	<b>0.00</b>	<b>35.05</b>
<b>Grand Total:</b>		<b>18768.98</b>	<b>-9.31</b>	<b>799.93</b>	<b>18647.20</b>	<b>0.00</b>	<b>772.56</b>

# JURISDICTION REPORT- Indiana

Jurisdiction Totals

Units: ML/d

Year Of Data: 1999

## Total Report - All Facilities

Category	Withdrawals	Diversions	Consumption	GLSW	OSW	GW	Intrabasin	Interbasin
Public Supply	747.16	-9.31	112.05	377.41	141.92	227.84	0.00	-9.31
Domestic Supply	209.48	0.00	31.42	0.00	82.11	127.38	0.00	0.00
Irrigation	134.72	0.00	121.32	0.00	38.57	96.15	0.00	0.00
Livestock	22.75	0.00	18.21	0.00	5.56	17.19	0.00	0.00
Industrial	7176.69	0.00	430.59	5570.39	1525.90	80.40	0.00	0.00
Fossil Fuel Power	4310.37	0.00	86.23	4309.35	0.00	1.02	0.00	0.00
Nuclear Power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydroelectric Power	6166.81	0.00	0.00	0.00	6166.81	0.00	0.00	0.00
Other	0.98	0.00	0.11	0.00	0.26	0.72	0.00	0.00

## Total Report - Principal Facilities

Category	Withdrawals	Diversions	Consumption	GLSW	OSW	GW	Intrabasin	Interbasin
Public Supply	745.69	0.00	111.82	377.41	141.92	226.37	0.00	0.00
Domestic Supply	108.26	0.00	16.24	0.00	82.11	26.16	0.00	0.00
Irrigation	131.88	0.00	119.13	0.00	37.44	94.45	0.00	0.00
Livestock	10.79	0.00	8.67	0.00	5.56	5.22	0.00	0.00
Industrial	7172.90	0.00	430.40	5570.39	1525.41	77.11	0.00	0.00
Fossil Fuel Power	4310.37	0.00	86.23	4309.35	0.00	1.02	0.00	0.00
Nuclear Power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydroelectric Power	6166.81	0.00	0.00	0.00	6166.81	0.00	0.00	0.00
Other	0.49	0.00	0.08	0.00	0.19	0.30	0.00	0.00

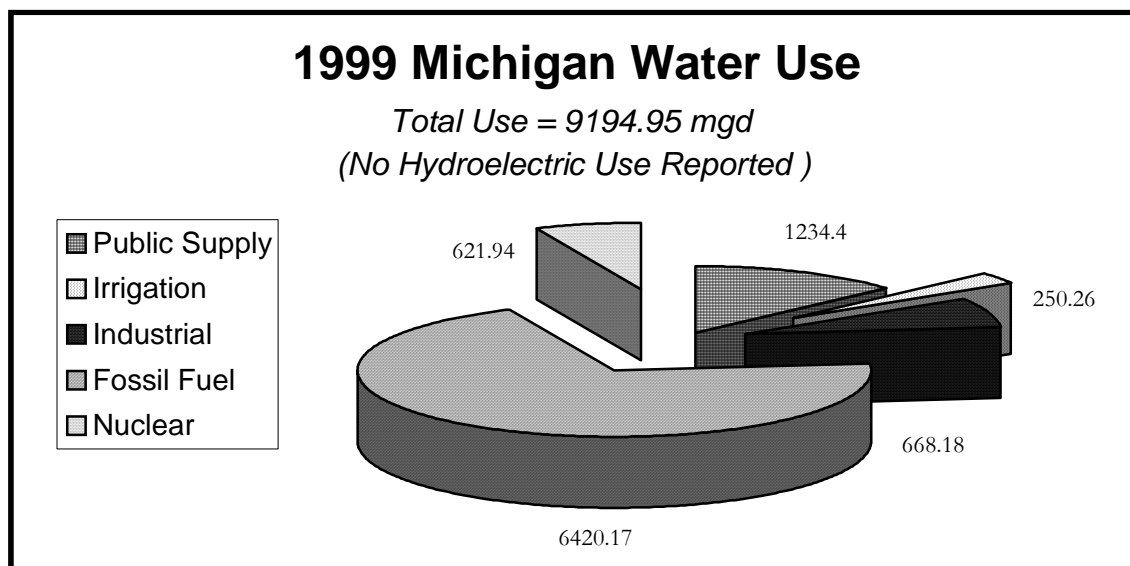


## Michigan

**Data Source:** The 1999 water use data for Michigan was submitted to the Regional Water Use Database by the Michigan Department of Environmental Quality (DEQ). All data are reported to the Michigan DEQ by the facilities within each category except irrigation, which is divided into agricultural and nonagricultural (golf course, park, etc.) irrigation. Agricultural irrigation is estimated using federal Agricultural Census data and a water use estimation model developed for Michigan. Nonagricultural irrigation facilities report directly to the DEQ.

The absence of water use data for principal facilities in 1999 is due to system limitations, the large number of reporting facilities, and lack of staff resources. Most of the data are available within the state database, and staff expects to provide breakdowns by principal facilities in subsequent years.

**Withdrawals:** Reported water withdrawals for the Lake Superior, Lake Michigan, Lake Huron, and Lake Erie Basins of Michigan were approximately 9.2 bgd, an increase of 4% from 1998. Resumption of operation of the Cook Nuclear Power Plant was responsible for an increase in withdrawals from Lake Michigan (2206.8 mgd in 1998 to 2560.6 mgd in 1999). Withdrawals from the Lake Erie Basin accounted for about 56% of Michigan withdrawals. Thermoelectric uses for fossil fuel plants, at 70%, was the single largest withdrawal category.



**Consumptive Use:** Consumptive uses in the Michigan Great Lakes Basin were calculated to be approximately 535 mgd; irrigation was the largest single consumptive use, accounting for more than 42% of the total.

**Diversions:** Not able to report.

### Data Quality

Michigan's withdrawal data for this report were 90.01% measured, 7.27% partially measured, and 2.72% calculated or estimated; the level of aggregation was 100% site-specific.

# JURISDICTION REPORT- Michigan

Withdrawals by Source

Units: ML/d

Year Of Data: 1999

Basin	Category	All Facilities			Principal Facilities		
		GLSW	OSW	GW	GLSW	OSW	GW
Lake Superior	Public Supply	15.75	0.00	33.92			
	Domestic Supply						
	Irrigation	0.04	0.61	0.64			
	Livestock						
	Industrial	85.29	0.00	1.17			
	Fossil Fuel Power	1004.53	0.00	0.00			
	Nuclear Power	0.00	0.00	0.00			
	Hydroelectric Power	0.00	0.00	0.00			
	Other						
	<b>Total:</b>	<b>1105.61</b>	<b>0.61</b>	<b>35.73</b>			
Lake Michigan	Public Supply	510.50	10.41	674.41			
	Domestic Supply						
	Irrigation	7.23	231.36	501.95			
	Livestock						
	Industrial	520.68	318.16	331.11			
	Fossil Fuel Power	3596.18	809.21	7.57			
	Nuclear Power	2174.08	0.00	0.00			
	Hydroelectric Power	0.00	0.00	0.00			
	Other						
	<b>Total:</b>	<b>6808.67</b>	<b>1369.15</b>	<b>1515.04</b>			

Basin	Category	All Facilities			Principal Facilities		
		GLSW	OSW	GW	GLSW	OSW	GW
Lake Huron	Public Supply	898.69	4.73	121.06			
	Domestic Supply						
	Irrigation	13.78	39.03	57.08			
	Livestock						
	Industrial	61.36	58.37	6.40			
	Fossil Fuel Power	2985.33	0.00	3.44			
	Nuclear Power	0.00	0.00	0.00			
	Hydroelectric Power	0.00	0.00	0.00			
	Other						
	<b>Total:</b>	<b>3959.16</b>	<b>102.13</b>	<b>187.98</b>			
Lake Erie	Public Supply	2174.19	69.77	159.29			
	Domestic Supply						
	Irrigation	1.97	55.42	38.23			
	Livestock						
	Industrial	1059.20	26.95	60.64			
	Fossil Fuel Power	15896.46	0.00	0.26			
	Nuclear Power	180.22	0.00	0.00			
	Hydroelectric Power	0.00	0.00	0.00			
	Other						
	<b>Total:</b>	<b>19312.04</b>	<b>152.14</b>	<b>258.43</b>			
<b>Grand Total:</b>	<b>31185.47</b>	<b>1624.02</b>	<b>1997.18</b>				

# JURISDICTION REPORT- Michigan

Units: ML/d

Withdrawals, Diversions and Consumptive Use

Year Of Data: 1999

Basin	Category	All Facilities			Principal Facilities		
		Withdrawals	Diversions	Consumption	Withdrawals	Diversions	Consumption
<b>Lake Superior</b>							
	Public Supply	49.66	0.00	6.21			
	Domestic Supply						
	Irrigation	1.29		1.14			
	Livestock						
	Industrial	86.46	0.00	8.63			
	Fossil Fuel Power	1004.53	0.00	12.04			
	Nuclear Power	0.00	0.00	0.00			
	Hydroelectric Power	0.00	0.00	0.00			
	Other						
	<b>Total:</b>	<b>1141.95</b>	<b>0.00</b>	<b>28.01</b>			
<b>Lake Michigan</b>							
	Public Supply	1195.32		149.41			
	Domestic Supply						
	Irrigation	740.54		666.50			
	Livestock						
	Industrial	1169.96		117.04			
	Fossil Fuel Power	4412.96		52.96			
	Nuclear Power	2174.08	0.00	41.30			
	Hydroelectric Power	0.00	0.00	0.00			
	Other						
	<b>Total:</b>	<b>9692.85</b>	<b>0.00</b>	<b>1027.21</b>			

Basin	Category	All Facilities			Principal Facilities		
		Withdrawals	Diversions	Consumption	Withdrawals	Diversions	Consumption
<b>Lake Huron</b>							
	Public Supply	1024.48		128.10			
	Domestic Supply						
	Irrigation	109.89		98.91			
	Livestock						
	Industrial	126.13		12.61			
	Fossil Fuel Power	2988.77	0.00	35.85			
	Nuclear Power	0.00	0.00	0.00			
	Hydroelectric Power	0.00	0.00	0.00			
	Other						
	<b>Total:</b>	<b>4249.28</b>	<b>0.00</b>	<b>275.46</b>			
<b>Lake Erie</b>							
	Public Supply	2403.24		300.41			
	Domestic Supply						
	Irrigation	95.62		86.08			
	Livestock						
	Industrial	1146.79		114.66			
	Fossil Fuel Power	15896.72	0.00	190.75			
	Nuclear Power	180.22	0.00	3.41			
	Hydroelectric Power	0.00	0.00	0.00			
	Other						
	<b>Total:</b>	<b>19722.60</b>	<b>0.00</b>	<b>695.30</b>			
<b>Grand Total:</b>		<b>34806.67</b>	<b>0.00</b>	<b>2025.99</b>			

# JURISDICTION REPORT- Michigan

Jurisdiction Totals

Units: ML/d

Year Of Data: 1999

## Total Report - All Facilities

Category	Withdrawals	Diversions	Consumption	GLSW	OSW	GW	Intrabasin	Interbasin
Public Supply	4672.71	0.00	584.13	3599.13	84.91	988.67	0.00	0.00
Domestic Supply								
Irrigation	947.34		852.63	23.02	326.42	597.91		0.00
Livestock								
Industrial	2529.34	0.00	252.94	1726.53	403.49	399.32	0.00	0.00
Fossil Fuel Power	24302.99	0.00	291.59	23482.50	809.21	11.28	0.00	0.00
Nuclear Power	2354.30	0.00	44.71	2354.30	0.00	0.00	0.00	0.00
Hydroelectric Power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other								

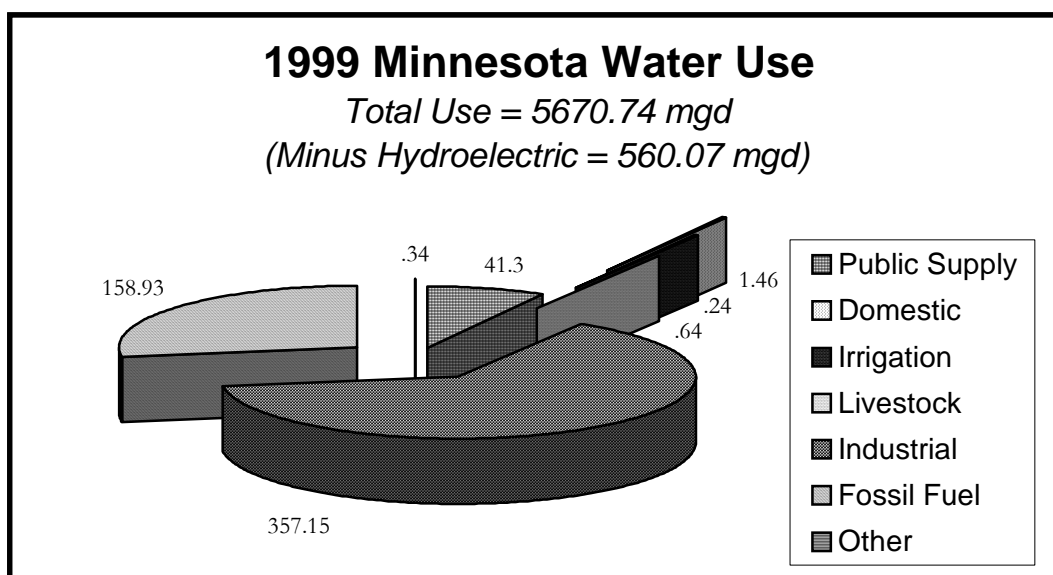
## Total Report - Principal Facilities

Category	Withdrawals	Diversions	Consumption	GLSW	OSW	GW	Intrabasin	Interbasin
Public Supply								
Domestic Supply								
Irrigation								
Livestock								
Industrial								
Fossil Fuel Power								
Nuclear Power								
Hydroelectric Power								
Other								

## Minnesota

**Data Source:** The Minnesota Department of Natural Resources, Division of Waters provides the data on the Lake Superior Basin to the Regional Water Use Database.

**Withdrawals:** Withdrawals from the Lake Superior Basin in 1999 were 5670 mgd, showing an increase from 4716 mgd in 1998. A significant increase in hydroelectric power use occurred between 1998 and 1999 (4158 to 5110.7 mgd) due to increased river flow and a resulting higher capacity usage in the St. Louis River. Hydroelectric water use accounts for over 90% of Minnesota's total water uses. Of the remainder, industrial uses account for more than half.



**Consumptive Use:** Industrial consumptive uses were calculated to be 35.7 mgd, or 10% of industrial withdrawals. Public supply, the second largest consumptive use, was calculated to be 10% of public supply withdrawals, or 4.1 mgd.

**Diversions:** NA

### Data Quality

Minnesota's withdrawal data for this report were 100% measured; the level of aggregation was 100% site-specific.

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# JURISDICTION REPORT- Minnesota

Withdrawals by Source

Units: ML/d

Year Of Data: 1999

Basin	Category	All Facilities			Principal Facilities		
		GLSW	OSW	GW	GLSW	OSW	GW
<b>Lake Superior</b>							
	Public Supply	126.72	11.45	18.15	126.57	11.33	16.56
	Domestic Supply	4.75	0.77	0.02	4.67	0.67	0.00
	Irrigation	0.07	0.79	0.03	0.00	0.46	0.00
	Livestock	2.44	0.00	0.00	2.44	0.00	0.00
	Industrial	993.96	356.77	1.25	993.95	355.49	0.00
	Fossil Fuel Power	2.49	598.64	0.50	2.49	598.44	0.41
	Nuclear Power	0.00	0.00	0.00	0.00	0.00	0.00
	Hydroelectric Power	0.00	19346.00	0.00	0.00	19346.00	0.00
	Other	0.00	0.73	0.54	0.00	0.70	0.46
	<b>Total:</b>	<b>1130.43</b>	<b>20315.16</b>	<b>20.49</b>	<b>1130.12</b>	<b>20313.09</b>	<b>17.43</b>
<b>Grand Total:</b>		<b>1130.43</b>	<b>20315.16</b>	<b>20.49</b>	<b>1130.12</b>	<b>20313.09</b>	<b>17.43</b>



# JURISDICTION REPORT- Minnesota

Units: ML/d  
 Withdrawals, Diversions and Consumptive Use Year Of Data: 1999

Basin	Category	All Facilities			Principal Facilities		
		Withdrawals	Diversions	Consumption	Withdrawals	Diversions	Consumption
<b>Lake Superior</b>							
	Public Supply	156.33	0.00	15.63	154.46	0.00	15.44
	Domestic Supply	5.54	0.00	0.57	5.34	0.00	0.53
	Irrigation	0.90	0.00	0.82	0.46	0.00	0.42
	Livestock	2.44	0.00	2.20	2.44	0.00	2.20
	Industrial	1351.98	0.00	135.21	1349.44	0.00	134.95
	Fossil Fuel Power	601.63	0.00	12.03	601.34	0.00	12.02
	Nuclear Power	0.00	0.00	0.00	0.00	0.00	0.00
	Hydroelectric Power	19346.00	0.00	0.00	19346.00	0.00	0.00
	Other	1.27	0.00	0.00	1.16	0.00	0.00
	<b>Total:</b>	<b>21466.08</b>	<b>0.00</b>	<b>166.47</b>	<b>21460.64</b>	<b>0.00</b>	<b>165.55</b>
<b>Grand Total:</b>		<b>21466.08</b>	<b>0.00</b>	<b>166.47</b>	<b>21460.64</b>	<b>0.00</b>	<b>165.55</b>

# JURISDICTION REPORT- Minnesota

Jurisdiction Totals

Units: ML/d

Year Of Data: 1999

## Total Report - All Facilities

Category	Withdrawals	Diversions	Consumption	GLSW	OSW	GW	Intrabasin	Interbasin
Public Supply	156.33	0.00	15.63	126.72	11.45	18.15	0.00	0.00
Domestic Supply	5.54	0.00	0.57	4.75	0.77	0.02	0.00	0.00
Irrigation	0.90	0.00	0.82	0.07	0.79	0.03	0.00	0.00
Livestock	2.44	0.00	2.20	2.44	0.00	0.00	0.00	0.00
Industrial	1351.98	0.00	135.21	993.96	356.77	1.25	0.00	0.00
Fossil Fuel Power	601.63	0.00	12.03	2.49	598.64	0.50	0.00	0.00
Nuclear Power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydroelectric Power	19346.00	0.00	0.00	0.00	19346.00	0.00	0.00	0.00
Other	1.27	0.00	0.00	0.00	0.73	0.54	0.00	0.00

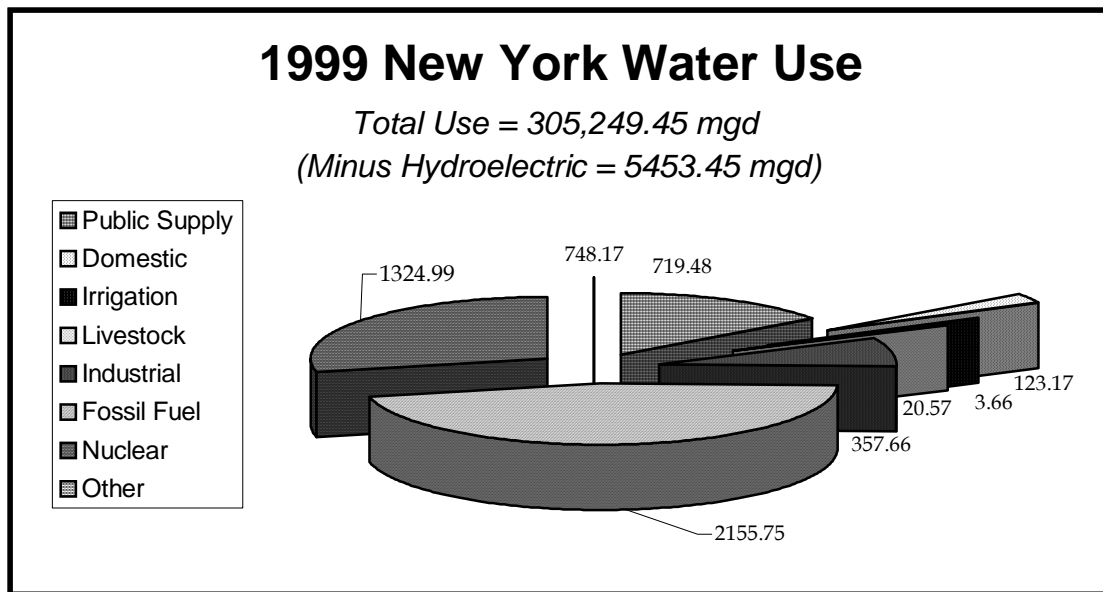
## Total Report - Principal Facilities

Category	Withdrawals	Diversions	Consumption	GLSW	OSW	GW	Intrabasin	Interbasin
Public Supply	154.46	0.00	15.44	126.57	11.33	16.56	0.00	0.00
Domestic Supply	5.34	0.00	0.53	4.67	0.67	0.00	0.00	0.00
Irrigation	0.46	0.00	0.42	0.00	0.46	0.00	0.00	0.00
Livestock	2.44	0.00	2.20	2.44	0.00	0.00	0.00	0.00
Industrial	1349.44	0.00	134.95	993.95	355.49	0.00	0.00	0.00
Fossil Fuel Power	601.34	0.00	12.02	2.49	598.44	0.41	0.00	0.00
Nuclear Power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydroelectric Power	19346.00	0.00	0.00	0.00	19346.00	0.00	0.00	0.00
Other	1.16	0.00	0.00	0.00	0.70	0.46	0.00	0.00

## New York

**Data Source:** Water use data collection in New York is performed by the Department of Environmental Conservation (DEC), the Department of Health, and the U.S. Geological Survey.

**Withdrawals:** In 1999, withdrawals from the Great Lakes totaled 305.2 bgd, a decrease from 333.4 bgd in 1998. Excluding hydroelectric uses, the total was 5.4 bgd compared to 4.7 bgd in 1998. St. Lawrence River uses accounted for 57% of the total New York water uses (176 bgd); Lakes Ontario and Erie uses were 84.6 bgd and 44.9 bgd respectively. Hydroelectric power is by far the largest utilization of water in New York State at 299.8 bgd, down from 328.7 bgd in 1998.



**Consumptive Use:** New York reported total consumptive uses of 346.5 mgd. Consumptive uses were calculated to be 117.5 mgd from Lake Erie, 213.8 mgd from Lake Ontario, and 15.2 mgd from the St. Lawrence River. The largest categories of consumptive use were industrial (89.4 mgd) and public water supply (81.2 mgd).

**Diversions:** Two historical diversions, the Forestport/Black River Canal interbasin diversion and the New York State Barge Canal intrabasin diversion are included in the 1999 report and account for an increase of 1.5% in public supply and 617% in the Other category for Lake Ontario.

**Data Quality:** New York's withdrawal data for this report were 39.38% measured and 60.62% calculated or estimated; the level of aggregation was 39.38% site-specific and 60.62% aggregated.

# JURISDICTION REPORT- New York

Withdrawals by Source

Units: ML/d

Year Of Data: 1999

Basin	Category	All Facilities			Principal Facilities		
		GLSW	OSW	GW	GLSW	OSW	GW
<b>Lake Erie</b>							
	Public Supply	698.71	273.00	28.20			
	Domestic Supply	46.67	0.00	40.16			
	Irrigation	0.00	0.11	0.00	0.00	0.11	0.00
	Livestock	5.83	0.00	10.45			
	Industrial	953.55	3.67	0.83	953.55	3.67	0.83
	Fossil Fuel Power	4087.72	0.00	0.00	4087.72	0.00	0.00
	Nuclear Power	0.00	0.00	0.00	0.00	0.00	0.00
	Hydroelectric Power	164169.53	0.00	0.00	164169.53	0.00	0.00
	Other	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Total:</b>	<b>169962.01</b>	<b>276.79</b>	<b>79.65</b>	<b>169210.79</b>	<b>3.79</b>	<b>0.83</b>
<b>Lake Ontario</b>							
	Public Supply	721.95	693.60	144.49			
	Domestic Supply	79.87	87.33	154.41	0.00	87.33	0.00
	Irrigation	0.00	13.51	0.23	0.00	13.51	0.23
	Livestock	14.88	0.00	27.48			
	Industrial	141.46	148.58	32.33	141.46	148.58	32.33
	Fossil Fuel Power	2249.41	1822.83	0.00	2249.41	1822.83	0.00
	Nuclear Power	5015.63	0.00	0.00	5015.63	0.00	0.00
	Hydroelectric Power	0.00	306270.11	0.00	0.00	0.00	0.00
	Other	2691.43	140.25	0.45	2691.43	140.25	0.45
	<b>Total:</b>	<b>10914.63</b>	<b>309176.21</b>	<b>359.39</b>	<b>10097.93</b>	<b>2212.50</b>	<b>33.01</b>

<b>Basin</b>	<b>Category</b>	<b>All Facilities</b>			<b>Principal Facilities</b>		
		<b>GLSW</b>	<b>OSW</b>	<b>GW</b>	<b>GLSW</b>	<b>OSW</b>	<b>GW</b>
<b>St. Lawrence River</b>							
	Public Supply	10.71	132.19	20.67			
	Domestic Supply	9.65	2.27	45.88	0.00	2.27	0.00
	Irrigation	0.00	0.00	0.00	0.00	0.00	0.00
	Livestock	6.70	0.00	12.53			
	Industrial	28.88	34.98	9.61	28.88	34.98	9.61
	Fossil Fuel Power	0.45	0.00	0.00	0.45	0.00	0.00
	Nuclear Power	0.00	0.00	0.00	0.00	0.00	0.00
	Hydroelectric Power	290821.85	373589.88	0.00	290821.85	0.00	0.00
	Other	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Total:</b>	<b>290878.25</b>	<b>373759.32</b>	<b>88.69</b>	<b>290851.18</b>	<b>37.25</b>	<b>9.61</b>
<b>Grand Total:</b>		<b>471754.89</b>	<b>683212.32</b>	<b>527.72</b>	<b>470159.91</b>	<b>2253.53</b>	<b>43.46</b>

# JURISDICTION REPORT- New York

Units: ML/d  
 Withdrawals, Diversions and Consumptive Use Year Of Data: 1999

Basin	Category	All Facilities			Principal Facilities		
		Withdrawals	Diversions	Consumption	Withdrawals	Diversions	Consumption
<b>Lake Erie</b>							
	Public Supply	999.92	0.00	100.01		0.00	
	Domestic Supply	86.84	0.00	8.67		0.00	
	Irrigation	0.11	0.00	0.00	0.11	0.00	0.00
	Livestock	16.28	0.00	14.65		0.00	
	Industrial	958.05	0.00	239.54	958.05	0.00	239.54
	Fossil Fuel Power	4087.72	0.00	81.76	4087.72	0.00	81.76
	Nuclear Power	0.00	0.00	0.00	0.00	0.00	0.00
	Hydroelectric Power	164169.53	0.00	0.00	164169.53	0.00	0.00
	Other	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Total:</b>	<b>170318.44</b>	<b>0.00</b>	<b>444.63</b>	<b>169215.41</b>	<b>0.00</b>	<b>321.31</b>
<b>Lake Ontario</b>							
	Public Supply	1560.04	38.99	191.09		38.99	
	Domestic Supply	321.61	0.00	32.18	87.33	0.00	8.74
	Irrigation	13.74	0.00	12.19	13.74	0.00	12.19
	Livestock	42.36	0.00	38.12		0.00	
	Industrial	322.37	0.00	80.55	322.37	0.00	80.55
	Fossil Fuel Power	4072.23	0.00	81.46	4072.23	0.00	81.46
	Nuclear Power	5015.63	0.00	250.78	5015.63	0.00	250.78
	Hydroelectric Power	306270.11	0.00	0.00	0.00	0.00	0.00
	Other	2832.13	2812.56	123.10	2832.13	2812.56	123.10
	<b>Total:</b>	<b>320450.23</b>	<b>2851.55</b>	<b>809.47</b>	<b>12343.43</b>	<b>2851.55</b>	<b>556.83</b>

<b>Basin</b>	<b>Category</b>	<b>All Facilities</b>			<b>Principal Facilities</b>		
		<b>Withdrawals</b>	<b>Diversions</b>	<b>Consumption</b>	<b>Withdrawals</b>	<b>Diversions</b>	<b>Consumption</b>
<b>St. Lawrence River</b>							
	Public Supply	163.57	0.00	16.35		0.00	
	Domestic Supply	57.80	0.00	5.79	2.27	0.00	0.23
	Irrigation	0.00	0.00	0.00	0.00	0.00	0.00
	Livestock	19.23	0.00	17.30		0.00	
	Industrial	73.47	0.00	18.40	73.47	0.00	18.40
	Fossil Fuel Power	0.45	0.00	0.00	0.45	0.00	0.00
	Nuclear Power	0.00	0.00	0.00	0.00	0.00	0.00
	Hydroelectric Power	664411.73	0.00	0.00	290821.85	0.00	0.00
	Other	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Total:</b>	<b>664726.26</b>	<b>0.00</b>	<b>57.84</b>	<b>290898.05</b>	<b>0.00</b>	<b>18.62</b>
<b>Grand Total:</b>		<b>1155494.93</b>	<b>2851.55</b>	<b>1311.95</b>	<b>472456.89</b>	<b>2851.55</b>	<b>896.76</b>

# JURISDICTION REPORT- New York

Jurisdiction Totals

Units: ML/d

Year Of Data: 1999

## Total Report - All Facilities

Category	Withdrawals	Diversions	Consumption	GLSW	OSW	GW	Intrabasin	Interbasin
Public Supply	2723.53	38.99	307.45	1431.38	1098.79	193.36	0.00	38.99
Domestic Supply	466.25	0.00	46.64	136.20	89.60	240.45	0.00	0.00
Irrigation	13.85	0.00	12.19	0.00	13.63	0.23	0.00	0.00
Livestock	77.87	0.00	70.07	27.41	0.00	50.46	0.00	0.00
Industrial	1353.89	0.00	338.49	1123.89	187.23	42.78	0.00	0.00
Fossil Fuel Power	8160.40	0.00	163.23	6337.57	1822.83	0.00	0.00	0.00
Nuclear Power	5015.63	0.00	250.78	5015.63	0.00	0.00	0.00	0.00
Hydroelectric Power	1134851.38	0.00	0.00	454991.38	679860.00	0.00	0.00	0.00
Other	2832.13	2812.56	123.10	2691.43	140.25	0.45	2691.43	121.13

## Total Report - Principal Facilities

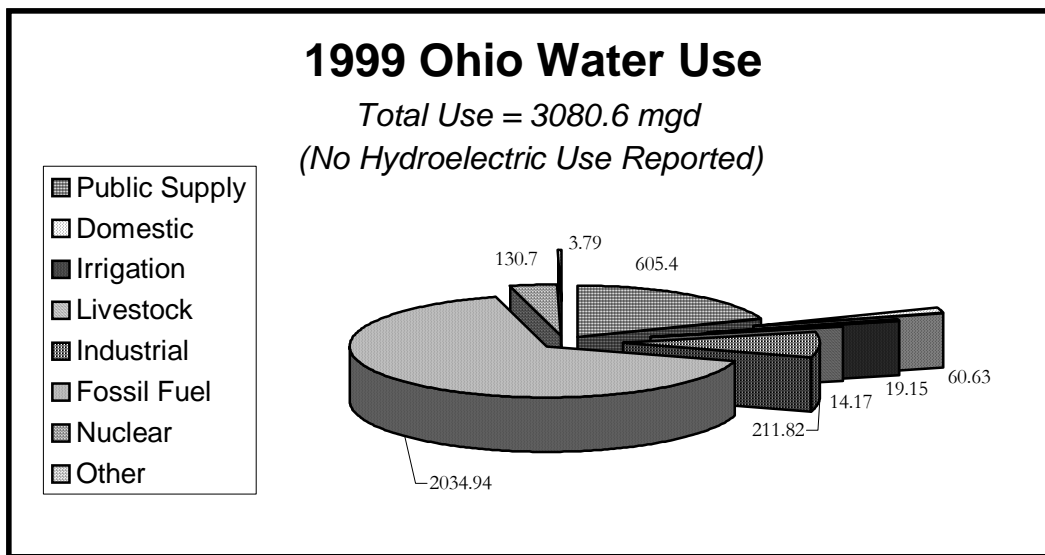
Category	Withdrawals	Diversions	Consumption	GLSW	OSW	GW	Intrabasin	Interbasin
Public Supply		38.99					0.00	38.99
Domestic Supply	89.60	0.00	8.97	0.00	89.60	0.00	0.00	0.00
Irrigation	13.85	0.00	12.19	0.00	13.63	0.23	0.00	0.00
Livestock		0.00					0.00	0.00
Industrial	1353.89	0.00	338.49	1123.89	187.23	42.78	0.00	0.00
Fossil Fuel Power	8160.40	0.00	163.23	6337.57	1822.83	0.00	0.00	0.00
Nuclear Power	5015.63	0.00	250.78	5015.63	0.00	0.00	0.00	0.00
Hydroelectric Power	454991.38	0.00	0.00	454991.38	0.00	0.00	0.00	0.00
Other	2832.13	2812.56	123.10	2691.43	140.25	0.45	2691.43	121.13



## Ohio

**Data Source:** Water use data for Ohio is collected by the Ohio Department of Natural Resources-Division of Water, the Ohio Environmental Protection Agency, and the U.S. Geological Survey.

**Withdrawals:** Total withdrawals from the Ohio Lake Erie Basin for 1999 were just over 3 bgd, exactly the same as in 1998. As in 1998, thermoelectric-fossil fuel plants and public supply were the two largest water use sectors; thermoelectric-fossil fuel uses accounted for 2034.9 mgd or 66% of withdrawals, and public supply uses accounted for 605.4 mgd or about 19%.



**Consumptive Use:** Total consumptive uses were calculated to be 190.7 mgd. Public supply represents the largest consumptive use sector at 90.8 mgd and accounts for over 47% of the total. The next two largest consumptive uses were from industrial facilities and thermoelectric-fossil fuel at 21.1 mgd and 20.3 respectively.

**Diversions:** Diversions by public water suppliers out of the Lake Erie basin totaled 0.3 mgd; diversions into the Lake Erie Basin totaled 10 mgd.

**Data Quality:** Ohio's withdrawal data for this report were 100% measured; the level of aggregation was 100% site-specific.

# JURISDICTION REPORT- Ohio

Withdrawals by Source

Units: ML/d

Year Of Data: 1999

Basin	Category	All Facilities			Principal Facilities		
		GLSW	OSW	GW	GLSW	OSW	GW
Lake Erie	Public Supply	1721.42	434.45	135.82	1720.92	434.04	122.99
	Domestic Supply	1.40	9.12	218.99	1.40	9.12	0.00
	Irrigation	1.32	57.16	14.01	0.00	41.19	6.06
	Livestock	0.00	11.32	42.32	0.00	3.18	0.00
	Industrial	229.17	454.82	117.84	229.17	452.21	115.87
	Fossil Fuel Power	7681.32	21.77	0.00	7681.32	21.77	0.00
	Nuclear Power	494.75	0.00	0.00	494.75	0.00	0.00
	Hydroelectric Power	0.00	0.00	0.00	0.00	0.00	0.00
	Other	0.45	13.55	0.34	0.45	13.21	0.00
	<b>Total:</b>	<b>10129.84</b>	<b>1002.19</b>	<b>529.31</b>	<b>10128.02</b>	<b>974.71</b>	<b>244.92</b>
<b>Grand Total:</b>		<b>10129.84</b>	<b>1002.19</b>	<b>529.31</b>	<b>10128.02</b>	<b>974.71</b>	<b>244.92</b>

# JURISDICTION REPORT- Ohio

Units: ML/d  
 Withdrawals, Diversions and Consumptive Use Year Of Data: 1999

Basin	Category	All Facilities			Principal Facilities		
		Withdrawals	Diversions	Consumption	Withdrawals	Diversions	Consumption
<b>Lake Erie</b>							
	Public Supply	2291.69	1.14	343.75	2277.95	1.14	341.67
	Domestic Supply	229.51	0.00	34.37	10.52	0.00	1.55
	Irrigation	72.49	0.00	65.22	47.24	0.00	42.51
	Livestock	53.64	0.00	47.13	3.18	0.00	2.88
	Industrial	801.83	0.00	80.18	797.25	0.00	79.72
	Fossil Fuel Power	7703.09	0.00	77.03	7703.09	0.00	77.03
	Nuclear Power	494.75	0.00	74.19	494.75	0.00	74.19
	Hydroelectric Power	0.00	0.00	0.00	0.00	0.00	0.00
	Other	14.35	-38.04	0.00	13.67	0.00	0.00
	<b>Total:</b>	<b>11661.34</b>	<b>-36.91</b>	<b>721.88</b>	<b>11347.64</b>	<b>1.14</b>	<b>619.56</b>
<b>Grand Total:</b>		<b>11661.34</b>	<b>-36.91</b>	<b>721.88</b>	<b>11347.64</b>	<b>1.14</b>	<b>619.56</b>

# JURISDICTION REPORT- Ohio

Jurisdiction Totals

Units: ML/d

Year Of Data: 1999

## Total Report - All Facilities

Category	Withdrawals	Diversions	Consumption	GLSW	OSW	GW	Intrabasin	Interbasin
Public Supply	2291.69	1.14	343.75	1721.42	434.45	135.82	0.00	1.14
Domestic Supply	229.51	0.00	34.37	1.40	9.12	218.99	0.00	0.00
Irrigation	72.49	0.00	65.22	1.32	57.16	14.01	0.00	0.00
Livestock	53.64	0.00	47.13	0.00	11.32	42.32	0.00	0.00
Industrial	801.83	0.00	80.18	229.17	454.82	117.84	0.00	0.00
Fossil Fuel Power	7703.09	0.00	77.03	7681.32	21.77	0.00	0.00	0.00
Nuclear Power	494.75	0.00	74.19	494.75	0.00	0.00	0.00	0.00
Hydroelectric Power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	14.35	-38.04	0.00	0.45	13.55	0.34	0.00	-38.04

## Total Report - Principal Facilities

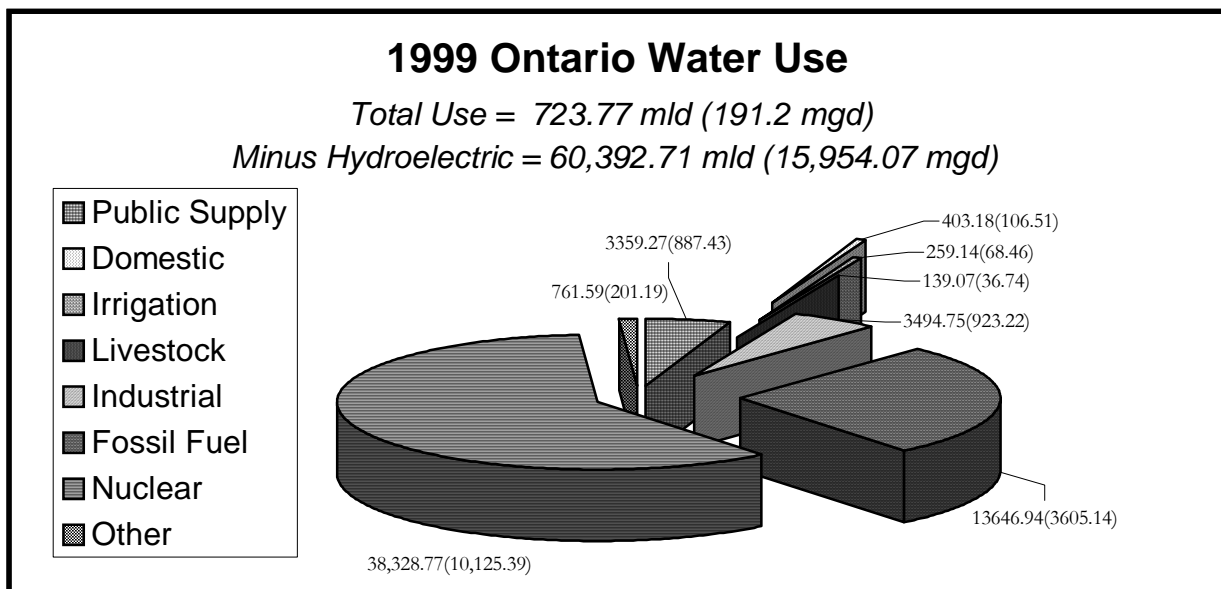
Category	Withdrawals	Diversions	Consumption	GLSW	OSW	GW	Intrabasin	Interbasin
Public Supply	2277.95	1.14	341.67	1720.92	434.04	122.99	0.00	1.14
Domestic Supply	10.52	0.00	1.55	1.40	9.12	0.00	0.00	0.00
Irrigation	47.24	0.00	42.51	0.00	41.19	6.06	0.00	0.00
Livestock	3.18	0.00	2.88	0.00	3.18	0.00	0.00	0.00
Industrial	797.25	0.00	79.72	229.17	452.21	115.87	0.00	0.00
Fossil Fuel Power	7703.09	0.00	77.03	7681.32	21.77	0.00	0.00	0.00
Nuclear Power	494.75	0.00	74.19	494.75	0.00	0.00	0.00	0.00
Hydroelectric Power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	13.67	0.00	0.00	0.45	13.21	0.00	0.00	0.00

## *Ontario*

**Data Source:** Water use data for Ontario was prepared by the Ontario Ministry of Natural Resources, Science and Information Branch. Data for the Public Supply sector were obtained from the Ministry of the Environment Interim Inspection System Reports. In past years, Environment Canada’s Municipal Water Use Database was used, but it is only available every two to three years. Between years estimations must be made, so this source was sought as an alternative. Domestic use figures were estimated with the use of Environment Canada’s municipal water use database and Statistics Canada Population Census data. *Agricultural Water Use 1996* and *Agricultural Water Use 2001* were the sources for Irrigation and Livestock data, while data for the Other category were taken from the National Canal Survey. Data for the power sector categories were obtained through contact with individual operators and generation companies. As no viable source of current data is available for Industrial water use, the reported Industrial data are from 1996. Environment Canada’s Industrial Water Use Survey has been discontinued. This water withdrawal report accounts for the majority of water use within Ontario, although data for a limited number of water users is not available and therefore this database does not represent all water use in the province.

**Withdrawals:** Total 1999 Great Lakes water uses for Ontario were approximately 723.8 bld, or 191.2 bgd. Of this, hydroelectric uses represented more than 93% of the total (663.3 bld, or 175.2 bgd). Of the remainder, thermoelectric—nuclear plant withdrawals were the second largest at 5% (38.3 bld, or 10.1 bgd).

The drop in Public Supply withdrawals (from 4971.6 mld in 1998 to 3359.3 mld in 1999) was due the change in data collection methods as mentioned above. The drop in Hydroelectric use (from 1,135,345 mld in 1998 to 663,376 mld in 1999) is believed to be attributable to overestimation in 1998 and the exclusion of water used by Hydro Quebec stations along the Ottawa River in 1999.



**Consumptive Use:** Total consumptive uses were calculated to be 1,565.69 mld (413.61 mgd). Public supply represents the largest consumptive use sector at 503.9 mld (133.1 mgd) and accounts for over 32% of the total. The next two largest consumptive uses were from Nuclear facilities and the Industrial use category, at 344.96 mld (91.13 mgd) and 220.15 mld (58.16 mgd) respectively.

**Diversions:** Ontario reported incoming interbasin diversions for Lake Superior and intrabasin diversions (incoming and outgoing) for Lakes Huron, Erie, and Ontario.

**Data Quality:** Ontario's withdrawal data for this report were 1.43% measured, 97.94% partially measured, and .63% calculated or estimated; the level of aggregation was 99.37% site-specific and .63% aggregated.

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# JURISDICTION REPORT- Ontario

Withdrawals by Source

Units: ML/d

Year Of Data: 1999

Basin	Category	All Facilities			Principal Facilities		
		GLSW	OSW	GW	GLSW	OSW	GW
<b>Lake Superior</b>							
	Public Supply	139.77	39.06	9.77	139.76	38.87	9.33
	Domestic Supply	0.00	0.00	6.52			
	Irrigation	0.07	1.06	0.16			
	Livestock	0.00	0.54	0.00			
	Industrial	613.69	0.00	0.01	0.00	0.00	0.00
	Fossil Fuel Power	1118.66	0.00	0.00			
	Nuclear Power	0.00	0.00	0.00			
	Hydroelectric Power	0.00	101128.85	0.00			
	Other						
	<b>Total:</b>	<b>1872.19</b>	<b>101169.51</b>	<b>16.46</b>	<b>139.76</b>	<b>38.87</b>	<b>9.33</b>
<b>Lake Huron</b>							
	Public Supply	192.23	92.80	94.60	189.76	91.08	86.83
	Domestic Supply	0.00	0.00	39.63			
	Irrigation	0.54	53.89	18.71			
	Livestock	10.65	11.18	23.32			
	Industrial	709.43	0.00	10.53	0.00	0.00	0.00
	Fossil Fuel Power	0.00	0.00	0.00			
	Nuclear Power	17780.82	0.00	0.00			
	Hydroelectric Power	75709.78	42101.63	0.00			
	Other	0.00	181.59	0.00	0.00	181.59	0.00
	<b>Total:</b>	<b>94403.45</b>	<b>42441.09</b>	<b>186.79</b>	<b>189.76</b>	<b>272.67</b>	<b>86.83</b>

Basin	Category	All Facilities			Principal Facilities		
		GLSW	OSW	GW	GLSW	OSW	GW
<b>Lake Erie</b>							
	Public Supply	33.06	123.27	192.45	33.06	123.22	187.08
	Domestic Supply	0.00	0.00	74.50	0.00	0.00	0.00
	Irrigation	2.10	43.12	68.19	0.00	0.00	0.00
	Livestock	0.08	3.38	46.76			
	Industrial	655.80	0.00	27.28	0.00	0.00	0.00
	Fossil Fuel Power	9835.61	0.00	0.00	9835.61	0.00	0.00
	Nuclear Power	0.00	0.00	0.00			
	Hydroelectric Power	0.00	0.00	0.00			
	Other						
	<b>Total:</b>	<b>10526.65</b>	<b>169.77</b>	<b>409.18</b>	<b>9868.67</b>	<b>123.22</b>	<b>187.08</b>
<b>Lake Ontario</b>							
	Public Supply	1873.23	232.67	50.77	1873.12	232.00	46.40
	Domestic Supply	0.00	0.00	239.74	0.00	0.00	0.00
	Irrigation	3.90	34.26	25.61			
	Livestock	0.00	3.58	17.00			
	Industrial	825.88	0.00	43.39	0.00	0.00	0.00
	Fossil Fuel Power	2692.67	0.00	0.00			
	Nuclear Power	20547.95	0.00	0.00			
	Hydroelectric Power	146218.18	26730.48	0.00			
	Other	0.00	503.00	0.00	0.00	503.00	0.00
	<b>Total:</b>	<b>172161.81</b>	<b>27503.99</b>	<b>376.52</b>	<b>1873.12</b>	<b>735.00</b>	<b>46.40</b>



<b>Basin</b>	<b>Category</b>	<b>All Facilities</b>			<b>Principal Facilities</b>		
		<b>GLSW</b>	<b>OSW</b>	<b>GW</b>	<b>GLSW</b>	<b>OSW</b>	<b>GW</b>
<b>St. Lawrence River</b>							
	Public Supply	41.01	229.80	14.79	40.68	229.10	11.76
	Domestic Supply	0.00	0.00	42.79	0.00	0.00	0.00
	Irrigation	0.03	6.55	0.96			
	Livestock	0.00	13.85	8.73			
	Industrial	604.75	0.00	3.99	0.00	0.00	0.00
	Fossil Fuel Power	0.00	0.00	0.00			
	Nuclear Power	0.00	0.00	0.00			
	Hydroelectric Power	271161.36	326.03	0.00			
	Other	0.00	77.00	0.00	0.00	77.00	0.00
	<b>Total:</b>	<b>271807.14</b>	<b>653.23</b>	<b>71.26</b>	<b>40.68</b>	<b>306.10</b>	<b>11.76</b>
<b>Grand Total:</b>		<b>550771.24</b>	<b>171937.57</b>	<b>1060.20</b>	<b>12111.99</b>	<b>1475.86</b>	<b>341.40</b>

# JURISDICTION REPORT- Ontario

Units: ML/d  
 Withdrawals, Diversions and Consumptive Use Year Of Data: 1999

Basin	Category	All Facilities			Principal Facilities		
		Withdrawals	Diversions	Consumption	Withdrawals	Diversions	Consumption
<b>Lake Superior</b>							
	Public Supply	188.60	0.00	28.30	187.96	0.00	28.19
	Domestic Supply	6.52	0.00	0.98			
	Irrigation	1.29		1.01			
	Livestock	0.54		0.43			
	Industrial	613.70	0.00	38.66	0.00	0.00	0.00
	Fossil Fuel Power	1118.66		10.07			
	Nuclear Power	0.00					
	Hydroelectric Power	101128.85					
	Other						
	<b>Total:</b>	<b>103058.16</b>	<b>0.00</b>	<b>79.44</b>	<b>187.96</b>	<b>0.00</b>	<b>28.19</b>
<b>Lake Huron</b>							
	Public Supply	379.62		56.94	367.67		55.14
	Domestic Supply	39.63	0.00	5.94			
	Irrigation	73.14		57.05			
	Livestock	45.15		36.12			
	Industrial	719.96	0.00	45.35	0.00	0.00	0.00
	Fossil Fuel Power	0.00					
	Nuclear Power	17780.82		160.03			
	Hydroelectric Power	117811.41					
	Other	181.59	181.59	0.00	181.59	181.59	0.00
	<b>Total:</b>	<b>137031.32</b>	<b>181.59</b>	<b>361.43</b>	<b>549.26</b>	<b>181.59</b>	<b>55.14</b>

Basin	Category	All Facilities			Principal Facilities		
		Withdrawals	Diversions	Consumption	Withdrawals	Diversions	Consumption
<b>Lake Erie</b>							
	Public Supply	348.78		52.32	343.36		51.50
	Domestic Supply	74.50	0.00	11.17	0.00	0.00	0.00
	Irrigation	113.41		88.46	0.00	0.00	0.00
	Livestock	50.22		40.17			
	Industrial	683.08	0.00	43.03	0.00	0.00	0.00
	Fossil Fuel Power	9835.61		88.52	9835.61		
	Nuclear Power	0.00					
	Hydroelectric Power	0.00					
	Other						
	<b>Total:</b>	<b>11105.60</b>	<b>0.00</b>	<b>323.67</b>	<b>10178.97</b>	<b>0.00</b>	<b>51.50</b>
<b>Lake Ontario</b>							
	Public Supply	2156.67		323.50	2151.53		322.73
	Domestic Supply	239.74	0.00	35.96	0.00	0.00	0.00
	Irrigation	63.77		49.74			
	Livestock	20.58		16.47			
	Industrial	869.27	0.00	54.76	0.00	0.00	0.00
	Fossil Fuel Power	2692.67		24.23			
	Nuclear Power	20547.95		184.93			
	Hydroelectric Power	172948.66					
	Other	503.00	-160439.91	0.00	503.00	-16043.91	0.00
	<b>Total:</b>	<b>200042.32</b>	<b>-160439.91</b>	<b>689.60</b>	<b>2654.53</b>	<b>-16043.91</b>	<b>322.73</b>

<b>Basin</b>	<b>Category</b>	<b>All Facilities</b>			<b>Principal Facilities</b>		
		<b>Withdrawals</b>	<b>Diversions</b>	<b>Consumption</b>	<b>Withdrawals</b>	<b>Diversions</b>	<b>Consumption</b>
<b>St. Lawrence River</b>							
	Public Supply	285.60		42.84	281.54		42.23
	Domestic Supply	42.79	0.00	6.42	0.00	0.00	0.00
	Irrigation	7.53		5.88			
	Livestock	22.58		18.06			
	Industrial	608.74	0.00	38.35	0.00	0.00	0.00
	Fossil Fuel Power	0.00					
	Nuclear Power	0.00					
	Hydroelectric Power	271487.39					
	Other	77.00	0.00	0.00	77.00	0.00	0.00
	<b>Total:</b>	<b>272531.63</b>	<b>0.00</b>	<b>111.55</b>	<b>358.54</b>	<b>0.00</b>	<b>42.23</b>
<b>Grand Total:</b>		<b>723769.02</b>	<b>-160258.32</b>	<b>1565.69</b>	<b>13929.25</b>	<b>-15862.32</b>	<b>499.79</b>

# JURISDICTION REPORT- Ontario

Jurisdiction Totals

Units: ML/d

Year Of Data: 1999

## Total Report - All Facilities

Category	Withdrawals	Diversions	Consumption	GLSW	OSW	GW	Intrabasin	Interbasin
Public Supply	3359.27	0.00	503.90	2279.29	717.60	362.38	0.00	0.00
Domestic Supply	403.18	0.00	60.47	0.00	0.00	403.18	0.00	0.00
Irrigation	259.14		202.13	6.64	138.87	113.63		
Livestock	139.07		111.26	10.73	32.52	95.82		
Industrial	3494.75	0.00	220.15	3409.55	0.00	85.20	0.00	0.00
Fossil Fuel Power	13646.94		122.82	13646.94	0.00	0.00		
Nuclear Power	38328.77		344.96	38328.77	0.00	0.00		
Hydroelectric Power	663376.31			493089.32	170286.99	0.00		16052.76
Other	761.59	-160258.32	0.00	0.00	761.59	0.00	-144159.41	0.00

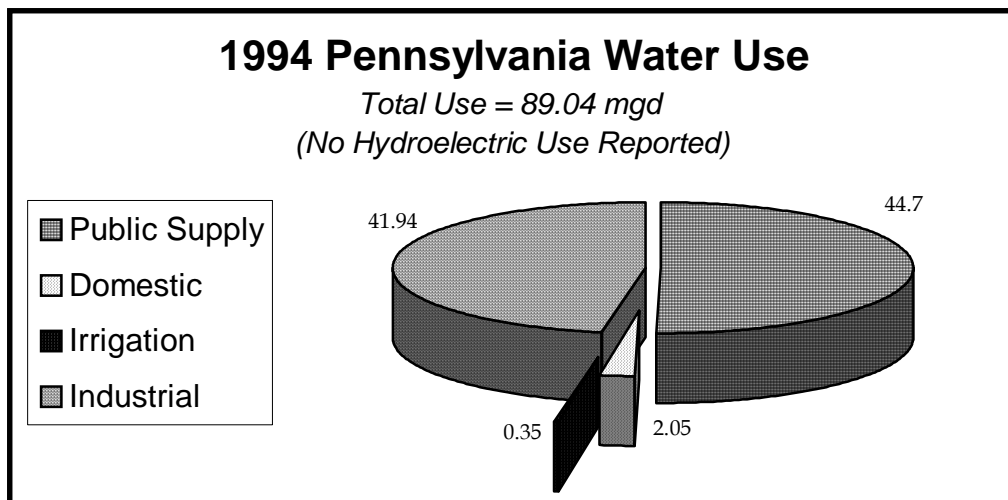
## Total Report - Principal Facilities

Category	Withdrawals	Diversions	Consumption	GLSW	OSW	GW	Intrabasin	Interbasin
Public Supply	3332.05	0.00	499.79	2276.38	714.27	341.40	0.00	0.00
Domestic Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Irrigation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Livestock								
Industrial	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fossil Fuel Power	9835.61			9835.61	0.00	0.00		
Nuclear Power								
Hydroelectric Power								
Other	761.59	-15862.32	0.00	0.00	761.59	0.00	236.59	0.00

## *Pennsylvania*

**Data Source:** Due to staffing and other programmatic constraints, this report utilizes 1994 data. The Department of Environmental Protection – Bureau of Water Supply and Community Health submitted water use data for the Lake Erie and Lake Ontario Basins of Pennsylvania.

**Withdrawals:** Total withdrawals from the two basins were 89 mgd, up from 86.3 mgd in 1993. Industrial uses, which account for more than 47% of withdrawals, increased from 39.6 mgd in 1993, to 41.9 mgd in 1994. Nearly 100% of withdrawals were from the Lake Erie Basin (88.8 mgd).



**Consumptive Use:** Consumptive use totaled 13.9 mgd, up from 13 mgd in 1993. The consumptive use from Lake Ontario was calculated to be .02 mgd, in comparison to a consumptive use of 13.9 mgd from the Lake Erie Basin.

**Diversions:** NA

**Data Quality:** Pennsylvania's withdrawal data for this report were 50.21% measured and 49.79% calculated or estimated; the level of aggregation was 97.7% site-specific and 2.3% aggregated.

# JURISDICTION REPORT- Pennsylvania

Withdrawals by Source

Units: ML/d

Year Of Data: 1999

Basin	Category	All Facilities			Principal Facilities		
		GLSW	OSW	GW	GLSW	OSW	GW
<b>Lake Erie</b>							
	Public Supply	154.44	6.71	7.72	154.44	6.58	5.71
	Domestic Supply	0.00	0.00	7.47	0.00	0.00	0.00
	Irrigation	0.00	1.09	0.23	0.00	1.01	0.23
	Livestock						
	Industrial	154.63	3.18	0.94	154.63	2.93	0.26
	Fossil Fuel Power	0.00	0.00	0.00	0.00	0.00	0.00
	Nuclear Power	0.00	0.00	0.00	0.00	0.00	0.00
	Hydroelectric Power	0.00	0.00	0.00	0.00	0.00	0.00
	Other						
	<b>Total:</b>	<b>309.08</b>	<b>10.98</b>	<b>16.37</b>	<b>309.08</b>	<b>10.52</b>	<b>6.20</b>
<b>Lake Ontario</b>							
	Public Supply	0.00	0.00	0.34	0.00	0.00	0.00
	Domestic Supply	0.00	0.00	0.28	0.00	0.00	0.00
	Irrigation	0.00	0.00	0.00	0.00	0.00	0.00
	Livestock	0.00	0.00	0.00	0.00	0.00	0.00
	Industrial	0.00	0.00	0.00	0.00	0.00	0.00
	Fossil Fuel Power	0.00	0.00	0.00	0.00	0.00	0.00
	Nuclear Power	0.00	0.00	0.00	0.00	0.00	0.00
	Hydroelectric Power	0.00	0.00	0.00	0.00	0.00	0.00
	Other	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Total:</b>	<b>0.00</b>	<b>0.00</b>	<b>0.62</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

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<b>Basin</b>	<b>Category</b>	<b>All Facilities</b>			<b>Principal Facilities</b>		
		<b>GLSW</b>	<b>OSW</b>	<b>GW</b>	<b>GLSW</b>	<b>OSW</b>	<b>GW</b>
<b>Grand Total:</b>		309.08	10.98	16.99	309.08	10.52	6.20

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# JURISDICTION REPORT- Pennsylvania

Units: ML/d  
 Withdrawals, Diversions and Consumptive Use Year Of Data: 1999

Basin	Category	All Facilities			Principal Facilities		
		Withdrawals	Diversions	Consumption	Withdrawals	Diversions	Consumption
<b>Lake Erie</b>							
	Public Supply	168.88	-3.26	16.89	166.73	0.00	16.67
	Domestic Supply	7.47	0.00	0.75	0.00	0.00	0.00
	Irrigation	1.32	0.00	1.20	1.24	0.00	1.12
	Livestock		0.00			0.00	
	Industrial	158.75	0.00	33.88	157.83	0.00	33.66
	Fossil Fuel Power	0.00	0.00	0.00	0.00	0.00	0.00
	Nuclear Power	0.00	0.00	0.00	0.00	0.00	0.00
	Hydroelectric Power	0.00	0.00	0.00	0.00	0.00	0.00
	Other		0.00			0.00	
	<b>Total:</b>	<b>336.42</b>	<b>-3.26</b>	<b>52.72</b>	<b>325.80</b>	<b>0.00</b>	<b>51.46</b>
<b>Lake Ontario</b>							
	Public Supply	0.34	0.00	0.03	0.00	0.00	0.00
	Domestic Supply	0.28	0.00	0.03	0.00	0.00	0.00
	Irrigation	0.00	0.00	0.00	0.00	0.00	0.00
	Livestock	0.00	0.00	0.00	0.00	0.00	0.00
	Industrial	0.00	0.00	0.00	0.00	0.00	0.00
	Fossil Fuel Power	0.00	0.00	0.00	0.00	0.00	0.00
	Nuclear Power	0.00	0.00	0.00	0.00	0.00	0.00
	Hydroelectric Power	0.00	0.00	0.00	0.00	0.00	0.00
	Other	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Total:</b>	<b>0.62</b>	<b>0.00</b>	<b>0.06</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Grand Total:</b>		<b>337.05</b>	<b>-3.26</b>	<b>52.78</b>	<b>325.80</b>	<b>0.00</b>	<b>51.46</b>

# JURISDICTION REPORT- Pennsylvania

Jurisdiction Totals

Units: ML/d

Year Of Data: 1999

## Total Report - All Facilities

Category	Withdrawals	Diversions	Consumption	GLSW	OSW	GW	Intrabasin	Interbasin
Public Supply	169.22	-3.26	16.92	154.44	6.71	8.07	0.00	-3.26
Domestic Supply	7.74	0.00	0.77	0.00	0.00	7.74	0.00	0.00
Irrigation	1.32	0.00	1.20	0.00	1.09	0.23	0.00	0.00
Livestock	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial	158.76	0.00	33.88	154.63	3.18	0.95	0.00	0.00
Fossil Fuel Power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nuclear Power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydroelectric Power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

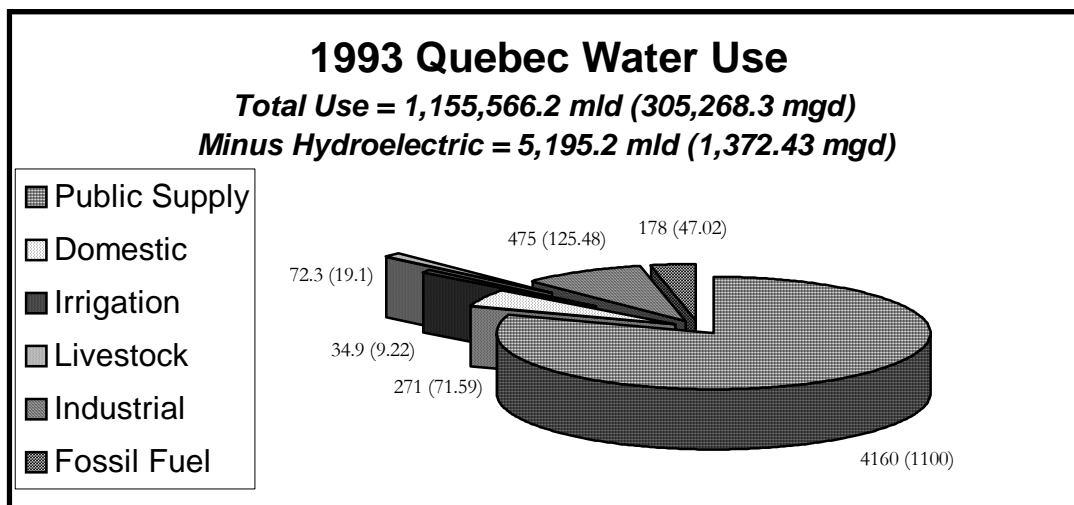
## Total Report - Principal Facilities

Category	Withdrawals	Diversions	Consumption	GLSW	OSW	GW	Intrabasin	Interbasin
Public Supply	166.73	0.00	16.67	154.44	6.58	5.71	0.00	0.00
Domestic Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Irrigation	1.24	0.00	1.12	0.00	1.01	0.23	0.00	0.00
Livestock	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial	157.83	0.00	33.66	154.63	2.93	0.26	0.00	0.00
Fossil Fuel Power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nuclear Power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydroelectric Power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

## Quebec

**Data Source:** Due to staffing and other programmatic constraints, this report utilizes 1993 data. The Ministre de l'Environnement—Centre d'expertise hydrique du Quebec provided Quebec water use data.

**Withdrawals:** Water uses in Quebec's St. Lawrence River Basin were approximately 115.5 bld (305 bgd) in 1998. Nearly 100% of these uses were for hydroelectric power purposes. There continues to be an increase in industrial withdrawals, as reflected in the most recent available figures.



**Consumptive Use:** Total consumptive use in 1993 was 597.5 mld (157.9 mgd). Public supply accounted for 416 mld (109.9 mgd), or nearly 70% of the total consumptive use.

**Diversions:** NA

**Data Quality:** Quebec's withdrawal data for this report were 99.55% measured, .36 partially measured, and .09% calculated or estimated; the level of aggregation was 100% aggregated.

In November 2002, Québec adopted a new Water Policy. Based on the principles of sustainable development, the Policy will guide the actions of the government in the implementation of water governance in Québec.

The Policy furthers the objectives of the Great Lakes Charter and the Great Lakes Charter Annex by committing to the establishment of organizations to oversee integrated water policy management for major basins and the St Lawrence River. The Policy will institute the “user-pays” principle and extend existing policies for the protection of fish and their habitats to other aquatic ecosystems.

To address withdrawals, Québec will evaluate the possibility of adopting the criteria of the common standard to water removals and watercourse diversion proposals for its entire territory upon completion of the Annex 2001 negotiations. These criteria will take into account the hydrological characteristics, location of each drainage basin, and regional disparities. These criteria will also take into account cumulative impacts, as well as the requirements of the policy on reserved flows. A water withdrawal reading will be taken in each watershed to provide input for an information system.

These criteria will allow for better management of current and future needs, and more equitable resource usage; they will also be used to determine the procedures for implementing the “user-pays” principle and resolving potential conflicts over usage. Among other services, they will grant authorizations and issue a wide range of permits and certificates.

Although Québec doesn't have legislation or a permit system relating to water withdrawals, several water management tools are currently in place. Since October 1999, the Water Resources Preservation Act prohibits the transfer outside Québec of any water taken in Québec (both surface water and groundwater). Exceptions are: to produce electric power; to market water for human consumption if packaged in Québec in containers of 20 litres or less; to supply potable water to establishments or dwellings situated in a bordering zone; to supply vehicles (vessels, aircraft, etc.) with ballast or other requirements for operation of the vehicle or to be used by the persons or animals being transported in the vehicle, or for emergency or humanitarian reasons on the ground. Furthermore, the recently modified regulation on groundwater catchment has provisions to provide data for wells over 75 m<sup>3</sup>/day.

Lastly, the major piece of legislation concerning water use is the Environment Quality Act, which deals mainly with the quality of the environment. Although regulations under this Act do not specifically address water withdrawal, some regulations provide qualitative standards for wastewater in particular sectors, like pulp and paper mills, refinery, agriculture, etc., or for waterworks and sewer services, etc. Water quantity is taken into account in the analysis prior to the issuance of an authorization under the Environment Quality Act, particularly when a project is likely to have an impact on the environment. (Authorization might require an impact assessment and eventually, if the need arises, a public consultation). But there is no provision for follow-up on water withdrawal, thus no means to evaluate how much water is consumed on a regular basis.

In Québec, individual municipalities are responsible for providing drinking water and wastewater treatment, and fixing the appropriate rate. They are not obliged to put meters on industry, commerce, institutions or residential water pipes. Although water withdrawal data are available

for some large municipalities, many don't have any data on their withdrawal of water. Through the Water Policy, Québec intends to develop a water conservation strategy which will render financial support conditional to the implementation of water conservation measures, including leak detection and repair programs.

Historically, water withdrawals have not been a source of great conflict in Québec. Not until some recent isolated cases (precipitated by installation of a bottled water facility or fish hatchery, construction of a dam for hydroelectricity, or water shortages because of a severe drought in the summer months) did such problems arise.

Discussions with the Water Management Working Group are ongoing to determine what additional data and information is needed to implement the Annex. The Great Lakes Water Use Database is also in transition and further efforts will have to be made by individual jurisdictions and the Great Lakes Commission to significantly improve its reliability and respond to the Annex requirements. Such improvement could require modification to reporting programs currently in place.

The Centre d'expertise hydrique du Québec submitted figures to the Water Use Database in the early 90's to meet the objectives of the Great Lakes Charter. The Centre is concerned with hydrologic and hydraulic studies, floodplain delineation and mapping and hydrometric network management and the data they provide are collected exclusively for this purpose.

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# JURISDICTION REPORT- Quebec

Withdrawals by Source

Units: ML/d

Year Of Data: 1999

Basin	Category	All Facilities			Principal Facilities		
		GLSW	OSW	GW	GLSW	OSW	GW
<b>St. Lawrence River</b>							
	Public Supply	2282.00	1882.00	0.00	2281.00	1868.00	0.00
	Domestic Supply	0.00	0.00	271.00	0.00	0.00	184.00
	Irrigation	0.00	0.00	34.90			
	Livestock	0.00	0.00	72.30			
	Industrial	0.00	475.00	0.00	0.00	473.00	0.00
	Fossil Fuel Power	148.00	30.00	0.00	148.00	30.00	0.00
	Nuclear Power	0.00	0.00	0.00	0.00	0.00	0.00
	Hydroelectric Power	647102.00	503269.00	0.00	647102.00	503269.00	0.00
	Other						
	<b>Total:</b>	<b>649532.00</b>	<b>505656.00</b>	<b>378.20</b>	<b>649531.00</b>	<b>505640.00</b>	<b>184.00</b>
<b>Grand Total:</b>		<b>649532.00</b>	<b>505656.00</b>	<b>378.20</b>	<b>649531.00</b>	<b>505640.00</b>	<b>184.00</b>

# JURISDICTION REPORT- Quebec

Units: ML/d  
 Withdrawals, Diversions and Consumptive Use Year Of Data: 1999

Basin	Category	All Facilities			Principal Facilities		
		Withdrawals	Diversions	Consumption	Withdrawals	Diversions	Consumption
<b>St. Lawrence River</b>							
	Public Supply	4164.00	0.00	416.00	4149.00	0.00	415.00
	Domestic Supply	271.00	0.00	27.00	184.00	0.00	18.00
	Irrigation	34.90	0.00	31.41		0.00	
	Livestock	72.30	0.00	57.84		0.00	
	Industrial	475.00	0.00	47.50	473.00	0.00	47.30
	Fossil Fuel Power	178.00	0.00	17.80	178.00	0.00	17.80
	Nuclear Power	0.00	0.00	0.00	0.00	0.00	0.00
	Hydroelectric Power	1150371.00	0.00	0.00	1150371.00	0.00	0.00
	Other		0.00			0.00	
	<b>Total:</b>	<b>1155566.20</b>	<b>0.00</b>	<b>597.55</b>	<b>1155355.00</b>	<b>0.00</b>	<b>498.10</b>
<b>Grand Total:</b>		<b>1155566.20</b>	<b>0.00</b>	<b>597.55</b>	<b>1155355.00</b>	<b>0.00</b>	<b>498.10</b>

# JURISDICTION REPORT- Quebec

Jurisdiction Totals

Units: ML/d

Year Of Data: 1999

## Total Report - All Facilities

Category	Withdrawals	Diversions	Consumption	GLSW	OSW	GW	Intrabasin	Interbasin
Public Supply	4164.00	0.00	416.00	2282.00	1882.00	0.00	0.00	0.00
Domestic Supply	271.00	0.00	27.00	0.00	0.00	271.00	0.00	0.00
Irrigation	34.90	0.00	31.41	0.00	0.00	34.90	0.00	0.00
Livestock	72.30	0.00	57.84	0.00	0.00	72.30	0.00	0.00
Industrial	475.00	0.00	47.50	0.00	475.00	0.00	0.00	0.00
Fossil Fuel Power	178.00	0.00	17.80	148.00	30.00	0.00	0.00	0.00
Nuclear Power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydroelectric Power	1150371.00	0.00	0.00	647102.00	503269.00	0.00	0.00	0.00
Other		0.00					0.00	0.00

## Total Report - Principal Facilities

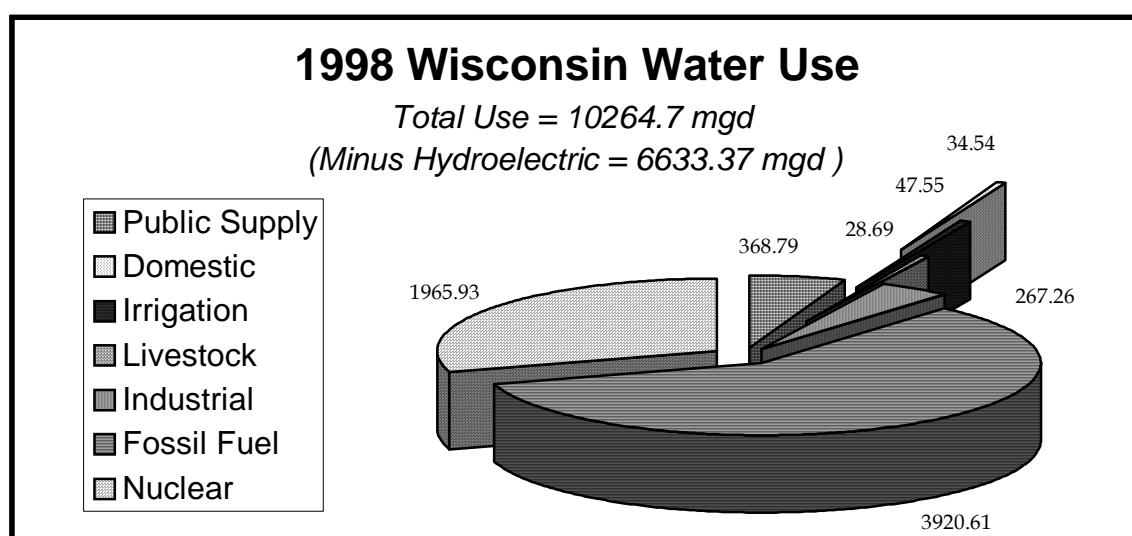
Category	Withdrawals	Diversions	Consumption	GLSW	OSW	GW	Intrabasin	Interbasin
Public Supply	4149.00	0.00	415.00	2281.00	1868.00	0.00	0.00	0.00
Domestic Supply	184.00	0.00	18.00	0.00	0.00	184.00	0.00	0.00
Irrigation		0.00					0.00	0.00
Livestock		0.00					0.00	0.00
Industrial	473.00	0.00	47.30	0.00	473.00	0.00	0.00	0.00
Fossil Fuel Power	178.00	0.00	17.80	148.00	30.00	0.00	0.00	0.00
Nuclear Power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydroelectric Power	1150371.00	0.00	0.00	647102.00	503269.00	0.00	0.00	0.00
Other		0.00					0.00	0.00



## Wisconsin

**Data Source:** Due to budgetary and staffing restraints, Wisconsin was unable to submit water use data for 1999. 1998 water use data for the Lake Michigan and Lake Superior Basins of Wisconsin were submitted by the Wisconsin Department of Natural Resources—Bureau of Water Resources Management.

**Withdrawals:** Withdrawals from Lake Michigan and Lake Superior Basins totaled 10.3 bgd, a decrease of 1.6 bgd from 1993 figures. More than 97% of the total withdrawals were from the Lake Michigan Basin; only 236.5 mgd were withdrawn from Lake Superior. Of the Lake Superior uses, 209.4 mgd or 88% were for hydroelectric purposes. Water uses in the Lake Michigan Basin were primarily for fossil fuel and hydroelectric power purposes—at 39% and 34% of total use respectively.



**Consumptive Use:** 98% of Wisconsin's 1998 consumptive uses were from the Lake Michigan Basin (208.8 mgd). Of this amount, consumptive uses from public supply, industrial, fossil fuel, and irrigation were 55.4 mgd, 40.1 mgd, 38.9 mgd, and 33.8 mgd respectively.

**Diversions:** NA

**Data Quality:** Wisconsin's withdrawal data for this report were 100% calculated or estimated; the level of aggregation was 100% aggregated.

# JURISDICTION REPORT- Wisconsin

Withdrawals by Source

Units: ML/d

Year Of Data: 1999

Basin	Category	All Facilities			Principal Facilities		
		GLSW	OSW	GW	GLSW	OSW	GW
<b>Lake Superior</b>							
	Public Supply	17.22	0.00	13.97	14.54	0.00	0.00
	Domestic Supply	0.00	0.00	8.44	0.00	0.00	0.00
	Irrigation						
	Livestock	0.00	0.08	13.74	0.00	0.00	0.00
	Industrial	0.00	0.49	0.15	0.00	0.00	0.00
	Fossil Fuel Power	48.23	0.00	0.00	48.23	0.00	0.00
	Nuclear Power	0.00	0.00	0.00	0.00	0.00	0.00
	Hydroelectric Power	0.00	792.82	0.00	0.00	792.82	0.00
	Other						
	<b>Total:</b>	<b>65.45</b>	<b>793.38</b>	<b>36.30</b>	<b>62.76</b>	<b>792.82</b>	<b>0.00</b>
<b>Lake Michigan</b>							
	Public Supply	969.10	94.98	300.75	969.10	94.98	300.75
	Domestic Supply	0.00	0.00	122.31	0.00	0.00	0.00
	Irrigation	0.00	0.00	180.00	0.00	0.00	30.32
	Livestock	0.00	6.97	87.82	0.00	0.00	0.00
	Industrial	6.09	861.71	143.24	6.09	848.69	143.24
	Fossil Fuel Power	14733.96	58.90	0.04	14675.06	58.90	0.00
	Nuclear Power	7441.36	0.00	0.49	7441.36	0.00	0.00
	Hydroelectric Power	0.00	12953.26	0.00	0.00	12953.26	0.00
	Other						
	<b>Total:</b>	<b>23150.52</b>	<b>13975.82</b>	<b>834.65</b>	<b>23091.62</b>	<b>13955.83</b>	<b>474.31</b>

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<b>Basin</b>	<b>Category</b>	<b>All Facilities</b>			<b>Principal Facilities</b>		
		<b>GLSW</b>	<b>OSW</b>	<b>GW</b>	<b>GLSW</b>	<b>OSW</b>	<b>GW</b>
Grand Total:		23215.97	14769.20	870.95	23154.38	14748.65	474.31

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# JURISDICTION REPORT- Wisconsin

Units: ML/d  
 Withdrawals, Diversions and Consumptive Use Year Of Data: 1999

Basin	Category	All Facilities			Principal Facilities		
		Withdrawals	Diversions	Consumption	Withdrawals	Diversions	Consumption
<b>Lake Superior</b>							
	Public Supply	31.19	0.00	4.66	14.54	0.00	2.16
	Domestic Supply	8.44	0.00	1.25	0.00	0.00	0.00
	Irrigation		0.00			0.00	
	Livestock	13.82	0.00	11.11	0.00	0.00	0.00
	Industrial	0.64	0.00	0.08	0.00	0.00	0.00
	Fossil Fuel Power	48.23	0.00	0.49	48.23	0.00	0.49
	Nuclear Power	0.00	0.00	0.00	0.00	0.00	0.00
	Hydroelectric Power	792.82	0.00	0.00	792.82	0.00	0.00
	Other		0.00			0.00	
	<b>Total:</b>	<b>895.14</b>	<b>0.00</b>	<b>17.59</b>	<b>855.58</b>	<b>0.00</b>	<b>2.65</b>
<b>Lake Michigan</b>							
	Public Supply	1364.83	3.52	209.75	1364.83	1.21	204.75
	Domestic Supply	122.31	0.00	18.36	0.00	0.00	0.00
	Irrigation	180.00	0.00	128.10	30.32	0.00	4.54
	Livestock	94.79	0.00	60.72	0.00	0.00	0.00
	Industrial	1011.05	0.00	151.64	998.02	0.00	149.71
	Fossil Fuel Power	14792.90	0.00	147.33	14733.96	0.00	147.33
	Nuclear Power	7441.86	0.00	74.42	7441.36	0.00	74.42
	Hydroelectric Power	12953.26	0.00	0.00	12953.26	0.00	0.00
	Other		0.00			0.00	
	<b>Total:</b>	<b>37960.98</b>	<b>3.52</b>	<b>790.32</b>	<b>37521.76</b>	<b>1.21</b>	<b>580.76</b>
<b>Grand Total:</b>		<b>38856.12</b>	<b>3.52</b>	<b>807.91</b>	<b>38377.34</b>	<b>1.21</b>	<b>583.41</b>

# JURISDICTION REPORT- Wisconsin

Jurisdiction Totals

Units: ML/d

Year Of Data: 1999

## Total Report - All Facilities

Category	Withdrawals	Diversions	Consumption	GLSW	OSW	GW	Intrabasin	Interbasin
Public Supply	1396.02	3.52	214.41	986.33	94.98	314.72	0.00	3.52
Domestic Supply	130.75	0.00	19.61	0.00	0.00	130.75	0.00	0.00
Irrigation	180.00	0.00	128.10	0.00	0.00	180.00	0.00	0.00
Livestock	108.60	0.00	71.83	0.00	7.04	101.56	0.00	0.00
Industrial	1011.69	0.00	151.72	6.09	862.20	143.39	0.00	0.00
Fossil Fuel Power	14841.12	0.00	147.82	14782.19	58.90	0.04	0.00	0.00
Nuclear Power	7441.86	0.00	74.42	7441.36	0.00	0.49	0.00	0.00
Hydroelectric Power	13746.08	0.00	0.00	0.00	13746.08	0.00	0.00	0.00
Other		0.00					0.00	0.00

## Total Report - Principal Facilities

Category	Withdrawals	Diversions	Consumption	GLSW	OSW	GW	Intrabasin	Interbasin
Public Supply	1379.37	1.21	206.91	983.64	94.98	300.75	0.00	1.21
Domestic Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Irrigation	30.32	0.00	4.54	0.00	0.00	30.32	0.00	0.00
Livestock	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial	998.02	0.00	149.71	6.09	848.69	143.24	0.00	0.00
Fossil Fuel Power	14782.19	0.00	147.82	14723.28	58.90	0.00	0.00	0.00
Nuclear Power	7441.36	0.00	74.42	7441.36	0.00	0.00	0.00	0.00
Hydroelectric Power	13746.08	0.00	0.00	0.00	13746.08	0.00	0.00	0.00
Other		0.00					0.00	0.00