ANNUAL REPORT

of the

GREAT LAKES REGIONAL WATER USE DATABASE REPOSITORY

REPRESENTING 2001 WATER USE DATA IN LITERS

Prepared by

The Great Lakes Commission

August 12, 2005

ACKNOWLEDGEMENTS

The author of this report is Marilyn Ratliff, Great Lakes Commission Database Administrator. Thomas R. Crane, Interim Executive Director of the Great Lakes Commission, provided oversight and overall guidance.

The Great Lakes Commission wishes to thank each of the jurisdictional representatives listed on page seven, for learning a new software application, and applying their years of experience toward coalescing the data for this report. Their attention to detail and commitment to accuracy, in addition to their combined familiarity with the subject matter, contribute greatly to the value of this project.

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 and Charter Annex 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.

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Introduction

All data are submitted in one of two unit measures--millions of U.S. gallons per day (mgd) or millions of liters 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 (under All Facilities) or water use which does not meet the Great Lakes Charter trigger level (under Principal Facilities).

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 withdrawal and represents 95% of the total amount of water "withdrawn" in 2001.

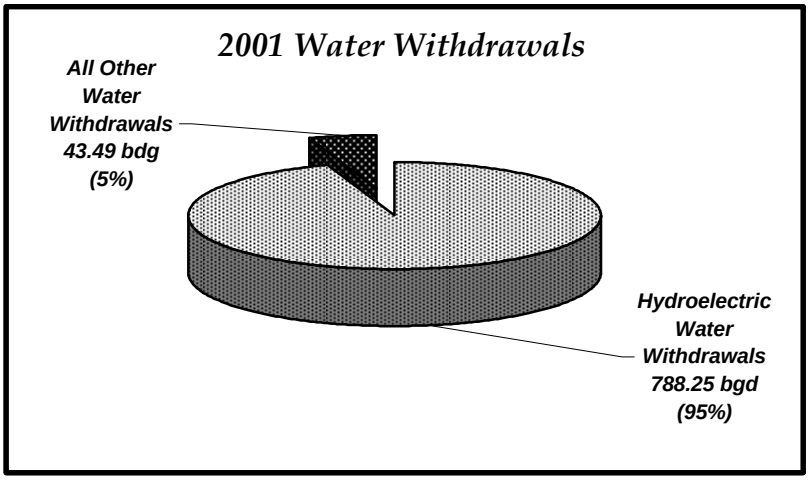

Figure 1

Each of the ten jurisdictions' water uses is represented in Figure 2 and Figure 3. Figure 2 includes self-supply – hydroelectric use. In total, water withdrawals for the year 2001 were approximately 831 billion gallons per day, or about 3,148 billion liters per day.

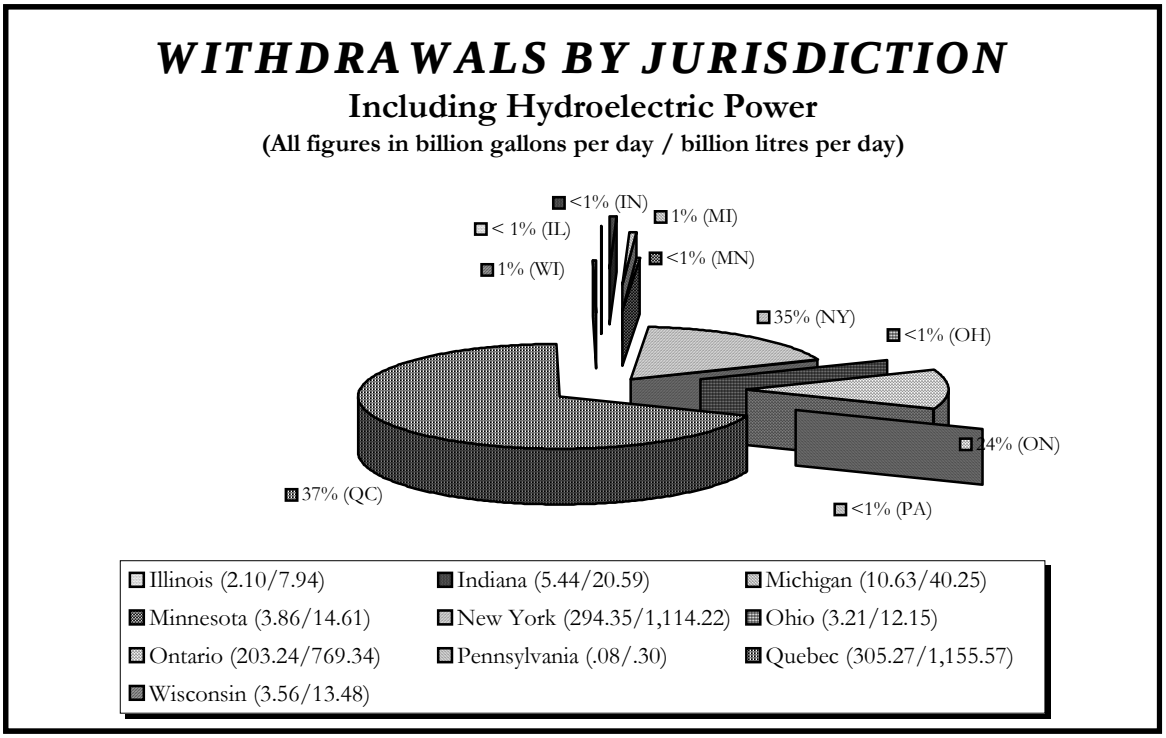

Figure 2

Figure 3 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 43 billion gallons per day, or 165 billion liters per day. Piecharts showing individual jurisdictional water use, beginning with Illinois on page 15, are in million gallons per day and do not include hydroelectric use.

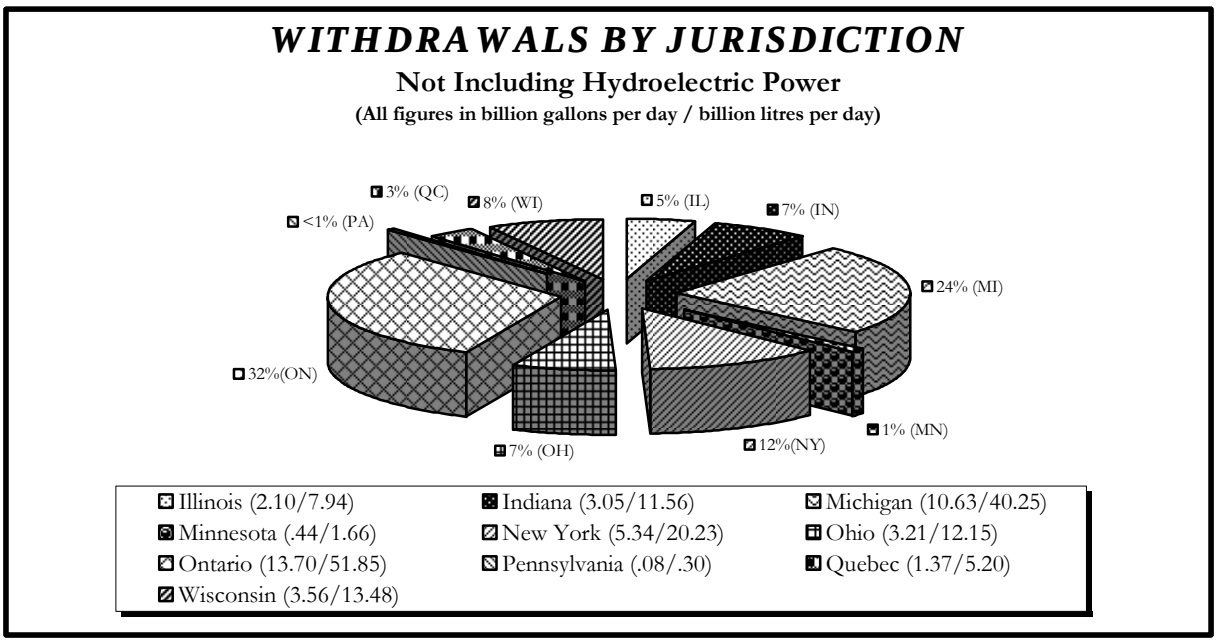

Figure 3

Topics of Interest

Diversions

Two types of diversions are reported by the water use database: interbasin (transfers that take place between the Great Lakes basin and another watershed) and intrabasin (transfers that take place between one of the Great Lakes watersheds and another); both types can be either incoming or outgoing.

Of the two types, interbasin diversions (transfers that take place between the Great Lakes basin and another watershed) have traditionally been of greater interest to water supply managers and the public. Interbasin diversions shown as a positive number (e.g. **without** a minus sign) indicate water leaving the Great Lakes basin; interbasin diversions shown as a negative number (e.g. **with** a minus sign) indicate water entering the Great Lakes basin.

For a complete history of Great Lakes water 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 at www.cwra.org/Publications, or by calling (519)622-4764.

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. 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). Figure 4 on the following page shows the consumptive use coefficients that were used for this report. For consumptive use quantities by jurisdiction, basin or water use category, please refer to the tables in chapters II through V. Total consumptive use in the basin for 2001 was calculated to be 1.87 bgd (7.08 bld).

For a more detailed overview of the consumptive use issue, please see the **Annotated Bibliography of Consumptive Use in the Great Lakes Region and Basin** (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).

Water Use Category	ILLINOIS	INDIANA	MICHIGAN	MINNESOTA	NEW YORK	OHIO	ONTARIO	PENNSYLVANIA	QUÉBEC	WISCONSIN
Public Supply	10-15%	15%	10-15%	10-15%	10%	10-15%	15%	10%	10-15%	10-15%
Self-Supply Domestic	10-15%	15%	10-15%	10-15%	10%	10-15%	15%	10%	10-15%	10-15%
Self-Supply Irrigation	90%	90%	90%	90%	90%	90%	78%	90%	90%	70%
Self-Supply Livestock	80%	80%	80%	80%	90%	80%	80%	80%	80%	90%
Self-Supply Industrial	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 manufac-turing & mining
Self-Supply Thermoelectric (Fossil Fuel)	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 (Pennsyl-vania has no facilities in the basin)	10%; estimates obtained from USGS report	.5-1%
Self-Supply Thermoelectric (Nuclear)	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 (Pennsyl-vania has no facilities in the basin)	NA (Québec has no facilities in the basin)	.5-1%
Hydroelectric	Coefficient for all states and provinces is 0%									
Self-Supply Other	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

Figure 4

Definitions and Abbreviations

General Definitions and Abbreviations

- **bgd**: billion gallons per day
- **bld**: billion liters 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. Marys River), and the St. Lawrence River
- **groundwater (GW)**: all subsurface water
- **interbasin diversion**: a transfer that take place between the Great Lakes basin and another watershed
- **intrabasin diversion**: a transfer that takes place between the watershed of one of the Great Lakes and 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 liters 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 liters 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: BL/d
Year Of Data: 2001

Water-Use by Jurisdiction - All Facilities

Jurisdiction	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	TOTAL	Intrabasin	Interbasin	
Illinois	7.94	0.00	0.00	7.94	0.00	4.98	0.00
Indiana	10.73	9.36	0.50	20.59	0.00	-0.01	0.73
Michigan	36.62	1.68	1.94	40.25	0.00	0.00	2.08
Minnesota	0.65	13.94	0.02	14.61	0.00	0.00	0.11
New York	430.75	682.94	0.53	1114.22	2.69	0.16	1.30
Ohio	8.08	3.52	0.55	12.15	0.00	-0.04	0.68
Ontario	541.33	226.96	1.06	769.34	0.23	-15.17	1.06
Pennsylvania	0.26	0.01	0.02	0.30	0.00	0.00	0.04
Quebec	649.53	505.66	0.38	1155.57	0.00	0.00	0.60
Wisconsin	12.74	0.10	0.65	13.48	0.00	0.00	0.49
Total:	**1698.63**	**1444.16**	**5.65**	**3148.45**	**2.93**	**-10.08**	**7.08**

Water-Use by Jurisdiction - Principal Facilities

Jurisdiction	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	TOTAL	Intrabasin	Interbasin	
Illinois	7.94	0.00	0.00	7.94	0.00	4.98	0.00
Indiana	10.73	9.36	0.38	20.47	0.00	0.00	0.70
Michigan							
Minnesota	0.65	13.94	0.02	14.60	0.00	0.00	0.11
New York	429.14	1.87	0.02	431.03	2.69	0.16	0.86
Ohio	8.08	3.49	0.28	11.84	0.00	-0.04	0.59
Ontario	1.87	1.42	0.33	3.62	0.23	0.00	0.43
Pennsylvania	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Quebec	649.53	505.64	0.18	1155.36	0.00	0.00	0.50
Wisconsin							
Total:	**1107.94**	**535.72**	**1.20**	**1644.86**	**2.93**	**5.10**	**3.18**

SUMMARY REPORT - GREAT LAKES BASIN

Units: BL/d
Year Of Data: 2001

Water-Use by Basin - All Facilities

Basin	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	TOTAL	Intrabasin	Interbasin	
Lake Superior	3.75	158.43	0.11	162.29	0.00	-15.17	0.24
Lake Michigan	43.85	10.74	2.47	57.05	0.00	4.97	2.22
Lake Huron	98.29	51.93	0.36	150.58	0.18	0.00	0.55
Lake Erie	180.89	4.36	1.44	186.68	19.33	-0.04	1.99
Lake Ontario	164.62	338.65	0.74	504.01	-16.58	0.16	1.35
St. Lawrence River	1207.23	880.06	0.54	2087.83	0.00	0.00	0.74
Total:	**1698.63**	**1444.16**	**5.65**	**3148.45**	**2.93**	**-10.08**	**7.08**

Water-Use by Basin - Principal Facilities

Basin	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	TOTAL	Intrabasin	Interbasin	
Lake Superior	0.76	13.99	0.03	14.77	0.00	0.00	0.14
Lake Michigan	18.68	9.20	0.33	28.21	0.00	4.98	0.67
Lake Huron	0.16	0.27	0.06	0.49	0.18	0.00	0.05
Lake Erie	158.45	3.76	0.54	162.74	19.33	-0.04	0.97
Lake Ontario	11.56	2.52	0.05	14.13	-16.58	0.16	0.80
St. Lawrence River	918.34	505.98	0.20	1424.52	0.00	0.00	0.56
Total:	**1107.94**	**535.72**	**1.20**	**1644.86**	**2.93**	**5.10**	**3.18**

SUMMARY REPORT - GREAT LAKES BASIN

Units: BL/d
Year Of Data: 2001

Water-Use by Category - All Facilities

Category	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	TOTAL	Intrabasin	Interbasin	
Public Supply	16.32	4.44	2.09	22.84	0.00	4.15	2.29
Domestic Supply	0.16	0.23	1.40	1.79	0.00	0.02	0.22
Irrigation	0.04	0.56	1.00	1.59	0.00	0.00	1.15
Livestock	0.04	0.05	0.43	0.52	0.00	0.00	0.32
Industrial	14.18	1.78	0.71	16.68	0.00	0.01	1.47
Fossil Fuel Power	53.93	5.69	0.01	59.63	0.00	0.00	0.66
Nuclear Power	57.05	0.00	0.00	57.05	0.00	0.00	0.84
Hydroelectric Power	1553.38	1430.46	0.00	2983.84	0.00	-15.17	0.00
Other	3.53	0.96	0.01	4.50	2.93	0.92	0.13
Total:	**1698.63**	**1444.16**	**5.65**	**3148.45**	**2.93**	**-10.08**	**7.08**

Water-Use by Category - Principal Facilities

Category	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	TOTAL	Intrabasin	Interbasin	
Public Supply	10.42	3.13	0.69	14.24	0.00	4.16	1.30
Domestic Supply	0.02	0.23	0.21	0.46	0.00	0.02	0.05
Irrigation	0.00	0.08	0.08	0.17	0.00	0.00	0.15
Livestock	0.00	0.01	0.01	0.02	0.00	0.00	0.01
Industrial	8.32	1.28	0.21	9.82	0.00	0.01	0.88
Fossil Fuel Power	18.52	4.77	0.00	23.30	0.00	0.00	0.34
Nuclear Power	5.89	0.00	0.00	5.89	0.00	0.00	0.31
Hydroelectric Power	1061.23	525.25	0.00	1586.48	0.00	0.00	0.00
Other	3.53	0.96	0.01	4.50	2.93	0.92	0.13
Total:	**1107.94**	**535.72**	**1.20**	**1644.86**	**2.93**	**5.10**	**3.18**

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
Québec
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. Please contact James Casey at 312/793-5947 or jcasey@dnrmail.state.il.us with questions regarding Illinois' data.

Withdrawals: Illinois' water withdrawals from Lake Michigan in 2001 totaled 2,098.41 mgd--down from 2000 by 61.52 mgd, or 3%. All water use categories remained stable with the exception of nuclear power and other. The single working nuclear power plant in Illinois at Zion reported an increase of approximately 10 mgd, from 21.60 mgd in 2000 to 31.70 mgd in 2001, resulting in a 32% increase in nuclear power. As the Metropolitan Water Reclamation District of Greater Chicago reported a decline in water use for the purposes of navigation, discretionary dilution, and lockage and leakage, the water use category for other declined from 308.78 mgd in 2000 to 220.80 mgd in 2001, resulting in a 29% decrease.

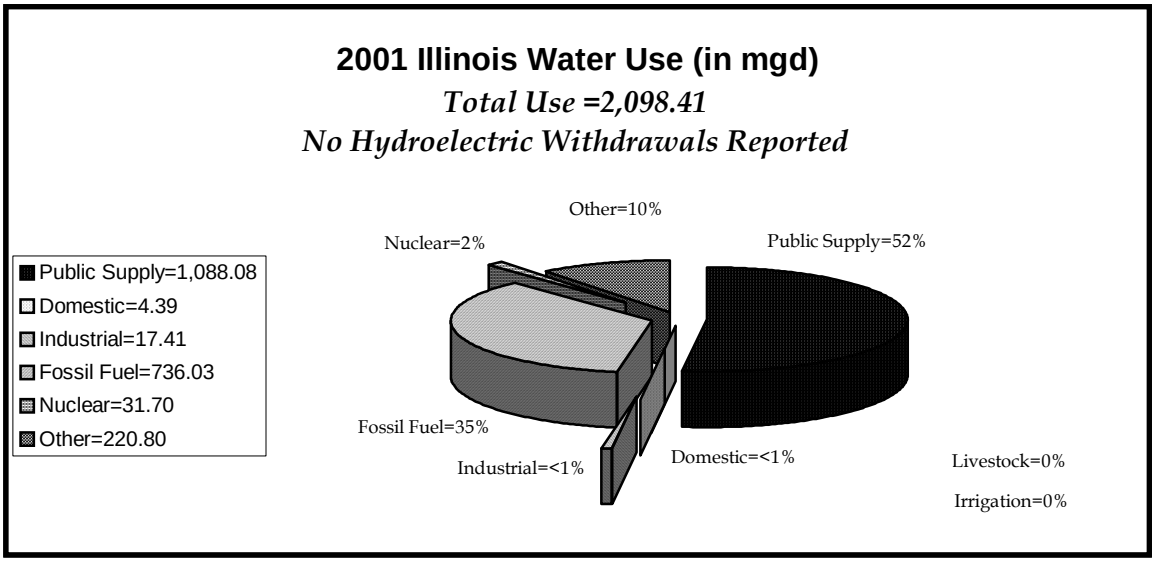

Figure 5

Consumptive Use: None reported.

Interbasin Diversions: Total outgoing interbasin diversions from the Lake Michigan basin in 2001 were 1,316.17 mgd, a decrease from the 2000 figure of 1,407.50 mgd. Public water supply accounted for about 83% 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, Diversions and Consumptive Uses **Units: ML/d** **Year Of Data: 2001**

Basin	Category	All Facilities			Principal Facilities		
		Withdr.	Inter-Basin Diver.	Consum.	Withdr.	Inter-Basin Diver.	Consum.
Lake Michigan							
	Public Supply	4118.83	4118.83	0.00	4118.83	4118.83	0.00
	Domestic Supply	16.61	16.57	0.00	16.61	16.57	0.00
	Irrigation		0.00				
	Livestock		0.00				
	Industrial	65.92	11.03	0.00	65.92	11.03	0.00
	Fossil Fuel Power	2786.18	0.00	0.00	2786.18	0.00	0.00
	Nuclear Power	120.00	0.00	0.00	120.00	0.00	0.00
	Hydroelectric Power	0.00	0.00	0.00	0.00	0.00	0.00
	Other	835.82	835.82	0.00	835.82	835.82	0.00
	Total:	**7943.36**	**4982.25**	**0.00**	**7943.36**	**4982.25**	**0.00**
Grand Total:		**7943.36**	**4982.25**	**0.00**	**7943.36**	**4982.25**	**0.00**

JURISDICTION REPORT- Illinois

Withdrawals by Source

Units: ML/d

Year Of Data: 2001

Basin	Category	All Facilities			Principal Facilities		
		GLSW	OSW	GW	GLSW	OSW	GW
Lake Michigan							
	Public Supply	4118.83	0.00	0.00	4118.83	0.00	0.00
	Domestic Supply	16.57	0.00	0.04	16.57	0.00	0.04
	Irrigation						
	Livestock						
	Industrial	65.92	0.00	0.00	65.92	0.00	0.00
	Fossil Fuel Power	2786.18	0.00	0.00	2786.18	0.00	0.00
	Nuclear Power	120.00	0.00	0.00	120.00	0.00	0.00
	Hydroelectric Power	0.00	0.00	0.00	0.00	0.00	0.00
	Other	835.82	0.00	0.00	835.82	0.00	0.00
	Total:	**7943.32**	**0.00**	**0.04**	**7943.32**	**0.00**	**0.04**
Grand Total:		**7943.32**	**0.00**	**0.04**	**7943.32**	**0.00**	**0.04**

JURISDICTION REPORT- Illinois

Jurisdiction Totals | **Units: ML/d** | **Year Of Data: 2001**

Total Report - All Facilities

Category	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	TOTAL	Intrabasin	Interbasin	
Public Supply	4118.83	0.00	0.00	4118.83	0.00	4118.83	0.00
Domestic Supply	16.57	0.00	0.04	16.61	0.00	16.57	0.00
Irrigation					0.00	0.00	
Livestock					0.00	0.00	
Industrial	65.92	0.00	0.00	65.92	0.00	11.03	0.00
Fossil Fuel Power	2786.18	0.00	0.00	2786.18	0.00	0.00	0.00
Nuclear Power	120.00	0.00	0.00	120.00	0.00	0.00	0.00
Hydroelectric Power	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	835.82	0.00	0.00	835.82	0.00	835.82	0.00

Total Report - Principal Facilities

Category	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	TOTAL	Intrabasin	Interbasin	
Public Supply	4118.83	0.00	0.00	4118.83	0.00	4118.83	0.00
Domestic Supply	16.57	0.00	0.04	16.61	0.00	16.57	0.00
Irrigation							
Livestock							
Industrial	65.92	0.00	0.00	65.92	0.00	11.03	0.00
Fossil Fuel Power	2786.18	0.00	0.00	2786.18	0.00	0.00	0.00
Nuclear Power	120.00	0.00	0.00	120.00	0.00	0.00	0.00
Hydroelectric Power	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	835.82	0.00	0.00	835.82	0.00	835.82	0.00

Indiana

Data Source: The Indiana Department of Natural Resources—Division of Water compiled the 2001 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 the Department of Energy's Energy Information Administration website located at www.eia.doe.gov/cneaf/electricity. Please contact Ralph Spaeth at 317/234-1101 or rspaeth@dnr.in.gov with questions regarding Indiana's data.

Withdrawals: In 2001, total withdrawals were 5440.5 mgd, up from the 2000 amount by 204 mgd. More than 99% of the water withdrawn was from Lake Michigan. Hydroelectric use was responsible for 44% 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 70%.

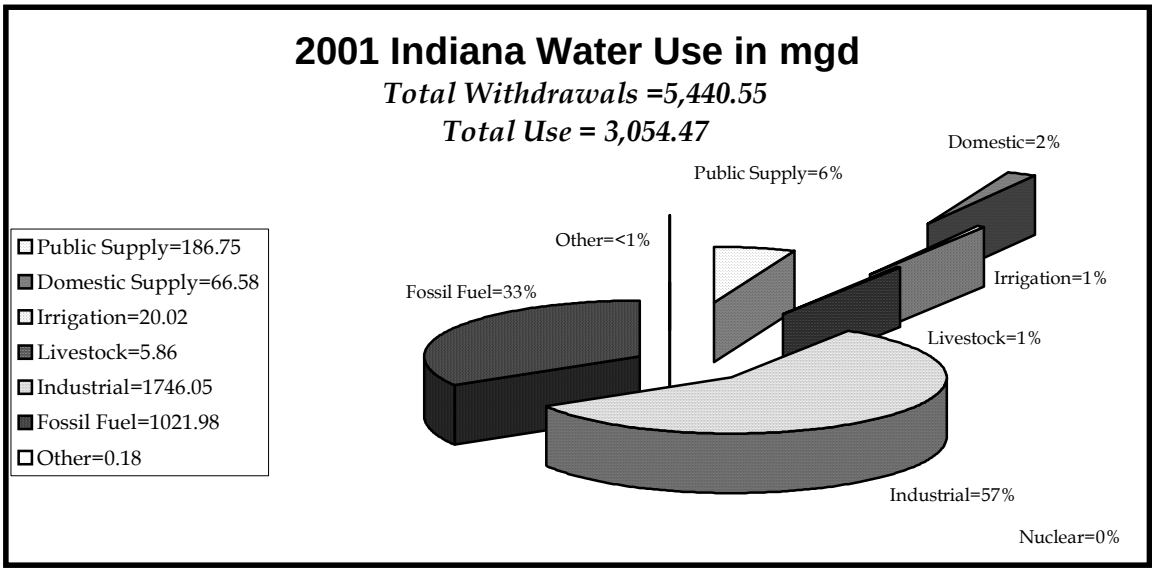

Figure 6

Consumptive Use: The total consumptive use of water in Indiana's portion of the Great Lakes basin was 192.28 mgd, compared to 196.16 mgd in 2000. In the Lake Michigan basin, industrial is the largest consumptive use, at 56% (104.2 mgd of a total of 182.42 mgd) and in the Lake Erie basin public supply is the largest consumptive use, at 67% (6.63 mgd of a total of 9.86 mgd).

Interbasin Diversions: A diversion by the city of Valparaiso withdraws -2.22 mgd groundwater for public supply from the Kankakee River basin which is discharged as treated sewage into Salt Creek in the Lake Michigan basin.

Data Quality: Indiana's withdrawal data for this report were 4% measured, 51% partially measured, and 45% calculated or estimated; the level of aggregation was 99% site-specific and 1% aggregated.

JURISDICTION REPORT - Indiana

Withdrawals, Diversions and Consumptive Uses **Units: ML/d** **Year Of Data: 2001**

Basin	Category	All Facilities			Principal Facilities		
		Withdr.	Inter-Basin Diver.	Consum.	Withdr.	Inter-Basin Diver.	Consum.
Lake Michigan							
	Public Supply	539.69	-8.40	80.97	538.44	0.00	80.78
	Domestic Supply	227.96	0.00	34.18	144.56	0.00	21.69
	Irrigation	98.42	0.00	88.54	95.47	0.00	85.93
	Livestock	18.51	0.00	14.84	10.37	0.00	8.29
	Industrial	6576.24	0.00	394.59	6574.16	0.00	394.44
	Fossil Fuel Power	3867.59	0.00	77.34	3867.59	0.00	77.34
	Nuclear Power	0.00	0.00	0.00	0.00	0.00	0.00
	Hydroelectric Power	9032.30	0.00	0.00	9032.30	0.00	0.00
	Other	0.68	0.00	0.08	0.15	0.00	0.00
	Total:	**20361.39**	**-8.40**	**690.53**	**20263.05**	**0.00**	**668.47**
Lake Erie							
	Public Supply	167.24	0.00	25.10	166.94	0.00	25.06
	Domestic Supply	24.08	0.00	3.60	1.21	0.00	0.19
	Irrigation	4.05	0.00	3.63	3.29	0.00	2.95
	Livestock	3.67	0.00	2.95	0.00	0.00	0.00
	Industrial	33.27	0.00	2.01	32.63	0.00	1.97
	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
	Total:	**233.33**	**0.00**	**37.32**	**205.09**	**0.00**	**30.21**
Grand Total:		**20594.72**	**-8.40**	**727.86**	**20468.14**	**0.00**	**698.67**

JURISDICTION REPORT - Indiana

Withdrawals by Source

Units: ML/d

Year Of Data: 2001

Basin	Category	All Facilities			Principal Facilities		
		GLSW	OSW	GW	GLSW	OSW	GW
Lake Michigan							
	Public Supply	359.54	0.00	180.15	359.54	0.00	178.90
	Domestic Supply	0.00	123.75	104.21	0.00	123.75	20.82
	Irrigation	0.00	25.51	72.91	0.00	24.26	71.20
	Livestock	0.00	5.34	13.17	0.00	5.34	5.03
	Industrial	6506.37	17.15	52.73	6506.33	17.11	50.72
	Fossil Fuel Power	3867.59	0.00	0.00	3867.59	0.00	0.00
	Nuclear Power	0.00	0.00	0.00	0.00	0.00	0.00
	Hydroelectric Power	0.00	9032.30	0.00	0.00	9032.30	0.00
	Other	0.00	0.11	0.57	0.00	0.00	0.15
	Total:	**10733.50**	**9204.15**	**423.74**	**10733.46**	**9202.75**	**326.83**
Lake Erie							
	Public Supply	0.00	132.00	35.24	0.00	131.96	34.98
	Domestic Supply	0.00	0.00	24.08	0.00	0.00	1.21
	Irrigation	0.00	1.17	2.88	0.00	0.83	2.46
	Livestock	0.00	0.00	3.67	0.00	0.00	0.00
	Industrial	0.00	20.18	13.10	0.00	20.14	12.49
	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
	Total:	**0.00**	**153.35**	**79.99**	**0.00**	**152.93**	**52.16**
Grand Total:		**10733.50**	**9357.50**	**503.72**	**10733.46**	**9355.68**	**379.00**

JURISDICTION REPORT- Indiana

Jurisdiction Totals | **Units: ML/d** | **Year Of Data: 2001**

Total Report - All Facilities

Category	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	TOTAL	Intrabasin	Interbasin	
Public Supply	359.54	132.00	215.39	706.93	0.00	-8.40	106.07
Domestic Supply	0.00	123.75	128.29	252.03	0.00	0.00	37.78
Irrigation	0.00	26.69	75.78	102.47	0.00	0.00	92.17
Livestock	0.00	5.34	16.85	22.18	0.00	0.00	17.79
Industrial	6506.37	37.32	65.83	6609.52	0.00	0.00	396.60
Fossil Fuel Power	3867.59	0.00	1.02	3868.62	0.00	0.00	77.37
Nuclear Power	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydroelectric Power	0.00	9032.30	0.00	9032.30	0.00	0.00	0.00
Other	0.00	0.11	0.57	0.68	0.00	0.00	0.08

Total Report - Principal Facilities

Category	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	TOTAL	Intrabasin	Interbasin	
Public Supply	359.54	131.96	213.88	705.37	0.00	0.00	105.84
Domestic Supply	0.00	123.75	22.03	145.78	0.00	0.00	21.88
Irrigation	0.00	25.10	73.66	98.76	0.00	0.00	88.88
Livestock	0.00	5.34	5.03	10.37	0.00	0.00	8.29
Industrial	6506.33	37.25	63.22	6606.79	0.00	0.00	396.41
Fossil Fuel Power	3867.59	0.00	1.02	3868.62	0.00	0.00	77.37
Nuclear Power	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydroelectric Power	0.00	9032.30	0.00	9032.30	0.00	0.00	0.00
Other	0.00	0.00	0.15	0.15	0.00	0.00	0.00

Michigan

Data Source: 2001 water use data for Michigan were submitted by the Michigan Department of Environmental Quality. All data are directly reported to the Michigan DEQ by the facilities within each category except irrigation, which is estimated and divided into agricultural and nonagricultural (golf course, park, etc.) irrigation. Agricultural irrigation is calculated using federal Agricultural Census data and a water use estimation model developed for Michigan. Nonagricultural irrigation facilities report directly to the DEQ. Please contact Ron Van Til at 517/241-1414 or vantilr@michigan.gov with questions regarding Michigan's data.

Due to the large number of facilities and lack of staff resources, water use data for principal facilities in 2001 has not been reported. Most of the data are available at the state database at www.michigan.gov/deq. Click on Water Use, Levels & Diversion and go to the Michigan Water Use Reporting Program**.**

Withdrawals: Water withdrawals for the Lake Superior, Lake Michigan, Lake Huron, and Lake Erie basins of Michigan were approximately 10,632.50 mgd, an increase of almost 8% from 2000. Of the four basins, the state of Michigan withdraws the most--about 48%--from Lake Erie (5,140.30 mgd) and the least--almost 3%--from Lake Superior (302.54 mgd). Thermoelectric power-fossil fuel, at 60%, was the largest withdrawal category for the state of Michigan.

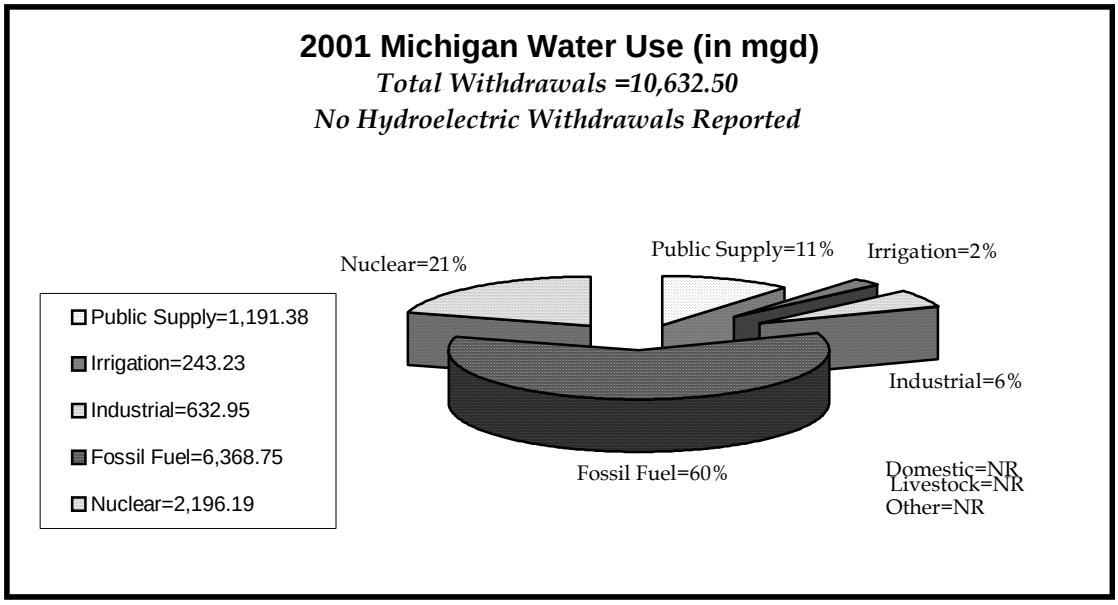

Figure 7

Consumptive Use: Consumptive uses in the Michigan portion of the Great Lakes basin were calculated to be approximately 549.29 mgd; irrigation was the largest single consumptive use (because the coefficient for irrigation is 90%) at 218.92 mgd, about 40% of the total consumptive use.

Interbasin Diversions: None reported.

Data Quality: Michigan's withdrawal data for this report were 92% measured, 6% partially measured, and 2% calculated or estimated; the level of aggregation was 100% site-specific.

JURISDICTION REPORT- Michigan

Withdrawals, Diversions and Consumptive Uses **Units: ML/d** **Year Of Data: 2001**

Basin	Category	All Facilities			Principal Facilities		
		Withdr.	Inter-Basin Diver.	Consum.	Withdr.	Inter-Basin Diver.	Consum.
Lake Superior							
	Public Supply	47.66	0.00	5.98			
	Domestic Supply		0.00				
	Irrigation	1.29	0.00	1.17			
	Livestock		0.00				
	Industrial	77.30	0.00	7.72			
	Fossil Fuel Power	1019.00	0.00	12.23			
	Nuclear Power	0.00	0.00	0.00			
	Hydroelectric Power	0.00	0.00	0.00			
	Other		0.00				
	Total:	**1145.24**	**0.00**	**27.10**			
Lake Michigan							
	Public Supply	1160.49	0.00	145.06			
	Domestic Supply		0.00				
	Irrigation	703.71	0.00	633.38			
	Livestock		0.00				
	Industrial	867.58	0.00	86.76			
	Fossil Fuel Power	4601.32	0.00	55.23			
	Nuclear Power	8118.12	0.00	154.26			
	Hydroelectric Power	0.00	0.00	0.00			
	Other		0.00				
	Total:	**15451.22**	**0.00**	**1074.68**			
Lake Huron							
	Public Supply	980.35	0.00	122.53			
	Domestic Supply		0.00				
	Irrigation	130.41	0.00	117.39			
	Livestock		0.00				
	Industrial	109.74	0.00	10.98			
	Fossil Fuel Power	2973.29	0.00	35.66			
	Nuclear Power	0.00	0.00	0.00			
	Hydroelectric Power	0.00	0.00	0.00			
	Other		0.00				
	Total:	**4193.78**	**0.00**	**286.56**			

Basin	Category	All Facilities			Principal Facilities		
		Withdr.	Inter-Basin Diver.	Consum.	Withdr.	Inter-Basin Diver.	Consum.
Lake Erie							
	Public Supply	2321.37	0.00	290.19			
	Domestic Supply		0.00				
	Irrigation	85.32	0.00	76.77			
	Livestock		0.00				
	Industrial	1341.36	0.00	134.12			
	Fossil Fuel Power	15514.74	0.00	186.17			
	Nuclear Power	195.37	0.00	3.71			
	Hydroelectric Power	0.00	0.00	0.00			
	Other		0.00				
	Total:	**19458.15**	**0.00**	**690.95**			
Grand Total:		**40248.39**	**0.00**	**2079.29**			

JURISDICTION REPORT - Michigan

Withdrawals by Source

Units: ML/d

Year Of Data: 2001

Basin	Category	All Facilities			Principal Facilities		
		GLSW	OSW	GW	GLSW	OSW	GW
Lake Superior							
	Public Supply	14.08	0.00	33.58			
	Domestic Supply						
	Irrigation	0.04	0.49	0.76			
	Livestock						
	Industrial	76.01	0.00	1.29			
	Fossil Fuel Power	1019.00	0.00	0.00			
	Nuclear Power	0.00	0.00	0.00			
	Hydroelectric Power	0.00	0.00	0.00			
	Other						
	Total:	**1109.13**	**0.49**	**35.62**			
Lake Michigan							
	Public Supply	506.94	2.20	651.36			
	Domestic Supply						
	Irrigation	8.14	210.13	485.44			
	Livestock						
	Industrial	268.20	303.97	295.41			
	Fossil Fuel Power	3674.69	918.53	8.10			
	Nuclear Power	8118.12	0.00	0.00			
	Hydroelectric Power	0.00	0.00	0.00			
	Other						
	Total:	**12576.09**	**1434.82**	**1440.31**			
Lake Huron							
	Public Supply	856.79	2.91	120.64			
	Domestic Supply						
	Irrigation	18.25	44.78	67.38			
	Livestock						
	Industrial	75.71	28.01	6.02			
	Fossil Fuel Power	2969.35	0.00	3.94			
	Nuclear Power	0.00	0.00	0.00			
	Hydroelectric Power	0.00	0.00	0.00			
	Other						
	Total:	**3920.10**	**75.71**	**197.98**			

Basin	Category	All Facilities			Principal Facilities		
		GLSW	OSW	GW	GLSW	OSW	GW
Lake Erie							
	Public Supply	2095.60	67.46	158.31			
	Domestic Supply						
	Irrigation	1.85	46.79	36.68			
	Livestock						
	Industrial	1212.43	54.96	73.97			
	Fossil Fuel Power	15514.40	0.00	0.34			
	Nuclear Power	195.37	0.00	0.00			
	Hydroelectric Power	0.00	0.00	0.00			
	Other						
	Total:	**19019.65**	**169.21**	**269.29**			
Grand Total:		**36624.96**	**1680.23**	**1943.20**			

JURISDICTION REPORT- Michigan

Jurisdiction Totals | **Units: ML/d** | **Year Of Data: 2001**

Total Report - All Facilities

Category	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	TOTAL	Intrabasin	Interbasin	
Public Supply	3473.42	72.57	963.88	4509.86	0.00	0.00	563.76
Domestic Supply					0.00	0.00	
Irrigation	28.28	302.19	590.26	920.73	0.00	0.00	828.70
Livestock					0.00	0.00	
Industrial	1632.35	386.94	376.69	2395.98	0.00	0.00	239.58
Fossil Fuel Power	23177.43	918.53	12.38	24108.34	0.00	0.00	289.28
Nuclear Power	8313.48	0.00	0.00	8313.48	0.00	0.00	157.97
Hydroelectric Power	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other					0.00	0.00	

Total Report - Principal Facilities

Category	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	TOTAL	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. Please contact Sean Hunt at 651/296-0509 or sean.hunt@dnr.state.mn.us with questions regarding Minnesota's data.

Withdrawals: Withdrawals from the Minnesota portion of the Lake Superior basin were 3,858.63 mgd, representing a 817.76 mgd decrease from 2000. (Total withdrawals in 2000 showed a 994.35 mgd decrease from 1999). Hydroelectric withdrawal, which, at 3,420.98 mgd, accounts for over 88% of Minnesota's total water withdrawals in 2001, also dropped from the 2000 level of 4,094.12 mgd and the 1999 level of 5,110.67 mgd. Of the remainder (437.65 mgd), industrial use accounts for almost half.

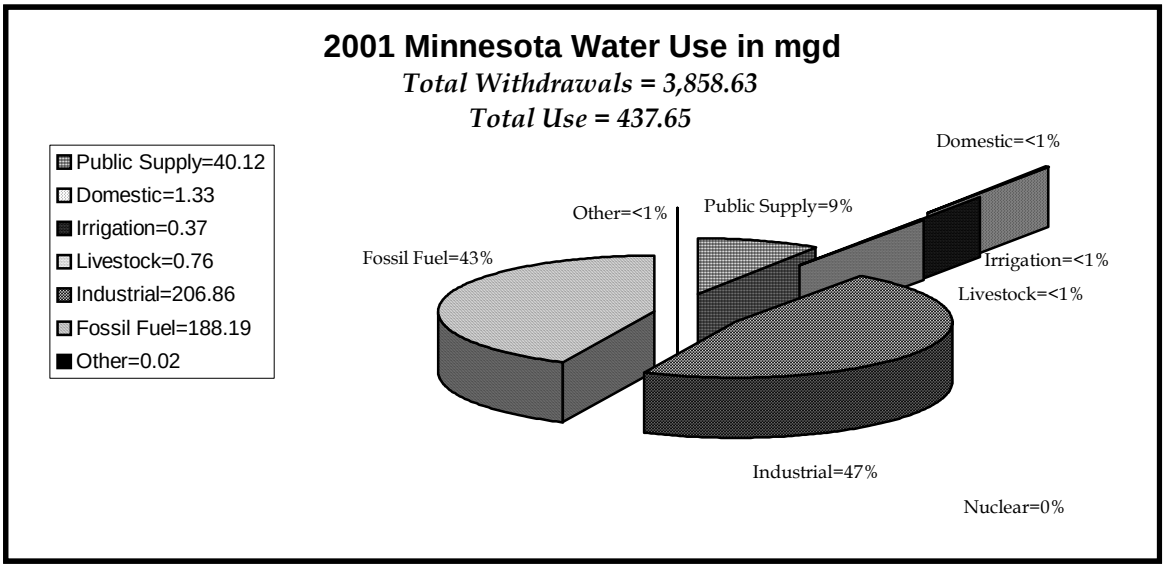

Figure 8

Consumptive Use: The largest consumptive use was category was industrial, at 20.69 mgd, or 70% of total consumption. Public supply was the second largest consumptive use at 4.01 mgd, or 13% of total consumptive use.

Interbasin Diversions: None reported.

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

JURISDICTION REPORT- Minnesota

Withdrawals, Diversions and Consumptive Uses **Units: ML/d** **Year Of Data: 2001**

Basin	Category	All Facilities			Principal Facilities		
		Withdr.	Inter-Basin Diver.	Consum.	Withdr.	Inter-Basin Diver.	Consum.
Lake Superior							
	Public Supply	151.87	0.00	15.18	149.75	0.00	14.99
	Domestic Supply	5.03	0.00	0.53	4.24	0.00	0.42
	Irrigation	1.40	0.00	1.25	0.42	0.00	0.38
	Livestock	2.88	0.00	2.57	2.84	0.00	2.57
	Industrial	783.05	0.00	78.32	781.50	0.00	78.17
	Fossil Fuel Power	712.38	0.00	14.23	712.19	0.00	14.23
	Nuclear Power	0.00	0.00	0.00	0.00	0.00	0.00
	Hydroelectric Power	12949.82	0.00	0.00	12949.82	0.00	0.00
	Other	0.08	0.00	0.00	0.00	0.00	0.00
	Total:	**14606.50**	**0.00**	**112.09**	**14600.75**	**0.00**	**110.76**
Grand Total:		**14606.50**	**0.00**	**112.09**	**14600.75**	**0.00**	**110.76**

JURISDICTION REPORT - Minnesota

Withdrawals by Source

Units: ML/d

Year Of Data: 2001

Basin	Category	All Facilities			Principal Facilities		
		GLSW	OSW	GW	GLSW	OSW	GW
Lake Superior							
	Public Supply	121.28	12.23	18.36	121.10	12.08	16.58
	Domestic Supply	3.67	1.32	0.04	3.56	0.68	0.00
	Irrigation	0.15	1.21	0.04	0.00	0.42	0.00
	Livestock	2.88	0.00	0.00	2.84	0.00	0.00
	Industrial	517.77	265.09	0.19	517.73	263.77	0.00
	Fossil Fuel Power	0.04	711.73	0.61	0.00	711.66	0.53
	Nuclear Power	0.00	0.00	0.00	0.00	0.00	0.00
	Hydroelectric Power	0.00	12949.82	0.00	0.00	12949.82	0.00
	Other	0.00	0.00	0.08	0.00	0.00	0.00
	Total:	**645.79**	**13941.41**	**19.31**	**645.22**	**13938.42**	**17.11**
Grand Total:		**645.79**	**13941.41**	**19.31**	**645.22**	**13938.42**	**17.11**

JURISDICTION REPORT- Minnesota

Jurisdiction Totals | **Units: ML/d** | **Year Of Data: 2001**

Total Report - All Facilities

Category	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	TOTAL	Intrabasin	Interbasin	
Public Supply	121.28	12.23	18.36	151.87	0.00	0.00	15.18
Domestic Supply	3.67	1.32	0.04	5.03	0.00	0.00	0.53
Irrigation	0.15	1.21	0.04	1.40	0.00	0.00	1.25
Livestock	2.88	0.00	0.00	2.88	0.00	0.00	2.57
Industrial	517.77	265.09	0.19	783.05	0.00	0.00	78.32
Fossil Fuel Power	0.04	711.73	0.61	712.38	0.00	0.00	14.23
Nuclear Power	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydroelectric Power	0.00	12949.82	0.00	12949.82	0.00	0.00	0.00
Other	0.00	0.00	0.08	0.08	0.00	0.00	0.00

Total Report - Principal Facilities

Category	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	TOTAL	Intrabasin	Interbasin	
Public Supply	121.10	12.08	16.58	149.75	0.00	0.00	14.99
Domestic Supply	3.56	0.68	0.00	4.24	0.00	0.00	0.42
Irrigation	0.00	0.42	0.00	0.42	0.00	0.00	0.38
Livestock	2.84	0.00	0.00	2.84	0.00	0.00	2.57
Industrial	517.73	263.77	0.00	781.50	0.00	0.00	78.17
Fossil Fuel Power	0.00	711.66	0.53	712.19	0.00	0.00	14.23
Nuclear Power	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hydroelectric Power	0.00	12949.82	0.00	12949.82	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00

New York

Data Source: Water use data collection in New York is coordinated by the Department of Environmental Conservation--Bureau of Water Resource Management. Please contact Michael Holt at 518/402-8099 or mdholt@gw.dec.state.ny.us with questions regarding New York's data.

Withdrawals: In 2001, New York withdrawals totaled 294,345.18 mgd, showing a continuing decrease from 302,153.31 mgd in 2000 and 305,249.45 mgd in 1999. Hydroelectric power was by far the largest utilization of water in New York State at 289,002.00 mgd, down from 296,813.00 mgd in 2000 and 299,796.00 mgd in 1999. Total use, excluding hydroelectric power, was stable with 5,343.18 mgd in 2001 compared to 5340.31 mgd in 2000 and 5453.45 mgd in 1999. Hydroelectric withdrawals on the St. Lawrence River accounted for 59% of all New York water withdrawals (169,687.00 of 289,002 mgd); Lakes Ontario and Erie hydroelectric withdrawals were 80,908 mgd and 38,407 mgd respectively.

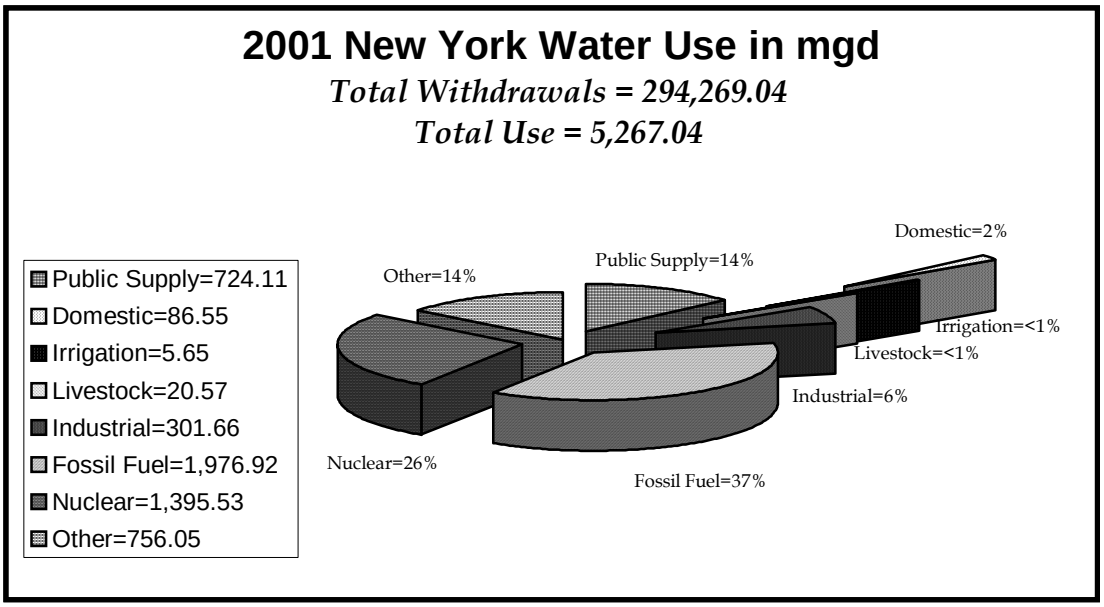

Figure 9

Consumptive Use: New York reported total consumptive uses of 344.16 mgd. Consumptive uses were calculated to be 114.45 mgd from Lake Erie, 214.81 mgd from Lake Ontario, and 14.90 mgd from the St. Lawrence River. The largest categories of consumptive use were industrial (84.26 mgd) and public water supply (80.97 mgd).

Interbasin Diversions: Lake Ontario to Mohawk River: The City of Rome withdrew an average of 9.51 mgd from the Tagasoke Reservoir on the East Branch of Fish Creek for public water supply purposes.

Lake Ontario to Mohawk River: The Forestport/Black River Canal was decommissioned in the 1980s but still allows for residual flow of up to 32 mgd.

Intrabasin Diversions: The western section of the Erie Canal withdrew up to 711 mgd from the Niagara River during the navigation season (May through November) and returned it through tributaries of Lake Ontario, resulting in no net loss or gain to the basin.

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

JURISDICTION REPORT- New York

Withdrawals, Diversions and Consumptive Uses **Units: ML/d** **Year Of Data: 2001**

Basin	Category	All Facilities			Principal Facilities		
		Withdr.	Inter-Basin Diver.	Consum.	Withdr.	Inter-Basin Diver.	Consum.
Lake Erie							
	Public Supply	1064.50	0.00	106.45		0.00	
	Domestic Supply	86.84	0.00	8.67	0.00	0.00	0.00
	Irrigation	1.17	0.00	1.06	1.17	0.00	1.06
	Livestock	16.28	0.00	14.65		0.00	
	Industrial	884.16	0.00	221.03	884.16	0.00	221.03
	Fossil Fuel Power	4069.17	0.00	81.39	4069.17	0.00	81.39
	Nuclear Power	0.00	0.00	0.00	0.00	0.00	0.00
	Hydroelectric Power	145386.32	0.00	0.00	145386.32	0.00	0.00
	Other	0.00	0.00	0.00	0.00	0.00	0.00
	Total:	**151508.43**	**0.00**	**433.24**	**150340.82**	**0.00**	**303.48**
Lake Ontario							
	Public Supply	1515.22	36.00	183.90		36.00	
	Domestic Supply	337.62	0.00	33.77	103.34	0.00	10.33
	Irrigation	19.84	0.00	17.83	19.84	0.00	17.83
	Livestock	42.36	0.00	38.12		0.00	
	Industrial	328.84	0.00	82.22	195.02	0.00	48.76
	Fossil Fuel Power	3413.91	0.00	68.25	3413.91	0.00	68.25
	Nuclear Power	5282.66	0.00	264.15	5282.66	0.00	264.15
	Hydroelectric Power	306270.11	0.00	0.00	0.00	0.00	0.00
	Other	2850.60	121.13	124.92	2850.60	121.13	124.92
	Total:	**320061.16**	**157.13**	**813.14**	**11865.37**	**157.13**	**534.24**
St. Lawrence River							
	Public Supply	161.33	0.00	16.16		0.00	
	Domestic Supply	57.58	0.00	5.75	2.04	0.00	0.19
	Irrigation	0.38	0.00	0.34	0.38	0.00	0.34
	Livestock	19.23	0.00	17.30		0.00	
	Industrial	62.72	0.00	15.71	62.72	0.00	15.71
	Fossil Fuel Power	0.38	0.00	0.00	0.38	0.00	0.00
	Nuclear Power	0.00	0.00	0.00	0.00	0.00	0.00
	Hydroelectric Power	642335.21	0.00	0.00	268745.32	0.00	0.00
	Other	11.36	0.00	1.14	11.36	0.00	1.14
	Total:	**642648.18**	**0.00**	**56.40**	**268822.21**	**0.00**	**17.38**
Grand Total:		**1114217.78**	**157.13**	**1302.79**	**431028.40**	**157.13**	**855.09**

JURISDICTION REPORT - New York

Withdrawals by Source

Units: ML/d

Year Of Data: 2001

Basin	Category	All Facilities			Principal Facilities		
		GLSW	OSW	GW	GLSW	OSW	GW
Lake Erie							
	Public Supply	698.71	338.04	27.75			
	Domestic Supply	46.67	0.00	40.16	0.00	0.00	0.00
	Irrigation	0.61	0.57	0.00	0.61	0.57	0.00
	Livestock	5.83	0.00	10.45			
	Industrial	879.73	3.52	0.91	879.73	3.52	0.91
	Fossil Fuel Power	4069.17	0.00	0.00	4069.17	0.00	0.00
	Nuclear Power	0.00	0.00	0.00	0.00	0.00	0.00
	Hydroelectric Power	145386.32	0.00	0.00	145386.32	0.00	0.00
	Other	0.00	0.00	0.00	0.00	0.00	0.00
	Total:	**151087.04**	**342.13**	**79.27**	**150335.82**	**4.09**	**0.91**
Lake Ontario							
	Public Supply	731.38	639.92	143.92			
	Domestic Supply	79.87	103.34	154.41	0.00	103.34	0.00
	Irrigation	0.00	19.57	0.26	0.00	19.57	0.26
	Livestock	14.88	0.00	27.48			
	Industrial	140.02	153.57	35.24	140.02	48.30	6.70
	Fossil Fuel Power	1923.86	1490.05	0.00	1923.86	1490.05	0.00
	Nuclear Power	5282.66	0.00	0.00	5282.66	0.00	0.00
	Hydroelectric Power	0.00	306270.11	0.00	0.00	0.00	0.00
	Other	2691.43	158.76	0.42	2691.43	158.76	0.42
	Total:	**10864.09**	**308835.34**	**361.73**	**10037.97**	**1820.03**	**7.38**
St. Lawrence River							
	Public Supply	10.94	128.59	21.80			
	Domestic Supply	9.65	2.04	45.88	0.00	2.04	0.00
	Irrigation	0.00	0.38	0.00	0.00	0.38	0.00
	Livestock	6.70	0.00	12.53			
	Industrial	23.43	30.43	8.86	23.43	30.43	8.86
	Fossil Fuel Power	0.38	0.00	0.00	0.38	0.00	0.00
	Nuclear Power	0.00	0.00	0.00	0.00	0.00	0.00
	Hydroelectric Power	268745.32	373589.88	0.00	268745.32	0.00	0.00
	Other	0.00	11.36	0.00	0.00	11.36	0.00
	Total:	**268796.43**	**373762.69**	**89.07**	**268769.14**	**44.21**	**8.86**
Grand Total:		**430747.56**	**682940.15**	**530.07**	**429142.92**	**1868.33**	**17.15**

JURISDICTION REPORT- New York

Jurisdiction Totals | **Units: ML/d** | **Year Of Data: 2001**

Total Report - All Facilities

Category	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	TOTAL	Intrabasin	Interbasin	
Public Supply	1441.03	1106.55	193.47	2741.05	0.00	36.00	306.50
Domestic Supply	136.20	105.39	240.45	482.03	0.00	0.00	48.19
Irrigation	0.61	20.52	0.26	21.39	0.00	0.00	19.23
Livestock	27.41	0.00	50.46	77.87	0.00	0.00	70.07
Industrial	1043.18	187.53	45.01	1275.72	0.00	0.00	318.96
Fossil Fuel Power	5993.40	1490.05	0.00	7483.46	0.00	0.00	149.64
Nuclear Power	5282.66	0.00	0.00	5282.66	0.00	0.00	264.15
Hydroelectric Power	414131.64	679860.00	0.00	1093991.64	0.00	0.00	0.00
Other	2691.43	170.12	0.42	2861.96	2691.43	121.13	126.05

Total Report - Principal Facilities

Category	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	TOTAL	Intrabasin	Interbasin	
Public Supply					0.00	36.00	
Domestic Supply	0.00	105.39	0.00	105.39	0.00	0.00	10.52
Irrigation	0.61	20.52	0.26	21.39	0.00	0.00	19.23
Livestock					0.00	0.00	
Industrial	1043.18	82.26	16.47	1141.91	0.00	0.00	285.50
Fossil Fuel Power	5993.40	1490.05	0.00	7483.46	0.00	0.00	149.64
Nuclear Power	5282.66	0.00	0.00	5282.66	0.00	0.00	264.15
Hydroelectric Power	414131.64	0.00	0.00	414131.64	0.00	0.00	0.00
Other	2691.43	170.12	0.42	2861.96	2691.43	121.13	126.05

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. Please contact Lenn Black at leonard.black@dnr.state.oh.us or 614/265-6758 with questions regarding Ohio's data.

Withdrawals: Total withdrawals from the Ohio Lake Erie basin for 2001 were 3,209.28 mgd—up slightly from the 2000 figure of 3,192.35 mgd. As in 2000, thermoelectric-fossil fuel was by far the largest use of water at 2,183.92 mgd (68%); public supply was the second largest withdrawal at 597.28 mgd (19%).

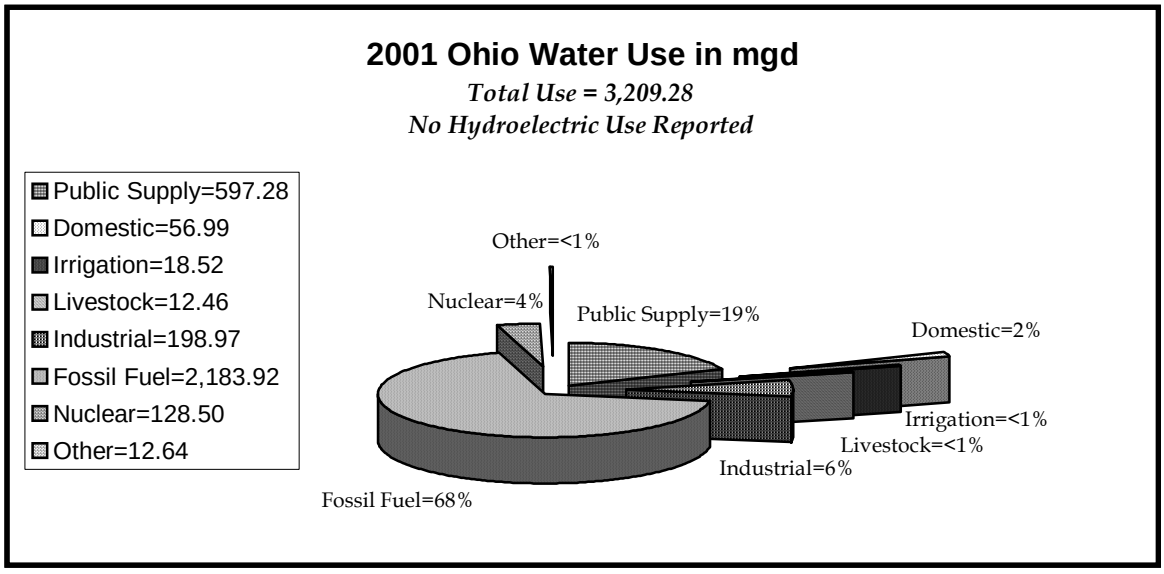

Figure 10

Consumptive Use: Total consumptive uses were calculated to be 179.45 mgd. Public supply represents the largest consumptive use sector at 89.59 mgd and accounts for almost 50% of the total. The next three largest consumptive uses were thermoelectric-fossil fuel at 21.48 mgd, industrial facilities at 19.9 mgd and irrigation at 16.75 mgd.

Interbasin Diversions: Two Lake Erie basin public water systems provided drinking water to service areas outside the basin without return, resulting in total outgoing diversions of 0.32 mgd. Outflows from an Ohio & Erie Canal feeder lake resulted in a diversion into the Lake Erie basin of -9.61 mgd.

Data Quality: Ohio's withdrawal data for this report were 2% calculated or estimated, and 98% partially measured; the level of aggregation was 2% aggregated and 98% site-specific.

JURISDICTION REPORT - Ohio

Withdrawals, Diversions and Consumptive Uses **Units: ML/d** **Year Of Data: 2001**

Basin	Category	All Facilities			Principal Facilities		
		Withdr.	Inter-Basin Diver.	Consum.	Withdr.	Inter-Basin Diver.	Consum.
Lake Erie							
	Public Supply	2260.95	1.21	339.14	2247.36	1.21	337.09
	Domestic Supply	215.73	0.00	32.37	0.00	0.00	0.00
	Irrigation	70.11	0.00	63.41	45.12	0.00	40.66
	Livestock	47.17	0.00	37.74	2.84	0.00	2.27
	Industrial	753.18	0.00	75.33	749.36	0.00	74.95
	Fossil Fuel Power	8267.04	0.00	82.67	8266.81	0.00	82.67
	Nuclear Power	486.43	0.00	48.64	486.43	0.00	48.64
	Hydroelectric Power	0.00	0.00	0.00	0.00	0.00	0.00
	Other	47.85	-36.38	0.00	46.30	-36.38	0.00
	Total:	**12148.45**	**-35.17**	**679.29**	**11844.21**	**-35.17**	**586.28**
Grand Total:		**12148.45**	**-35.17**	**679.29**	**11844.21**	**-35.17**	**586.28**

JURISDICTION REPORT - Ohio

Withdrawals by Source

Units: ML/d

Year Of Data: 2001

Basin	Category	All Facilities			Principal Facilities		
		GLSW	OSW	GW	GLSW	OSW	GW
Lake Erie							
	Public Supply	1668.46	453.19	139.30	1667.81	452.58	126.96
	Domestic Supply	0.00	0.00	215.73	0.00	0.00	0.00
	Irrigation	1.40	55.12	13.59	0.49	38.80	5.83
	Livestock	0.00	7.23	39.94	0.00	0.83	2.01
	Industrial	190.63	428.43	134.12	190.63	427.07	131.66
	Fossil Fuel Power	5727.21	2539.60	0.23	5727.21	2539.60	0.00
	Nuclear Power	486.43	0.00	0.00	486.43	0.00	0.00
	Hydroelectric Power	0.00	0.00	0.00	0.00	0.00	0.00
	Other	3.10	34.45	10.30	3.10	34.07	9.12
	Total:	**8077.24**	**3518.01**	**553.20**	**8075.68**	**3492.95**	**275.58**
Grand Total:		**8077.24**	**3518.01**	**553.20**	**8075.68**	**3492.95**	**275.58**

JURISDICTION REPORT- Ohio

Jurisdiction Totals | **Units: ML/d** | **Year Of Data: 2001**

Total Report - All Facilities

Category	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	TOTAL	Intrabasin	Interbasin	
Public Supply	1668.46	453.19	139.30	2260.95	0.00	1.21	339.14
Domestic Supply	0.00	0.00	215.73	215.73	0.00	0.00	32.37
Irrigation	1.40	55.12	13.59	70.11	0.00	0.00	63.41
Livestock	0.00	7.23	39.94	47.17	0.00	0.00	37.74
Industrial	190.63	428.43	134.12	753.18	0.00	0.00	75.33
Fossil Fuel Power	5727.21	2539.60	0.23	8267.04	0.00	0.00	82.67
Nuclear Power	486.43	0.00	0.00	486.43	0.00	0.00	48.64
Hydroelectric Power	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	3.10	34.45	10.30	47.85	0.00	-36.38	0.00

Total Report - Principal Facilities

Category	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	TOTAL	Intrabasin	Interbasin	
Public Supply	1667.81	452.58	126.96	2247.36	0.00	1.21	337.09
Domestic Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Irrigation	0.49	38.80	5.83	45.12	0.00	0.00	40.66
Livestock	0.00	0.83	2.01	2.84	0.00	0.00	2.27
Industrial	190.63	427.07	131.66	749.36	0.00	0.00	74.95
Fossil Fuel Power	5727.21	2539.60	0.00	8266.81	0.00	0.00	82.67
Nuclear Power	486.43	0.00	0.00	486.43	0.00	0.00	48.64
Hydroelectric Power	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	3.10	34.07	9.12	46.30	0.00	-36.38	0.00

Ontario

Data Source: Water use data reporting for Ontario was coordinated by the Ontario Ministry of Natural Resources, Science and Information Branch. 2000 figures are used for this report.

Data for the public supply sector were obtained from the Ministry of the Environment Interim Inspection System Reports. 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. As no viable source of current data is available for industrial water use, the reported industrial data are from 1996. Data for the power sector categories were obtained through contact with individual operators and generation companies. Data for the "other" category were taken from the National Canal Survey.

Although this water withdrawal report accounts for the majority of water use within Ontario, data for a limited number of water users is not available, therefore this database does not represent all water use in the province. Please contact Scott Christilaw at 705/755-1870 or scott.christilaw@mnr.gov.on.ca with questions regarding Ontario's data.

Withdrawals: Total 2000 Great Lakes water uses for Ontario were approximately 766,329 mld, or 202,442 mgd. Of this, hydroelectric uses represented more than 94% of the total (717,493 mld, or 189,541 mgd). Of the remainder, thermoelectric—nuclear plant withdrawals were the second largest at 5% (35,3105 mld, or 9,329 mgd).

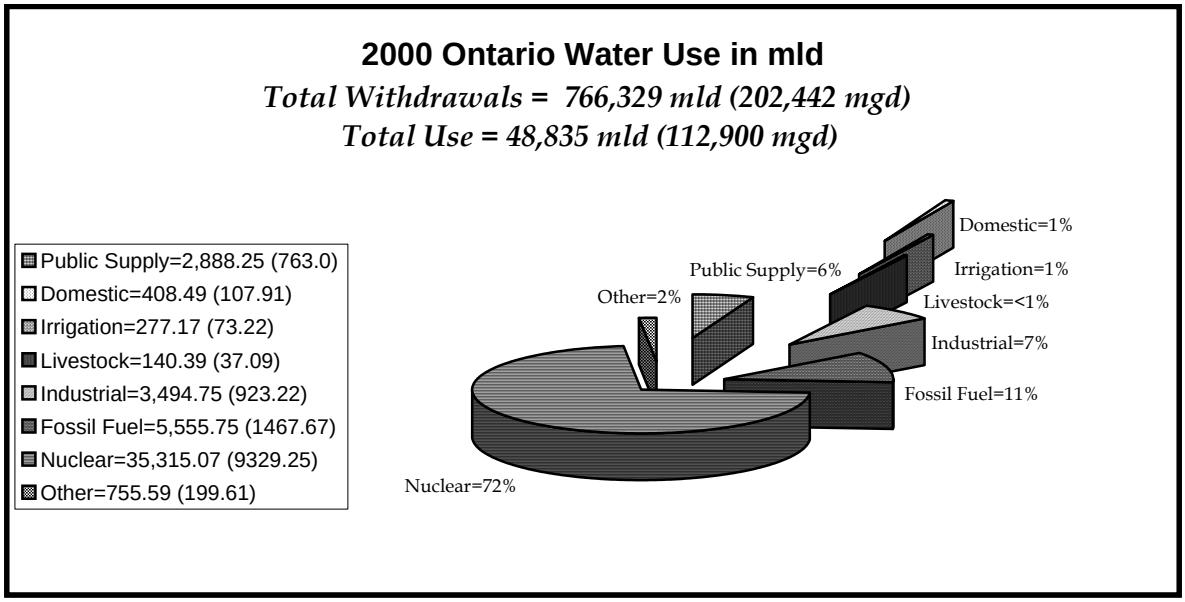

Figure 11

Consumptive Use: Total consumptive uses were calculated to be 714.66 mld (188.79 mgd). Public supply represents the largest consumptive use sector at 433.24 mld (114.45 mgd) and accounts for over 60% 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.

Interbasin Diversions: Ontario reported incoming interbasin diversions into the Lake Superior basin from the James Bay basin for hydroelectric purposes (the Ogoki and Long Lac projects) amounting to -4,004.75 mgd (-15,170.99 mld).

Intrabasin Diversions: Intrabasin diversions occurred between Lakes Huron, Erie, and Ontario.

Data Quality: Ontario's withdrawal data for this report were 21% measured, 79% partially measured, and <1% calculated or estimated; the level of aggregation was 99% site-specific and <1% aggregated.

JURISDICTION REPORT- Ontario

Withdrawals, Diversions and Consumptive Uses **Units: ML/d** **Year Of Data: 2001**

Basin	Category	All Facilities			Principal Facilities		
		Withdr.	Inter-Basin Diver.	Consum.	Withdr.	Inter-Basin Diver.	Consum.
Lake Superior							
	Public Supply	173.27	0.00	26.00	172.52	0.00	25.88
	Domestic Supply	6.61	0.00	0.99	0.00	0.00	0.00
	Irrigation	1.42	0.00			0.00	
	Livestock	0.53	0.00			0.00	
	Industrial	613.70	0.00	38.66	0.00	0.00	0.00
	Fossil Fuel Power	1118.66	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	144437.37	-15170.99	0.00	0.00	0.00	0.00
	Other		0.00			0.00	
	Total:	**146351.56**	**-15170.99**	**65.65**	**172.52**	**0.00**	**25.88**
Lake Huron							
	Public Supply	319.38	0.00	47.90	309.12	0.00	46.36
	Domestic Supply	40.15	0.00	6.02	0.00	0.00	0.00
	Irrigation	79.17	0.00			0.00	
	Livestock	46.99	0.00			0.00	
	Industrial	719.96	0.00	45.35	0.00	0.00	0.00
	Fossil Fuel Power	0.00	0.00	0.00	0.00	0.00	0.00
	Nuclear Power	17780.82	0.00	160.03	0.00	0.00	0.00
	Hydroelectric Power	127220.39	0.00	0.00	0.00	0.00	0.00
	Other	181.59	0.00	0.00	181.59	0.00	0.00
	Total:	**146388.45**	**0.00**	**259.30**	**490.71**	**0.00**	**46.36**
Lake Erie							
	Public Supply	355.41	0.00	53.31	351.42	0.00	52.71
	Domestic Supply	75.48	0.00	11.32	0.00	0.00	0.00
	Irrigation	120.57	0.00			0.00	
	Livestock	50.04	0.00			0.00	
	Industrial	683.08	0.00	43.03	0.00	0.00	0.00
	Fossil Fuel Power	1753.42	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	
	Total:	**3038.01**	**0.00**	**107.66**	**351.42**	**0.00**	**52.71**

Basin	Category	All Facilities			Principal Facilities		
		Withdr.	Inter-Basin Diver.	Consum.	Withdr.	Inter-Basin Diver.	Consum.
Lake Ontario							
	Public Supply	1763.74	0.00	264.56	1758.79	0.00	263.82
	Domestic Supply	242.90	0.00	36.44	0.00	0.00	0.00
	Irrigation	67.13	0.00			0.00	
	Livestock	20.45	0.00			0.00	
	Industrial	869.27	0.00	54.76	0.00	0.00	0.00
	Fossil Fuel Power	2683.67	0.00	0.00	0.00	0.00	0.00
	Nuclear Power	20547.95	0.00	184.93	0.00	0.00	0.00
	Hydroelectric Power	157254.75	0.00	0.00	0.00	0.00	0.00
	Other	501.00	0.00	0.00	501.00	0.00	0.00
	Total:	**183950.86**	**0.00**	**540.69**	**2259.79**	**0.00**	**263.82**
St. Lawrence River							
	Public Supply	276.45	0.00	41.47	272.87	0.00	40.94
	Domestic Supply	43.35	0.00	6.50	0.00	0.00	0.00
	Irrigation	8.89	0.00			0.00	
	Livestock	22.37	0.00			0.00	
	Industrial	608.74	0.00	38.35	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	288581.45	0.00	0.00	0.00	0.00	0.00
	Other	73.00	0.00	0.00	73.00	0.00	0.00
	Total:	**289614.25**	**0.00**	**86.32**	**345.87**	**0.00**	**40.94**
Grand Total:		**769343.12**	**-15170.99**	**1059.62**	**3620.30**	**0.00**	**429.71**

JURISDICTION REPORT - Ontario

Withdrawals by Source

Units: ML/d

Year Of Data: 2001

Basin	Category	All Facilities			Principal Facilities		
		GLSW	OSW	GW	GLSW	OSW	GW
Lake Superior							
	Public Supply	113.93	49.31	10.03	113.83	49.05	9.65
	Domestic Supply	0.00	0.00	6.61	0.00	0.00	0.00
	Irrigation	0.08	1.16	0.17			
	Livestock	0.00	0.53	0.00			
	Industrial	613.69	0.00	0.01	0.00	0.00	0.00
	Fossil Fuel Power	1118.66	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	144437.37	0.00	0.00	0.00	0.00
	Other						
	Total:	**1846.36**	**144488.37**	**16.82**	**113.83**	**49.05**	**9.65**
Lake Huron							
	Public Supply	161.49	89.21	68.68	159.08	87.94	62.10
	Domestic Supply	0.00	0.00	40.15	0.00	0.00	0.00
	Irrigation	0.59	58.33	20.25			
	Livestock	11.08	11.63	24.27			
	Industrial	709.43	0.00	10.53	0.00	0.00	0.00
	Fossil Fuel Power	0.00	0.00	0.00	0.00	0.00	0.00
	Nuclear Power	17780.82	0.00	0.00	0.00	0.00	0.00
	Hydroelectric Power	75709.78	51510.61	0.00	0.00	0.00	0.00
	Other	0.00	181.59	0.00	0.00	181.59	0.00
	Total:	**94373.19**	**51851.37**	**163.88**	**159.08**	**269.53**	**62.10**
Lake Erie							
	Public Supply	33.94	110.78	210.70	33.94	110.63	206.85
	Domestic Supply	0.00	0.00	75.48	0.00	0.00	0.00
	Irrigation	2.23	45.84	72.50			
	Livestock	0.08	3.36	46.60			
	Industrial	655.80	0.00	27.28	0.00	0.00	0.00
	Fossil Fuel Power	1753.42	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						
	Total:	**2445.47**	**159.98**	**432.56**	**33.94**	**110.63**	**206.85**

Basin	Category	All Facilities			Principal Facilities		
		GLSW	OSW	GW	GLSW	OSW	GW
Lake Ontario							
	Public Supply	1519.90	200.08	43.76	1519.74	199.41	39.64
	Domestic Supply	0.00	0.00	242.90	0.00	0.00	0.00
	Irrigation	4.11	36.06	26.96			
	Livestock	0.00	3.56	16.89			
	Industrial	825.88	0.00	43.39	0.00	0.00	0.00
	Fossil Fuel Power	2683.67	0.00	0.00	0.00	0.00	0.00
	Nuclear Power	20547.95	0.00	0.00	0.00	0.00	0.00
	Hydroelectric Power	128178.00	29076.75	0.00	0.00	0.00	0.00
	Other	0.00	501.00	0.00	0.00	501.00	0.00
	Total:	**153759.51**	**29817.45**	**373.90**	**1519.74**	**700.41**	**39.64**
St. Lawrence River							
	Public Supply	40.27	222.72	13.46	40.27	221.52	11.08
	Domestic Supply	0.00	0.00	43.35	0.00	0.00	0.00
	Irrigation	0.03	7.73	1.13			
	Livestock	0.00	13.73	8.65			
	Industrial	604.75	0.00	3.99	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	288255.42	326.03	0.00	0.00	0.00	0.00
	Other	0.00	73.00	0.00	0.00	73.00	0.00
	Total:	**288900.47**	**643.20**	**70.58**	**40.27**	**294.52**	**11.08**
Grand Total:		**541325.01**	**226960.37**	**1057.75**	**1866.85**	**1424.14**	**329.31**

JURISDICTION REPORT- Ontario

Jurisdiction Totals | **Units: ML/d** | **Year Of Data: 2001**

Total Report - All Facilities

Category	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	TOTAL	Intrabasin	Interbasin	
Public Supply	1869.53	672.09	346.63	2888.25	0.00	0.00	433.24
Domestic Supply	0.00	0.00	408.49	408.49	0.00	0.00	61.27
Irrigation	7.04	149.13	121.01	277.17	0.00	0.00	
Livestock	11.16	32.81	96.42	140.39	0.00	0.00	
Industrial	3409.55	0.00	85.20	3494.75	0.00	0.00	220.15
Fossil Fuel Power	5555.75	0.00	0.00	5555.75	0.00	0.00	0.00
Nuclear Power	38328.77	0.00	0.00	38328.77	0.00	0.00	344.96
Hydroelectric Power	492143.20	225350.76	0.00	717493.96	0.00	-15170.99	0.00
Other	0.00	755.59	0.00	755.59	234.59	0.00	0.00

Total Report - Principal Facilities

Category	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	TOTAL	Intrabasin	Interbasin	
Public Supply	1866.85	668.55	329.31	2864.71	0.00	0.00	429.71
Domestic Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Irrigation					0.00	0.00	
Livestock					0.00	0.00	
Industrial	0.00	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	0.00
Nuclear Power	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
Other	0.00	755.59	0.00	755.59	234.59	0.00	0.00

Pennsylvania

Data Source: The Department of Environmental Protection – Bureau of Watershed Management submitted water use data for the Lake Erie and Lake Ontario basins of Pennsylvania. Please contact Tom Denslinger at 717/772-5679 or tdenslinge@state.pa.us with questions regarding Pennsylvania's data.

Withdrawals: Total withdrawals from Lake Erie and Lake Ontario were 78.56 mgd, a drop of 10 mgd from the last year (1994) figures were reported. At 44.99 mgd, or 57% of Pennsylvania's total withdrawals, public supply has overtaken industrial as the primary use of Great Lakes water. Nearly 100% of withdrawals were from the Lake Erie basin (78.34 mgd of 78.56 mgd).

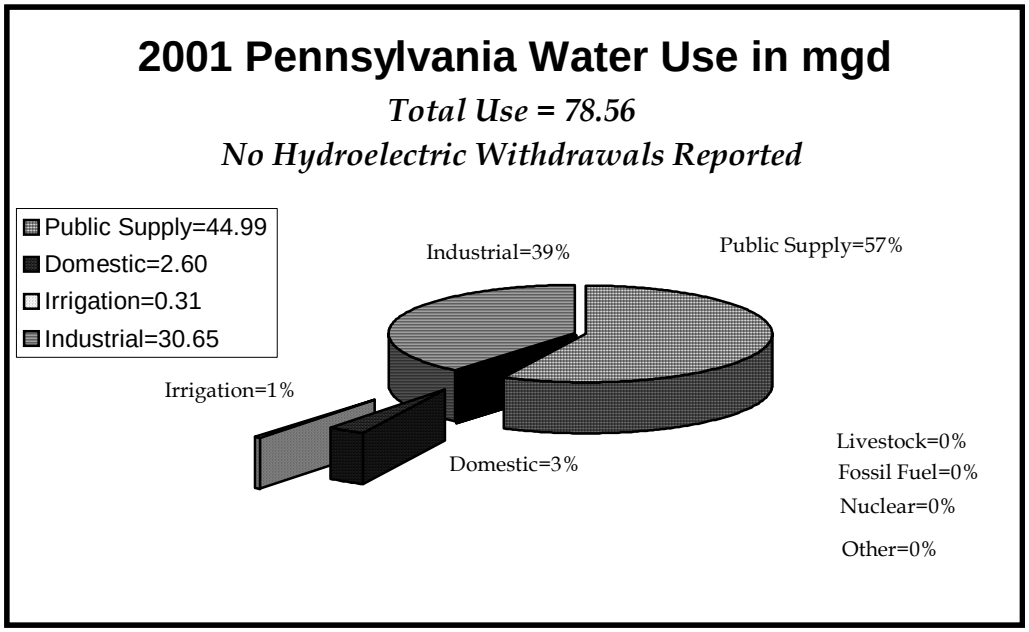

Figure 12

Consumptive Use: Consumptive use totaled 10.38 mgd, down from the most recently available data, from 1994, of 13.9 mgd. Lake Erie constituted almost 100% of the consumptive use reported.

Interbasin Diversions: There was an import of -0.96 mgd of water from the Allegheny River basin to the Lake Erie basin for public water supply purposes.

Data Quality: Pennsylvania's withdrawal data for this report were 100% calculated or estimated; the level of aggregation was 100% site-specific.

JURISDICTION REPORT - Pennsylvania

Withdrawals, Diversions and Consumptive Uses **Units: ML/d** **Year Of Data: 2001**

Basin	Category	All Facilities			Principal Facilities		
		Withdr.	Inter-Basin Diver.	Consum.	Withdr.	Inter-Basin Diver.	Consum.
Lake Erie							
	Public Supply	169.85	-3.63	16.98			
	Domestic Supply	9.46	0.00	0.95			
	Irrigation	1.19	0.00	1.19			
	Livestock						
	Industrial	116.03	0.00	20.11			
	Fossil Fuel Power	0.00	0.00	0.00			
	Nuclear Power	0.00	0.00	0.00			
	Hydroelectric Power	0.00	0.00	0.00			
	Other	0.00	0.00	0.00	0.00	0.00	0.00
	Total:	**296.53**	**-3.63**	**39.22**	**0.00**	**0.00**	**0.00**
Lake Ontario							
	Public Supply	0.47	0.00	0.05			
	Domestic Supply	0.38	0.00	0.04			
	Irrigation	0.00	0.00	0.00			
	Livestock						
	Industrial	0.01	0.00	0.00			
	Fossil Fuel Power	0.00	0.00	0.00			
	Nuclear Power	0.00	0.00	0.00			
	Hydroelectric Power	0.00	0.00	0.00			
	Other	0.00	0.00	0.00	0.00	0.00	0.00
	Total:	**0.86**	**0.00**	**0.08**	**0.00**	**0.00**	**0.00**
Grand Total:		**297.39**	**-3.63**	**39.31**	**0.00**	**0.00**	**0.00**

JURISDICTION REPORT - Pennsylvania

Withdrawals by Source

Units: ML/d

Year Of Data: 2001

Basin	Category	All Facilities			Principal Facilities		
		GLSW	OSW	GW	GLSW	OSW	GW
Lake Erie							
	Public Supply	150.13	10.68	9.04			
	Domestic Supply	0.00	0.00	9.46			
	Irrigation	0.00	0.99	0.20			
	Livestock						
	Industrial	110.69	1.61	3.73			
	Fossil Fuel Power	0.00	0.00	0.00			
	Nuclear Power	0.00	0.00	0.00			
	Hydroelectric Power	0.00	0.00	0.00			
	Other	0.00	0.00	0.00	0.00	0.00	0.00
	Total:	**260.82**	**13.28**	**22.44**	**0.00**	**0.00**	**0.00**
Lake Ontario							
	Public Supply	0.00	0.00	0.47			
	Domestic Supply	0.00	0.00	0.38			
	Irrigation	0.00	0.00	0.00			
	Livestock						
	Industrial	0.00	0.00	0.01			
	Fossil Fuel Power	0.00	0.00	0.00			
	Nuclear Power	0.00	0.00	0.00			
	Hydroelectric Power	0.00	0.00	0.00			
	Other	0.00	0.00	0.00	0.00	0.00	0.00
	Total:	**0.00**	**0.00**	**0.86**	**0.00**	**0.00**	**0.00**
Grand Total:		**260.82**	**13.28**	**23.29**	**0.00**	**0.00**	**0.00**

JURISDICTION REPORT- Pennsylvania

Jurisdiction Totals

Units: ML/d

Year Of Data: 2001

Total Report - All Facilities

Category	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	TOTAL	Intrabasin	Interbasin	
Public Supply	150.13	10.68	9.51	170.32	0.00	-3.63	17.03
Domestic Supply	0.00	0.00	9.84	9.84	0.00	0.00	0.98
Irrigation	0.00	0.99	0.20	1.19	0.00	0.00	1.19
Livestock							
Industrial	110.69	1.61	3.74	116.04	0.00	0.00	20.11
Fossil Fuel Power	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
Hydroelectric Power	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

Total Report - Principal Facilities

Category	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	TOTAL	Intrabasin	Interbasin	
Public Supply							
Domestic Supply							
Irrigation							
Livestock							
Industrial							
Fossil Fuel Power							
Nuclear Power							
Hydroelectric Power							
Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Québec

Data Source: Water use data was collected in 1993 by the Ministère de l'Environnement—Centre d'expertise hydrique du Québec for this report. The centrè collects water use data primarily to support hydrologic and hydraulic research, floodplain delineation and hydrometric network management. Those 1993 data are used for this report because 1) a better tool for assessment is not yet in place and 2) water use figures for 2001 are not believed to be greatly different than those for 1993. Please contact Lucien Bouchard at 418/521-3829 or lucie.bouchard@menv.gouv.qc.ca with questions regarding Québec's data. See the following page for an update on the status of water quantity management in Québec.

Existing regulations have been amended to improve water management based on a new water policy adopted by Québec's National Assembly in November of 2002. The policy furthers the objectives of the Great Lakes Charter and Annex by implementing water quantity monitoring tools, and establishing an organization to oversee water policy management for the St. Lawrence River and basin. (See http://www.menv.gouv.qc.ca/eau/politique/index-en.htm for highlights and the complete text.)

Withdrawals: Total withdrawals from Québec's St. Lawrence River basin were approximately 1,155 bld (305 bgd) in 1993. Nearly 100% of these uses were for hydroelectric power purposes. Recently available figures show a continued increase in industrial water use in Québec.

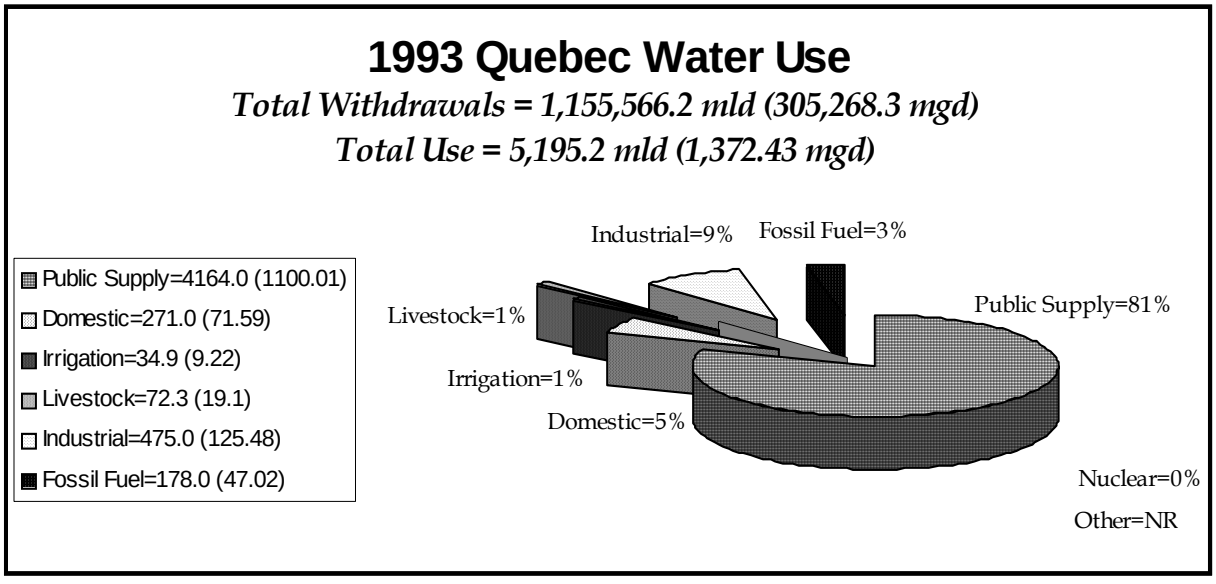

Figure 13

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: None reported.

Data Quality: Québec's withdrawal data for this report were 99% measured, <1% partially measured, and <1% calculated or estimated; the level of aggregation was 100% aggregated.

Historically, water withdrawals have not been a source of great conflict in Québec. However, recent incidents such as construction of a bottled water facility and water shortage brought on by severe drought, have brought the problem to the forefront.

Although Québec does not currently have legislation or a permit system for water withdrawals, several water management tools are in place. Since October 1999, the Water Resources Preservation Act prohibits the transfer of water (both surface water and groundwater) out of Quebec. Exemption is made for the production of electric power; the marketing of water for human consumption if packaged in Québec in containers of 20 liters or less; the supply of potable water to establishments or dwellings situated in a bordering zone; the supply of 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; emergency or humanitarian reasons on the ground. Recently modified regulations on groundwater catchment require reporting for wells which pump over 75 cubic meters per day.

Individual municipalities are responsible for providing drinking water and wastewater treatment, and fixing the appropriate rate, but are not required to meter industrial, commercial, institutional or residential water usage. Water withdrawal data are available only for some large municipalities. As part of the new water policy, Québec will develop a water conservation strategy which will render financial support conditional to the implementation of water conservation measures, including leak detection and repair.

JURISDICTION REPORT- Quebec

Withdrawals, Diversions and Consumptive Uses **Units: ML/d** **Year Of Data: 2001**

Basin	Category	All Facilities			Principal Facilities		
		Withdr.	Inter-Basin Diver.	Consum.	Withdr.	Inter-Basin Diver.	Consum.
St. Lawrence River							
	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	
	Total:	**1155566.20**	**0.00**	**597.55**	**1155355.00**	**0.00**	**498.10**
Grand Total:		**1155566.20**	**0.00**	**597.55**	**1155355.00**	**0.00**	**498.10**

JURISDICTION REPORT - Quebec

Withdrawals by Source

Units: ML/d

Year Of Data: 2001

Basin	Category	All Facilities			Principal Facilities		
		GLSW	OSW	GW	GLSW	OSW	GW
St. Lawrence River							
	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						
	Total:	**649532.00**	**505656.00**	**378.20**	**649531.00**	**505640.00**	**184.00**
Grand Total:		**649532.00**	**505656.00**	**378.20**	**649531.00**	**505640.00**	**184.00**

JURISDICTION REPORT- Quebec

Jurisdiction Totals | **Units: ML/d** | **Year Of Data: 2001**

Total Report - All Facilities

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

Total Report - Principal Facilities

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

Wisconsin

Data Source: 2001 water use data for the Lake Michigan and Lake Superior basins of Wisconsin were submitted by the Wisconsin Department of Natural Resources—Office of the Great Lakes. Please contact Linda Talbot at 608/266-8148 or Linda.talbot.dnr.state.wi.us with questions regarding Wisconsin's data.

Withdrawals: Total withdrawals were 3,561.46 mgd: 3,512.20 mgd from Lake Michigan (98% of the total) and 49.26 mgd from Lake Superior. Water use in the Lake Michigan basin was primarily for fossil fuel (1,725.00 mgd) and nuclear power (1,195.00 mgd)—at 49% and 34% respectively. Of the Lake Superior uses, 38.00 mgd or 77% were for fossil fuel.

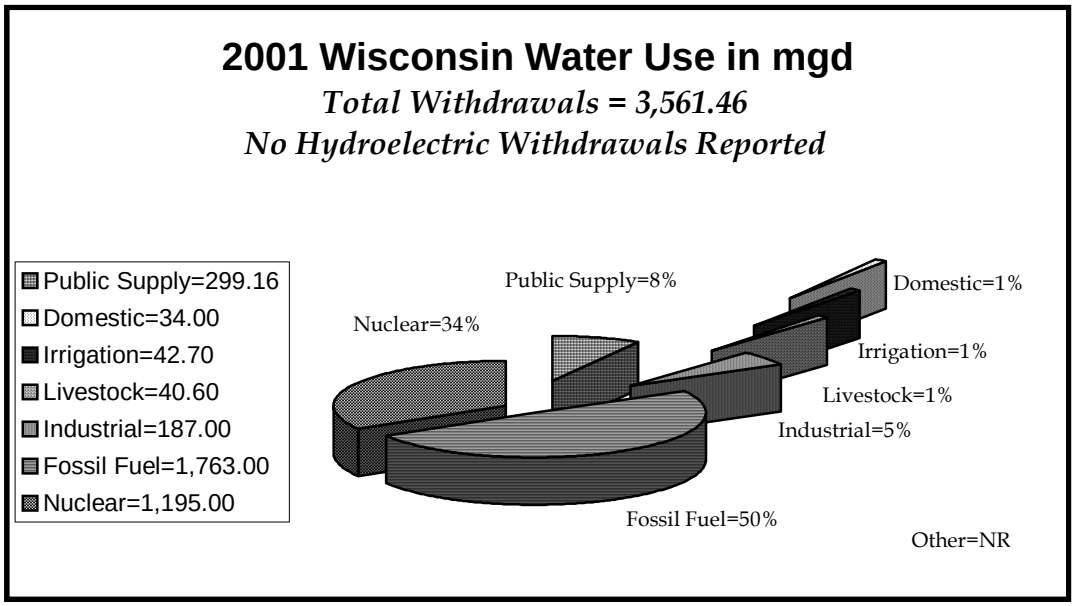

Figure 14

Consumptive Use: Consumptive uses from Wisconsin's portion of the basin were calculated to be 128.38 mgd. Of this amount, livestock at 28% and irrigation at 23% comprised the largest portion.

Interbasin Diversions: A withdrawal for public supply at Pleasant Prairie diverts 0.48 mgd from the Lake Michigan basin to the Mississippi River basin, resulting in a small outgoing diversion. A small diversion remains at the Portage Canal site, with -0.64 mgd flowing from the Wisconsin River (the Mississippi River basin) into the Fox River (the Lake Michigan basin).

Data Quality: Wisconsin's withdrawal data for this report were 92% calculated or estimated and 8% measured; the level of aggregation was 92% aggregated and 8% site-specific.

JURISDICTION REPORT- Wisconsin

Withdrawals, Diversions and Consumptive Uses **Units: ML/d** **Year Of Data: 2001**

Basin	Category	All Facilities			Principal Facilities		
		Withdr.	Inter-Basin Diver.	Consum.	Withdr.	Inter-Basin Diver.	Consum.
Lake Superior							
	Public Supply	4.77	0.00	0.76			
	Domestic Supply	5.30	0.00	0.53			
	Irrigation	1.14	0.00	0.79			
	Livestock	31.42	0.00	28.28			
	Industrial		0.00				
	Fossil Fuel Power	143.85	0.00	0.72			
	Nuclear Power	0.00	0.00	0.00			
	Hydroelectric Power	0.00	0.00	0.00			
	Other		0.00				
	Total:	**186.47**	**0.00**	**31.08**			
Lake Michigan							
	Public Supply	1127.67	1.82	92.74			
	Domestic Supply	123.40	0.00	12.34			
	Irrigation	160.50	0.00	112.35			
	Livestock	122.27	0.00	110.04			
	Industrial	707.87	0.00	72.19			
	Fossil Fuel Power	6529.84	0.00	32.63			
	Nuclear Power	4523.57	0.00	22.60			
	Hydroelectric Power	0.00	0.00	0.00			
	Other		-2.42				
	Total:	**13295.12**	**-0.61**	**454.89**			
Grand Total:		**13481.59**	**-0.61**	**485.97**			

JURISDICTION REPORT - Wisconsin

Withdrawals by Source

Units: ML/d

Year Of Data: 2001

Basin	Category	All Facilities			Principal Facilities		
		GLSW	OSW	GW	GLSW	OSW	GW
Lake Superior							
	Public Supply	2.95	0.00	1.82			
	Domestic Supply	0.00	0.00	5.30			
	Irrigation	0.00	0.00	1.14			
	Livestock	0.00	0.00	31.42			
	Industrial						
	Fossil Fuel Power	143.85	0.00	0.00			
	Nuclear Power	0.00	0.00	0.00			
	Hydroelectric Power	0.00	0.00	0.00			
	Other						
	Total:	**146.80**	**0.00**	**39.67**			
Lake Michigan							
	Public Supply	830.90	96.91	199.87			
	Domestic Supply	0.00	0.00	123.40			
	Irrigation	0.00	0.00	160.50			
	Livestock	0.00	0.00	122.27			
	Industrial	707.87	0.00	0.00			
	Fossil Fuel Power	6529.84	0.00	0.00			
	Nuclear Power	4523.57	0.00	0.00			
	Hydroelectric Power	0.00	0.00	0.00			
	Other						
	Total:	**12592.17**	**96.91**	**606.04**			
Grand Total:		**12738.97**	**96.91**	**645.72**			

JURISDICTION REPORT- Wisconsin

Jurisdiction Totals | **Units: ML/d** | **Year Of Data: 2001**

Total Report - All Facilities

Category	Withdrawals				Diversions		Consumptive Use
	GLSW	OSW	GW	TOTAL	Intrabasin	Interbasin	
Public Supply	833.85	96.91	201.69	1132.44	0.00	1.82	93.50
Domestic Supply	0.00	0.00	128.70	128.70	0.00	0.00	12.87
Irrigation	0.00	0.00	161.64	161.64	0.00	0.00	113.15
Livestock	0.00	0.00	153.69	153.69	0.00	0.00	138.32
Industrial	707.87	0.00	0.00	707.87	0.00	0.00	72.19
Fossil Fuel Power	6673.68	0.00	0.00	6673.68	0.00	0.00	33.35
Nuclear Power	4523.57	0.00	0.00	4523.57	0.00	0.00	22.60
Hydroelectric Power	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other					0.00	-2.42	

Total Report - Principal Facilities

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