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*Need for
suggestions*

Report on State and Provincial Water Use and Conservation Programs in the Great Lakes-St. Lawrence Basin

Prepared by the Great Lakes Commission as one of the activities of the
Water Withdrawal and Use Subcommittee of a project to create a
Water Resources Management Decision Support System for the Great Lakes

Draft Prepared January 2002 by staff of the Great Lakes Commission

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Report on State and Provincial Water Use and Conservation Programs in the Great Lakes-St. Lawrence Basin

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Report on State and Provincial Water Use and Conservation Programs in the Great Lakes-St. Lawrence Basin

Executive Summary

This report examines the water use, water use reporting, and water conservation programs of the 10 states and provinces that form the Great Lakes-St. Lawrence Basin. Water use programs and their oversight vary greatly across the many jurisdictions. A single agency oversees all water use programs in some states while multiple agencies are involved in water use programs in other states. The Canadian provinces have relatively more complex programs because municipalities hold some powers over water use, which multiplies the number of approaches taken.

Water use reporting programs also vary for the jurisdictions. Most states use either a water withdrawal registration program or a permitting program that allows for data collection on users of 100,000 gallons per day of water. Several jurisdictions go beyond the minimal requirements and collect data on facilities capable of withdrawing 100,000 gallon per day or that have lower usage rates. The Canadian provinces do not have a standardized collection process, but some data may be collected at various levels. Data is composed of both estimates by states or provinces and estimates or measurements done by facilities. The assumption is that measurements are the most accurate approach to gathering data. Generally, water use categories in which the greatest amount of use occurs are the same categories that have more precise measurements. States and provinces have difficulty collecting all the data they need if they have not received statutory or regulatory power to enforce registration or permitting processes. In any case, the resources for reporting programs often are scarce and must be stretched to get the most accurate data possible.

Water conservation is used in many states to ensure the availability of adequate water supplies. In Illinois, conservation is required as part of the Supreme Court mandate that governs water withdrawals from Lake Michigan. Conservation efforts in most other jurisdictions are less formal, but several jurisdictions require or encourage water suppliers to develop plans. Conservation also occurs at local levels, particularly in the provinces. Several jurisdictions also have drought contingency plans in place. In most cases, the plan includes a tiered approach where increased drought severity progressively leads to a drought emergency declaration with mandatory reductions in water use. Several jurisdictions have no drought contingency plan.

The states and provinces of the Great Lakes Basin have several areas where improvement can occur. Each jurisdiction should determine goals for improvement and determine how resources can be leveraged to reach these goals. To improve water use reporting, each jurisdiction needs to ensure that the most accurate information possible is provided for each water use category. Water conservation, drought contingency plans, and demand forecasting are other areas that jurisdictions should consider improving to ensure availability of adequate water resources into the future.

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Introduction

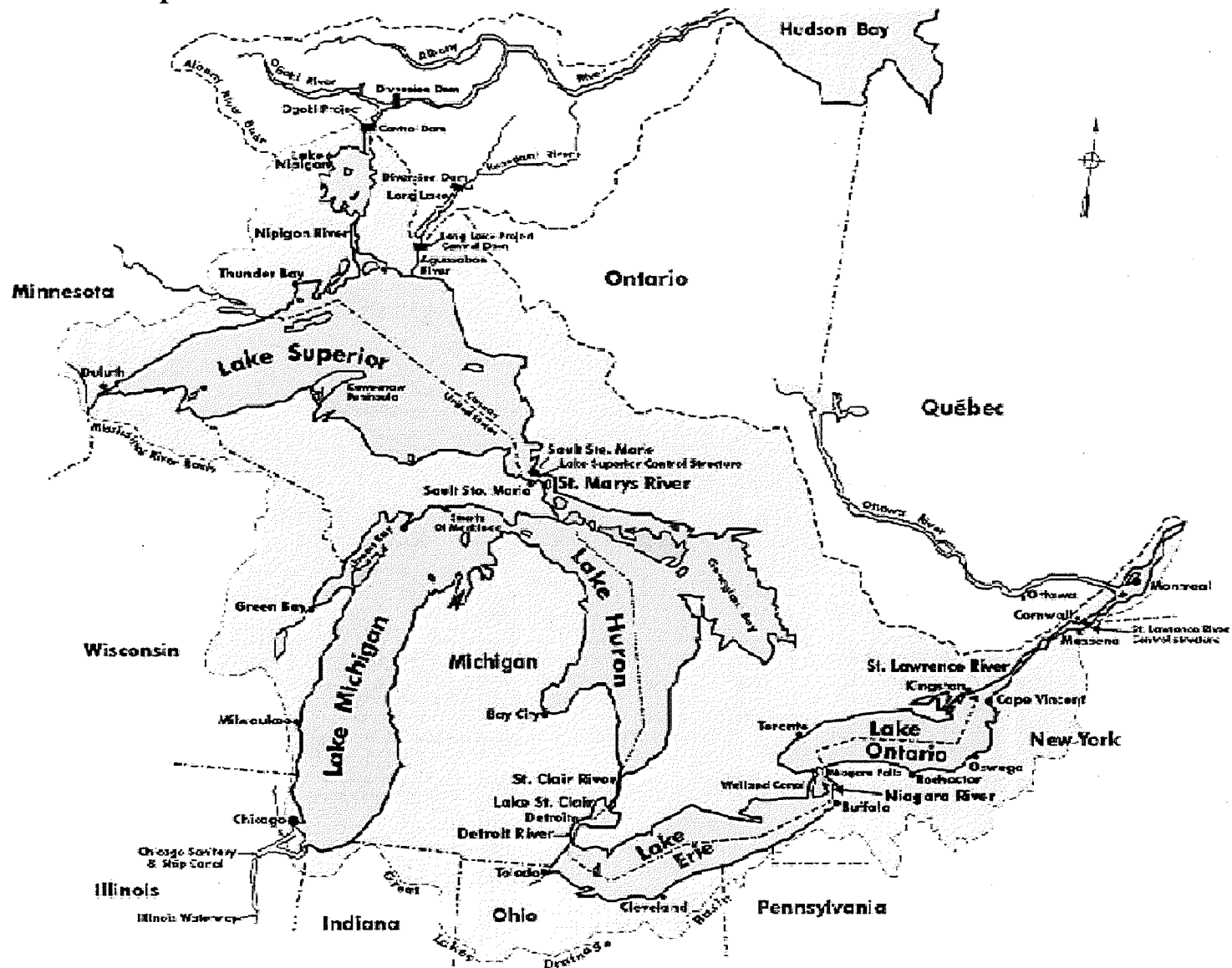
Each state and province in the Great Lakes region has a unique approach in its water use and conservation programs, and this variety of approaches can complicate the development of regional management. The purpose of this report is to provide an overview of the various water use, water use reporting, and water conservation programs within each state and province so identified gaps can be bridged through future work.

To gather information on the variety of programs that exist, a multi-part survey was distributed to members of the technical subcommittee on Water Use and Withdrawal for the Great Lakes Commission's Water Resources Management Decision Support System project. Each subcommittee member represents the agency involved with water use reporting, and each state and province is represented on the subcommittee. The survey included information on water conservation, water use, water use reporting programs, staffing and budget. In cases where multiple agencies are involved with different aspects of these programs, members of the subcommittee consulted with other agencies to develop appropriate responses. Additional revisions were made to earlier drafts of this written report based on the input of the states and provinces.

The following description of the water use, water use reporting, water conservation and drought contingency plans for each jurisdiction shows the region's diversity of approaches as well as some common trends. For example, the states generally provide water use reporting for all facilities that use 100,000 gallons per day or more. However, some states expand the data collected by requiring reports for facilities that use less water or have a given capacity to withdraw water. Conservation measures vary widely by state or province, and the states have drought contingency plans, but most are not involved in formal conservation measures. Very little demand forecasting is done, but Illinois and Pennsylvania provide periodic updates and some other jurisdictions take on this work sporadically. Overall, the provinces take a different approach to both water use reporting and water conservation: these activities are not as centralized within specific agencies and often are complemented by efforts at the local level.

In the following report, each state or province is examined individually with its overall water use approach, the water use reporting programs that are in place, water conservation, drought contingency planning, and other related items of interest. This organization allows for comparison between jurisdictions, and in addition some comparisons are made among all jurisdictions in the conclusion. However, accurate comparisons are difficult since the information presented is based on the in-Basin portions of a state or province's programs, and the amount of geographic area within the Basin varies widely among jurisdictions. The map on the following page shows how much of the Great Lakes Basin falls within each state and province. A set of tables throughout the report provides jurisdictional summaries of agencies, authority, and other items for the water use reporting programs. A composite table that compares all jurisdictions is found within the Appendix.

Map of the Great Lakes-St. Lawrence Basin and Jurisdictional Boundaries



Map available at <http://www.great-lakes.net/gis/maps/> (18 Jan 2002)

U.S. Army Corps of Engineers, Detroit District

Illinois

Water Use

Based on the state's "Level of Lake Michigan Act," the Illinois Department of Natural Resources, Office of Water Resources, is the agency that controls and regulates water coming from Lake Michigan. This agency administers regulatory programs dealing with construction in a variety of water bodies and takes the lead on water resources planning, navigation, and floodplain management. The agency is also involved in interagency activities on the state water plan, drought response, flood emergencies and state water law reviews.

The Lake Michigan Programs Section manages Illinois' interests relating to Lake Michigan and issues permits for activities affecting Lake Michigan and allocation of Lake Michigan water. A 1967 U.S. Supreme Court Decree limits Illinois' diversion of water from Lake Michigan and the state's General Assembly tasked the DNR with allocation in the Level of Lake Michigan Act (615 ILCS 50). The DNR's administrative code, which outlines the process involved in issuing these permits, is found in Title 17 Chapter I (h) Part 3730, "Allocation of Water from Lake Michigan." All entities desiring to remove water from Lake Michigan can do so with the allocation permit. In making allocation decisions, the agency looks at competing needs of all water users and makes decisions that will encourage efficient use and conservation of the resource. To ensure fairness in decisions, the DNR involves the public, identifies available water supply sources, performs long-range demand forecasting, and monitors water use and consumption. In the event of an emergency, the DNR can make an allocation as needed. If somebody uses Lake Michigan water without a permit, the DNR can enforce penalty provisions and seek a court injunction to discontinue the use. However, this process is used rarely. If a permitted facility uses 15 percent more than its allocation in a year, the DNR issues a notice of violation.

For water not coming from Lake Michigan (other surface water and ground water), there is no management authority to provide oversight. Permits to drill wells can be issued, but no limits are placed on quantity. Courts decide on disputes over excessive use of water that reduces the amount available to others. The Illinois State Water Survey provides general research and service programs related to water and atmospheric resources. The ISWS is within the DNR's Office of Scientific Research and Analysis and is affiliated with the University of Illinois at Urbana-Champaign. The ISWS has no regulatory authority.

Water Use Reporting Program

The Lake Michigan Programs Section of the Illinois DNR collects data for the public supply category for Lake Michigan water under the mandate given in Part 3730. Facilities in other categories do not use sufficient amounts of water to be considered principle facilities. [The agency receives monthly data from 21 (direct diverters) principal facilities and annual data from the remaining facilities with allocations that use less than 100,000 gallons per day.] Water use is metered by each individual facility. Consumptive use estimates are made by the state based on the type of facility using water. The program provides information on how public supply water is used, including a breakdown of total water use into categories of residential, commercial/industrial, municipal, hydrant uses, unavoidable leakage and unaccounted-for flow. Because the data is specific to Lake Michigan, it is also specific to the Great Lakes Basin. The

Lake Michigan Programs Section has one staff member (1 full time equivalent) responsible for processing the water use data. The section allocates about \$70,000 to the program, and this amount is remaining constant.

In addition to the data collection efforts for Lake Michigan water, the ISWS maintains the Illinois Water Inventory Program. This program monitors water use in the state through an annual voluntary questionnaire that targets all public water suppliers and industrial facilities using more than 70 gallons per minute. The ISWS breaks down information by both county and watershed. Data comes from a combination of facility reports and estimates about water use. The ISWS allocates \$10,000 in funding and has 3 staff with a total 0.35 FTE toward its statewide inventory program. The funding for this program has been decreasing. [charter compliance]

Water Conservation

The state of Illinois and the Supreme Court decree that governs Illinois' Lake Michigan diversion direct the Department of Natural Resources to require efficient use and conservation of Lake Michigan water. Since water conservation requirements are part of the Lake Michigan water allocation permit, the DNR's Office of Water Resources oversees the program. Water conservation requirements are in effect the entire year, and outdoor water use rules apply during the growing season (May 15-September 15).

The state's water conservation program requires conservation by the end user and the owners of water distribution systems. For end users, requirements include items such as metering of all new services, low-flow plumbing fixtures, lawn sprinkling restrictions and recycling on automatic car wash facilities. All of the municipal permittees have adopted the required ordinances and building codes pertaining to water conservation, so there is no direct monitoring of these conservation efforts by the state. Distribution system owners, or permittees, report annually the amount of Lake Michigan water used along with the amount lost due to unaccounted-for flow. If a permittee's unaccounted-for flow exceeds 8 percent, a plan of action must be submitted explaining how unaccounted-for flow will be brought below the 8 percent standard. In addition to these requirements, water conservation is promoted by a variety of pamphlets and booklets the DNR makes readily available.

Drought Contingency Plan

The DNR encourages all permittees to have an emergency water conservation plan in case of temporary failure of the lake water supply. However, the state has no drought contingency plan. Rather, a Governor's Drought Task Force discusses current situations affected by drought conditions and makes recommendations. The State Water Survey provides background natural resource information to help make necessary decisions.

Other Items of Interest

The DNR does demand forecasting every 8 to 10 years, at which time the long-term demands of all permittees is reevaluated for a 20 to 40 year period. The agency has a website that provides information on department programs, including the Lake Michigan water allocation program.

Summary of Illinois' Water Use Reporting Program, January 1, 1998

	Agencies Involved	Authorizing Laws/Regulations	Total Principal Facilities	Percent Principal Facilities Reporting	Data Reporting Frequency	Data Compilation Methods	Consumptive Use Reporting*	Specificity of Data to Great Lakes Basin	Consistent with G.L. Charter	Funding	Staffing
Overall Program	Department of Natural Resources; State Water Survey	Level of Lake Michigan Act/ Regulation Title 17 Part I (h)/ Voluntary Survey	34	?	Annual	Facility measured	N/A	Yes	Yes	\$80,000 \$70 DNR \$10 Survey	1.35 FTE 0.35 Survey 1 DNR
Public Supply	Department of Natural Resources; State Water Survey	Level of Lake Michigan Act; Regulation Title 17 Part I (h)	21	100	Annual	Facility measured	N/A	Yes	Yes		
Self-Supply Domestic	State Water Survey	Voluntary Survey	5	?	Annual	?	N/A	Yes	?		
Self-Supply Irrigation	State Water Survey	N/A	0	N/A	N/A	N/A	N/A	N/A	N/A		
Self-Supply Livestock	State Water Survey	N/A	0	N/A	N/A	N/A	N/A	N/A	N/A		
Self-Supply Industrial	State Water Survey	Voluntary Survey	5	?	Annual	Facility measured or estimated	N/A	Yes	?		
Self-Supply Thermoelectric	State Water Survey	Voluntary Survey	1	?	Annual	?	N/A	N/A	?		
Self-Supply Nuclear	State Water Survey	Voluntary Survey	1	?	Annual	?	N/A	N/A	?		
Hydroelectric	State Water Survey	N/A	0	N/A	N/A	N/A	N/A	N/A	N/A		
Other	State Water Survey	Voluntary Survey	1	?	Annual	?	N/A	N/A	?		

Indiana

Water Use

The Indiana Department of Natural Resources, Division of Water, is charged to maintain, regulate, collect data on, and evaluate the state's water resources. The agency regulates construction affecting the state's waterways, provides planning services such as hydrologic modeling, and evaluates engineering structures. Indiana's Water Resource Management Act (Indiana Code 14-25-7), enacted in 1983, requires facilities with a withdrawal capacity of more than 100,000 gallons per day to register and file annual reports on water usage. Facilities associated with the operation or construction of landfills are exempt, but this is the only inconsistency with the Great Lakes Charter. In most cases withdrawal permits are not required and there are no limits on the amount of water pumped. If an unregistered facility is identified, the DNR sends a notice requesting registration. After continued noncompliance, the DNR can issue a citation and a fine.

Water Use Reporting Program

The DNR collects annual data from the principal facilities for all of the categories used by the Great Lakes Water Use Regional Database except for self-supply nuclear since the state has no nuclear facilities. Authority for data collection comes from Indiana Code 14-25-7 for all of the categories but hydroelectric; the four hydroelectric facilities provide data voluntarily. The DNR gathers data on a statewide basis, but extracts data specific to the Great Lakes Basin.

All consumptive use reporting is estimated by the state based on the compiled amounts of water used and coefficients. Facilities estimate their water use entirely for the categories of public supply, self-supply irrigation, self-supply thermoelectric, and hydroelectric. Facilities measure and estimate the data for the self-supply industrial and other categories, and the state estimates the majority of the data for self-supply domestic and self-supply livestock uses. The Indiana Business Research Center at Indiana University provides county population estimates that are used in calculating self-supplied domestic withdrawals and the USGS Water Resource Division estimates the percent of population by county on domestic wells. The Indiana Agricultural Statistics Service at Purdue University provides livestock estimates by county.

The estimated expense for the water use reporting program is about \$10,000 per year within the Great Lakes Basin. This includes personnel of 0.2 full time equivalents.

Water Conservation

Indiana has no formal ongoing water conservation activities. However, the state's Water Shortage Plan recommends the state's encouragement and promote water conservation as a way to decrease the number of constraints required during a water shortage.

Drought Contingency Plan

Indiana's Water Shortage Plan provides criteria for determining the severity of a drought and recommendations on actions that should be taken during three water shortage phases. The plan recommends approaches for individuals, utilities, and local and state governments to conserve water during different stages of drought and establishes relative priorities for water use. Also,

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during times of inadequate water, a Water Shortage Task Force can be formed with representatives from several agencies, including the DNR, who advise the governor.

Phase I (Water Shortage Watch) and Phase II (Water Shortage Warning) occurs through a joint declaration of the DNR and the State Emergency Management Agency. During these phases, voluntary reductions in water use are recommended and public outreach works toward providing information on the need for conservation. Phase Three involves an emergency declaration by the governor and mandatory restrictions on certain water uses.

Summary of Indiana's Water Use Reporting Program, January 1, 1998

	Agencies Involved	Authorizing Laws/Regulations	Total Principal Facilities	Percent Principal Facilities Reporting	Data Reporting Frequency	Data Compilation Methods	Consumptive Use Reporting*	Specificity of Data to Great Lakes Basin	Consistent with G.L. Charter	Funding	Staffing
Overall Program	Department of Natural Resources	Indiana Code 14-25-7: Water Resource Management Act	540	100	Annual	Facility/state measured or estimated	State estimated	No	Mostly	\$10,000 (estimate)	0.2 FTE
Public Supply	Department of Natural Resources	Indiana Code 14-25-7: Water Resource Management Act	62	100	Annual	Facility measured	State estimated	No	Yes		
Self-Supply Domestic	Department of Natural Resources	Indiana Code 14-25-7: Water Resource Management Act	19	100	Annual	State estimated (mostly)	State estimated	No	No (doesn't include landfills)		
Self-Supply Irrigation	Department of Natural Resources	Indiana Code 14-25-7: Water Resource Management Act	375	95	Annual	Facility estimated	State estimated	No	Yes		
Self-Supply Livestock	Department of Natural Resources	N Indiana Code 14-25-7: Water Resource Management Act	5	100	Annual	State/facility estimated	State estimated	No	Yes		
Self-Supply Industrial	Department of Natural Resources	Indiana Code 14-25-7: Water Resource Management Act	67	100	Annual	Facility measured or estimated	State estimated	No	Yes		
Self-Supply Thermoelectric	Department of Natural Resources	Indiana Code 14-25-7: Water Resource Management Act	5	100	Annual	Facility estimated	State estimated	No	Yes		
Self-Supply Nuclear	N/A (no facilities)	N/A	0	N/A	N/A	N/A	N/A	N/A	N/A		
Hydroelectric	Department of Natural Resources	None (data obtained by request)	4	100	When requested	Facility estimated	State estimated	Yes	Yes		
Other	Department of Natural Resources	Indiana Code 14-25-7: Water Resource Management Act	3	100	Annual	Facility estimated or measured	State estimated	No	Yes		

Michigan

Water Use

The Michigan Department of Environmental Quality is the lead agency responsible for oversight of water use in the state, and water use reporting occurs through the agency's Drinking Water and Radiological Protection Division. The MDEQ's Office of the Great Lakes is also involved in overseeing water use in the state and coordinating efforts with other states. There is no general regulation by statute of water use in Michigan, and instead the right to withdraw and use water is governed by riparian or reasonable use doctrine and the civil courts resolve any water use conflicts.

Under Public Act 451 of 1994 certain industrial, power generation, and non-agricultural irrigation facilities that have the capacity to withdraw over 100,000 gallons of water in a 30-day period are required to register with the Michigan Department of Environmental Quality and report water withdrawals annually. To ensure compliance with water use registration requirements, the MDEQ can request that the Attorney General file a civil action for violation. Each violation carries a potential fine of up to \$1000.

Water Use Reporting Program

The MDEQ collects water use data on the following Great Lakes Water Use Regional Database categories: public supply, self-supply irrigation (non agricultural), self-supply industrial, self-supply thermoelectric, and self-supply nuclear. Registration of the previously mentioned facilities under Public Act 451 of 1994 allows for annual collection of the data. The act also directs MDEQ and the Michigan Department of Agriculture to estimate water use for agricultural irrigators based on a model developed by the agencies. Public Act 399 of 1976 allows for data collection from public supply facilities. For the categories of self-supply domestic, self-supply livestock, hydroelectric, and other, data is not collected because the MDEQ has no authority to do so.

Facilities measure their water use entirely within the categories of public supply, self-supply thermoelectric, and self-supply nuclear. For the self-supply industrial category, data is a mixture of facility measurements and facility estimations. For the self-supply irrigation category, agricultural water use data is largely estimated by the state. Golf course irrigation is a mixture of facility measurements and facility estimations. Consumptive use reporting varies by water use category. Self-supply thermoelectric and self-supply industrial facilities provide estimates, but this occurs on a limited basis. The MDEQ uses general coefficients for other categories, such as public supply and self-supply irrigation.

The MDEQ funds the water use reporting program with \$53,000 per year from a \$50 annual fee paid by facilities registering under Public Act 451. The state also has allocated general funds of \$100,000 per year beginning in fiscal year 2002 (Oct. 1, 2001-Sept. 30, 2002). The program has 0.9 full time equivalent personnel on the water use reporting program, and the majority of the work done is data compilation. The U.S. Geological Survey supports data collection activities in a general sense, and the Michigan Agricultural Statistics Service collaborates in gathering of irrigation data. Data is specific to the Great Lakes Basin since the essentially the entire state lies within the Basin.

Water Conservation

Michigan has no formal water conservation activities.

Drought Contingency Plan

Michigan has no formal statewide water conservation or drought management plan. When drought conditions have occurred in the past, interdepartmental task forces were formed to address the problem. In addition, individual municipalities or local governments implement drought management measures as necessary.

Other Items of Interest

Michigan plans to expand its water use website in 2002. It also publishes single sector water use reports periodically.

Summary of Michigan's Water Use Reporting Program, January 1, 1998

	Agencies Involved	Authorizing Laws/Regulations	Total Principal Facilities	Percent Principal Facilities Reporting	Data Reporting Frequency	Data Compilation Methods	Consumptive Use Reporting*	Specificity of Data to Great Lakes Basin	Consistent with G.L. Charter	Funding	Staffing
Overall Program	Department of Environmental Quality	Public Act 451 of 1994 Public Act 399 of 1976	2221	Nearly 100	Annual	Facility/state measured or estimated	Limited (Facility estimated)	Yes	Mostly	\$53,000 (annual fees)	0.9 FTE
Public Supply	Department of Environmental Quality	Public Act 399 of 1976	573	100	Annual	Facility measured	None	Yes	Yes		
Self-Supply Domestic	Department of Environmental Quality; USGS	None	N/A	0	None	None	None	Yes	No		
Self-Supply Irrigation	DEQ; Michigan Agricultural Statistics Service	None	1448	100	Annual (model estimate)	Facility/state measured or estimated	None	Yes	No		
Self-Supply Livestock	Department of Environmental Quality; USGS	None	N/A	0	None	None	None	Yes	N/A		
Self-Supply Industrial	Department of Environmental Quality	Public Act 451 of 1994	163	99	Annual	Facility measured or estimated	Estimated	Yes	Yes		
Self-Supply Thermoelectric	Department of Environmental Quality	Public Act 451 of 1994	33	100	Annual	Facility measured	Estimated	Yes	Yes		
Self-Supply Nuclear	Department of Environmental Quality	Public Act 451 of 1994	4	100	Annual	Facility measured	Estimated	Yes	Yes		
Hydroelectric	Department of Environmental Quality	None	N/A	0	None	None	None	Yes	No		
Other	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Yes	N/A		

Minnesota

Water Use

Minnesota Statute 103G.265 requires the Department of Natural Resources “to assure an adequate supply to meet long-range seasonal requirements for domestic, municipal, industrial, agricultural, fish and wildlife, recreational, power, navigation, and quality control purposes from waters of the state.” A water appropriation permit from the Minnesota Department of Natural Resources, Waters Division (DNR Waters), is required for all water withdrawals exceeding 10,000 gallons per day or 1 million gallons per year.

Minnesota Statutes (103G.255 to 103G.315) and Minnesota Rules (6115.0600 – 6115.0810) provide authority for implementation of the Water Appropriation Permit Program. Water for domestic uses serving less than 25 persons, test pumping of a groundwater source, and agricultural field drainage are exempt from permit requirements. Water appropriation permits have not been required for “Run of the river” hydropower operations. To ensure all water users have permits, the DNR uses information from applications to the Minnesota Pollution Control Agency for NPDES (Discharge) permits. Additionally, letters sent to new well owners by the Minnesota Department of Health contain information about water use permit requirements. To ensure accurate data on water volumes appropriated, Minnesota Statutes require permittees to use flow meters, unless another method of measurement is approved by the DNR.

As the lead agency for water use, the state Department of Natural Resources coordinates its efforts with other entities in the state. For example, soil and water conservation districts, watershed districts and cities receive copies of new permit applications for comment and can make recommendations. Coordination also occurs with the Department of Health on water emergency and conservation plans required for new wells, wellhead protection plans and Drinking Water Revolving Fund applications.

Water Use Reporting Program

All water users in the Water Appropriation Permit Program are required to submit annual water use reports with monthly data. Water data is collected for the nine categories used in the Great Lakes Water Use Regional Database, with the exception of private residential water users in the self-supply domestic category. Also, Minnesota has no nuclear facilities in its portion of the Great Lakes Basin. Of those facilities registered, 100 percent report for all categories but hydroelectric. Hydroelectric water use that is “run of the river” is not considered a water use in the state. Information for this category on GLC water use reporting was based on the U.S. Geological Survey’s five year report. Future reports will use data directly from FERC licensed dam operators. Overall, data are measured by facility for all categories since this is required under Minnesota law. Consumptive use is not reported in Minnesota. The water use reporting program occurs statewide, but data for the Great Lakes Basin can easily be extracted.

Funding for most MN DNR Waters programs including the water use reporting program comes as a lump sum from the State General Fund, so actual amounts are difficult to break out. The Water Appropriation Permit Program includes a staff of four and about 10 percent of their time (0.4 FTE) is spent on activities relating to the Great Lakes Basin.

Water Conservation

Minnesota has a formal water conservation program that includes both planning and permitting requirements. All permittees are required to use water efficiently, but Minnesota Statutes require conservation plans for public water suppliers and for agricultural irrigation. The state Department of Natural Resources is the lead agency, and coordination occurs with the Minnesota Department of Health for well approvals, Drinking Water Revolving Fund requests, and wellhead protection requirements and with the Metropolitan Council for local comprehensive planning conservation requirements in the seven county Twin Cities Metropolitan Area. Information on conservation can be found on the DNR Waters web site (www.dnr.state.mn.us/waters)

Water emergency and conservation plans are required for all public water suppliers serving more than 1,000 people. Water emergency and conservation plans must be updated and approved by the DNR every 10 years. Approaches to water conservation include education, conservation rate structures, planning, and the elimination of wasteful uses. Much of the education on conservation occurs at local levels.

Public water suppliers must also implement demand reduction measures before requesting permit approvals for new municipal wells and increases in water withdrawals. A DNR approved water emergency and conservation plan is also required for wellhead protection plans and applications for the state's drinking water revolving fund. Public water suppliers with unaccounted-for water volumes that exceed 20 percent are required to establish a goal and reduce unaccounted-for water to less than 20 percent within three years.

Applicants for irrigation permits must obtain approval from the county soil and water conservation district, which may require a site-specific soil and water conservation plan. The University of Minnesota Extension Service also provides information on crop irrigation needs.

Annual water use reports help to evaluate the effectiveness of conservation efforts.

Drought Contingency Plan

The state's current drought contingency plan is specific to the Mississippi River, but the plan is being updated to reflect all resources in the state. As part of the drought plan, public water suppliers serving more than 1000 people must have an approved water emergency and conservation plan. All surface water appropriators must have an approved contingency plan. As the plan goes into effect, water is suspended for certain water uses based on statutory water use priorities. To help in implementation of the plan, the DNR chairs a multi-agency and stakeholder task force.

To help keep the public informed, press releases have been used at times. In 2000, a special mailing on drought conditions was sent to all surface water users. The DNR's Climatology Office provides frequent status reports to the public.

Other Items of Interest

Demand forecasting is done for the Twin Cities Metro Area, but not statewide. Projections of water demands are required for new permit request

Summary of Minnesota's Water Use Reporting Program, January 1, 1998

	Agencies Involved	Authorizing Laws/Regulations	Total Principal Facilities	Percent Principal Facilities Reporting	Data Reporting Frequency	Data Compilation Methods	Consumptive Use Reporting*	Specificity of Data to Great Lakes Basin	Consistent with G.L. Charter	Funding	Staffing
Overall Program	Department of Natural Resources	Statute 103G.265; Rules 6115.0600	118	Nearly 100	Annual with monthly data	Facility measured	None	No	Yes	From State General Fund	0.4 FTE
Public Supply	Department of Natural Resources	Statute 103G.291; Rules 6115.0600 and 6115.0690	30	100	Annual with monthly data	Facility measured	None	No	Yes		
Self-Supply Domestic	Department of Natural Resources (excludes private residential)	Statute 103G.271; Rules 6115.0600	12 (no residential)	100	Annual with monthly data	Facility measured	None	No	Yes		
Self-Supply Irrigation	Department of Natural Resources	Statute 103G.295; Rules 6115.0680	15	100	Annual with monthly data	Facility measured	None	No	Yes		
Self-Supply Livestock	Department of Natural Resources	Statute 103G.271; Rules 6115.0600	1	100	Annual with monthly data	Facility measured	None	No	Yes		
Self-Supply Industrial	Department of Natural Resources	Statute 103G.271; Rules 6115.0600	41	100	Annual with monthly data	Facility measured	None	No	Yes		
Self-Supply Thermoelectric	Department of Natural Resources	Statute 103G.271; Rules 6115.0600	7	100	Annual with monthly data	Facility measured	None	No	Yes		
Self-Supply Nuclear	Department of Natural Resources	Statute 103G.271; Rules 6115.0600	0	100	Annual with monthly data	Facility measured	None	No	Yes		
Hydroelectric	Department of Natural Resources	Statute 103G.271; Rules 6115.0600	5	0	Every five years	Facility measured	None	No	Yes		
Other	Department of Natural Resources	Statute 103G.271; Rules 6115.0600	7	100	Annual with monthly data	Facility measured	None	No	Yes		

New York

Water Use

In New York, the Department of Environmental Conservation is the lead agency on water use, and the Susquehanna and Delaware River Basin Commissions oversee water use in their drainage basins. In these basins, water supply permits require approval by the DEC and DRBC or SRBC. Before the DEC issues Public Water Supply Permit Program permits, the Department of Health reviews all applications. Information on the PSWPP can be found at www.dec.state.ny.us/website/dcs/water/index.html.

New York State has several pieces of legislation dealing with water use. Environmental Conservation Law (ECL) Articles 15-1501 and 15-1609 give authority to the DEC to regulate certain water withdrawals. New York Codes, Rules and Regulation Parts 601 and 675 specify the requirements for these withdrawals. All community-type public water suppliers serving piped, potable water need a water supply permit issued by the DEC that allows for development of any new source of water. In addition, since 1989, all withdrawals from New York's portion of the Great Lakes Basin that exceed 100,000 gallons per day in a 30-day period must be registered with the DEC. New withdrawals resulting in a 5 million gallon per day loss in a 30-day period from the Great Lakes Basin require consultation with other Great Lakes states. Facilities that do not register withdrawals can be subject to a fine. The governor and legislature must give approval to diversions proposed within the state, which can only occur after hearings have been held.

Water Use Reporting Program

Under NYCRR Parts 601 and 675, water users withdrawing more than 100,000 gallons per day must file a report with the DEC. The DEC collects water use data for each of the water use categories used in the Great Lakes Water Use Regional Database except for hydroelectric, which occurs separately. The U.S. Geological Survey supports the DEC in water use reporting activities for most categories. The Department of Health is involved in the public supply category and the Army Corps of Engineers is involved in the category for other uses.

Most information is reported every other year, but reports occur annually for self-supply irrigation. Registration information is best for the categories of self-supply domestic, self-supply irrigation, self-supply industrial, self-supply thermoelectric, self-supply nuclear, and other. All facilities registered in these categories make the required reports with partially measured data. Registration information on public supply and self-supply livestock categories is less exact, and the data includes more estimation. Most of the information gathered is specific to the Great Lakes because of legislative requirements. Public supply information is statewide, but includes sub-basin information that allows Basin information to be extracted.

Collection of data for approximately 50 hydropower facilities occurs separately in New York. The New York Power Authority and the International Niagara Committee's "Report of Niagara River Diversions" provide measurements of hydropower water use for New York State's two largest hydropower facilities on the Niagara and St. Lawrence Rivers. Data for other hydroelectric facilities involves the DEC, the Federal Energy Regulatory Commission and the Army Corps of Engineers.

The water use reporting program has funding of \$35,367 and two staff at 0.65 full time equivalents. The funding amount has decreased over the past 10 years. Overall, the New York program is partially consistent with the requirements of the Great Lakes Charter.

Water Conservation

The Department of Environmental Conservation's Public Water Supply Permit Program requires all applicants of new water supply permits to have a water conservation program. The responsibility for implementing each program rests with the water supplier and the PWSPP monitors compliance with the programs that are developed. The PWSPP requires permittees to develop and implement long-term water conservation measures such as metering, meter replacement/calibration, system water audits and leak detection and repair. The goal of each program is to keep unaccounted-for water to 15 percent or less. The PWSPP also requires publicity and consumer education to be included in water conservation efforts.

Drought Contingency Plan

The State Drought Management Task Force, a group of several state agencies, evaluates drought conditions and makes recommendations to the governor and State Disaster Preparedness Commission on drought stages that should be announced. During "Watch" and "Warning" stages, press releases are issued with recommendations on conservation focused on outdoor use, but no mandatory statewide restrictions occur. The governor can declare an "Emergency" stage and mandate necessary water conservation measures. The DEC also coordinates efforts with the Delaware River Basin Commission and the Susquehanna River Basin Commission during drought events. Information about drought events can be found at www.dec.state.ny.us/website/dow/droughtfacts.html.

The state Department of Health requires all community water supply systems with more than \$125,000 in annual gross operating revenues to have an approved Water Supply Emergency Plan. This plan includes drought conditions and includes initiatives on publicity and consumer education about the need for water conservation. As with the DEC's water conservation program, implementation is the responsibility of the local water supplier, and the DOH monitors compliance.

Summary of New York's Water Use Reporting Program, January 1, 1998

	Agencies Involved (lead agency in bold)	Authorizing Laws/Regulations	Total Principal Facilities	Percent Principal Facilities Reporting	Data Reporting Frequency	Data Compilation Methods	Consumptive Use Reporting*	Specificity of Data to Great Lakes Basin	Consistent with G.L. Charter	Funding	Staffing
Overall Program	NYS Department of Environmental Conservation ; USGS; ACOE; NYSDOH	NYSECL 15-1609, NYCRR PART 675	641	N/A	Annual/ Biennial	Measured or estimated	Measured or estimated	No	Mostly	\$35,367	0.65 FTE
Public Supply	NYSDEC ; USGS; NYSDOH	NYSECL 15-1501, NYCRR PART 601	500 (estimated)	N/A	N/A	State estimated	N/A	No	Partially		
Self-Supply Domestic	NYSDEC ; USGS;	NYSECL 15-1609, NYCRR PART 675	5	100 (of registered)	Biennial	Facility measured or estimated	Facility measured or estimated	Yes	Partially		
Self-Supply Irrigation	NYSDEC ; USGS;	NYSECL 15-1609, NYCRR PART 675	14	100 (of registered)	Annual	Facility measured or estimated	Facility measured or estimated	Yes	Partially		
Self-Supply Livestock	NYSDEC ; USGS;	NYSECL 15-1609, NYCRR PART 675	N/A	N/A	Biennial	State estimated	State estimated	Yes	Partially		
Self-Supply Industrial	NYSDEC ; USGS;	NYSECL 15-1609, NYCRR PART 675	50	100 (of registered)	Biennial	Facility measured or estimated	Facility measured or estimated	Yes	Partially		
Self-Supply Thermoelectric	NYSDEC ; USGS;	NYSECL 15-1609, NYCRR PART 675	15	100	Biennial	Facility measured or estimated	Facility measured or estimated	Yes	Partially		
Self-Supply Nuclear	NYSDEC ; USGS;	NYSECL 15-1609, NYCRR PART 675	3	100	Biennial	Facility measured or estimated	Facility measured or estimated	Yes	Partially		
Hydroelectric	NY Power Authority; FERC; NYSDEC ; ACOE	N/A	50 (estimated)	100 (of registered)	N/A	Facility measured or estimated	N/A	No	Partially		
Other	NYSDEC ; USGS; ACOE	NYSECL 15-1609, NYCRR PART 675	4	?	Biennial	Facility measured or estimated	Facility measured or estimated	Yes	Partially		

Ohio

Water Use

The Ohio Department of Natural Resources, Division of Water, manages the state's surface and ground water resources. Agency activities include collection of hydrologic data, development of water resource maps, issuing permits for dam construction, administration of floodplain management, and conducting water supply studies. Sections 1521.15 and 1521.16 of the Ohio Revised Code require facilities or combination of facilities with the capacity to withdraw more than 100,000 gallons of water per day to register with the DNR. The agency uses the Water Withdrawal Registration Program to carry out this withdrawal registration program. If a facility fails to register, the DNR can send letters requesting it to do so. Ultimately, the situation can be turned over to the state attorney general to pursue. Similar procedures apply for annual reports of water use.

Water Use Reporting Program

Collection of data occurs through the Water Withdrawal Registration Program. The DNR's Division of Water collects data on all of the nine water use categories used in the Great Lakes Water Use Regional Database on an annual basis, and 100 percent of facilities registered file reports. Additional information is gathered on some non-principle facilities. For example, all public water supply sources file reports with the EPA.

The state estimates data for the categories of self-supply domestic and hydroelectric. Facilities measure data for the public supply, self-supply irrigation, self-supply thermoelectric, and self-supply nuclear categories, and facilities estimate data for the self-supply livestock category. Data for the self-supply industrial and other categories combine facility measurements and estimations. Consumptive use is measured by facilities for the thermoelectric and nuclear categories and estimated by the state for all other categories. The water use reporting program is not specific to the Great Lakes Basin, but data carries the 8-digit USGS watershed code and can be easily extracted.

Ohio provides \$19,410 and 0.30 full time equivalent personnel for its water use reporting program in the Great Lakes Basin. The funding amount has decreased over the past 10 years.

Water Conservation

Ohio has no formal water conservation plan, but implements water conservation measures as part of its drought contingency plan.

Drought Contingency Plan

Ohio's Drought Response Plan has four phases of drought, with various amounts of water conservation associated with each. Various levels of voluntary water conservation measures are requested during Phase 2 and Phase 3 Drought Alerts. At these levels, public water suppliers, their customers, and private withdrawers are asked to restrict non-essential uses and reduce essential uses. Public awareness and education activities also begin. A Phase 4 Drought Emergency, which involved mandatory restrictions on water use, occurs with a declaration by the governor. The emergency is declared when water supplies will not meet projected demands and the Palmer Drought Severity Index is at -4.0 or lower.

The Ohio Emergency Management Agency heads Ohio's drought response team and enforces water use restrictions ordered by the governor. In addition, the Drought Executive Committee, which is activated during Phase Three, includes relevant agencies and interest groups that assist in monitoring water use to identify non-compliance. The various agencies involved have specific responsibilities assigned to them in the Drought Response Plan.

Other Items of Interest

Ohio periodically produces regional water plans that include water use forecasting. The most recent forecasts were done in 1988 for northeast Ohio and 1986 for northwest Ohio. Other forecasts were done in the 1970s.

Summary of Ohio's Water Use Reporting Program, January 1, 1998

	Agencies Involved	Authorizing Laws/Regulations	Total Principal Facilities	Percent Principal Facilities Reporting	Data Reporting Frequency	Data Compilation Methods	Consumptive Use Reporting*	Specificity of Data to Great Lakes Basin	Consistent with G.L. Charter	Funding	Staffing
Overall Program	Department of Natural Resources, Division of Water	Ohio Revised Code Sections 1521.15 and 1521.16	262	100	Annual	Measured and estimated	N/A	No	Yes	\$19,410	0.30 FTEs
Public Supply	Department of Natural Resources, Division of Water	Ohio Revised Code Sections 1521.15 and 1521.16	120	100	Annual	Facility measured	State estimated	No	Yes		
Self-Supply Domestic	Department of Natural Resources, Division of Water	Ohio Revised Code Sections 1521.15 and 1521.16	0	100	Annual	State estimated	State estimated	No	Yes		
Self-Supply Irrigation	Department of Natural Resources, Division of Water	Ohio Revised Code Sections 1521.15 and 1521.16	30	100	Annual	Facility measured	State estimated	No	Yes		
Self-Supply Livestock	Department of Natural Resources, Division of Water	Ohio Revised Code Sections 1521.15 and 1521.16	2	100	Annual	Facility estimated	State estimated	No	Yes		
Self-Supply Industrial	Department of Natural Resources, Division of Water	Ohio Revised Code Sections 1521.15 and 1521.16	92	100	Annual	Facility measured or estimated	State estimated	No	Yes		
Self-Supply Thermoelectric	Department of Natural Resources, Division of Water	Ohio Revised Code Sections 1521.15 and 1521.16	9	100	Annual	Facility measured	Facility measured	No	Yes		
Self-Supply Nuclear	Department of Natural Resources, Division of Water	Ohio Revised Code Sections 1521.15 and 1521.16	2	100	Annual	Facility measured	Facility measured	No	Yes		
Hydroelectric	Department of Natural Resources, Division of Water	Ohio Revised Code Sections 1521.15 and 1521.16	0	100	Annual	State estimated	State estimated	No	Yes		
Other	Department of Natural Resources, Division of Water	Ohio Revised Code Sections 1521.15 and 1521.16	7	100	Annual	Facility measured or estimated	State estimated	No	Yes		

Ontario

Water Use

Federal, Provincial and Municipal governments each have distinct roles in regulating water use in Ontario. The provincial Ministry of the Environment (MOE) regulates water withdrawals with the Permit to Take Water (PTTW) program under Section 34 of the Ontario Water Resources Act (OWRA). Withdrawals in excess of 50,000 litres per day require a permit, including short-term takings such as pumping tests. Withdrawals that interfere significantly with other users but are less than 50,000 litres per day also require permits. Water withdrawals for domestic, farm or fire fighting do not require permits.

Regional MOE Directors issue permits, which define the maximum water taking allowance. The issuing Director and the Minister of the Environment have the authority to refuse or cancel permits, and to impose terms and conditions on permits at any time, even after issuance. Permit holders who withdraw significantly less than their permitted amount are required to notify MOE so that the permit amount may be lowered. It is suspected that many users withdraw significantly less than their permitted amounts. Compliance is monitored through inspections, registering complaints and other review processes. MOE reviews non-compliance situations and sets out a schedule for abatement. Compliance may be voluntary or mandatory depending on the violation.

Several pieces of legislation are in place to protect the ecological integrity of aquatic ecosystems with respect to water takings. MOE's Water Taking and Transfer Regulation ensures that PTTW applications give consideration to ecosystem functions and effects on water resources. In addition, permit holders must comply with other relevant water protection legislation. These include the *Fisheries Act* under the Canadian Department of Fisheries and Oceans; the *Lakes and Rivers Improvement Act* and the *Conservation Authorities Act* under the Ontario Ministry of Natural Resources; the *Municipal Act* and the *Planning Act* under the Ontario Ministry of Municipal Affairs and Housing; and the *Environmental Protection Act* and the *Environmental Assessment Act* under the Ontario Ministry of the Environment. The Federal government is responsible for regulating water use in navigational waterways.

Water Use Reporting Program

Water Use Reporting involves efforts at both the national and provincial level. The MNR is the lead agency responsible for water use reporting under the Great Lakes Charter. MNR does not have the authority to mandatory reporting on water use, and users who provide information do so on a voluntary basis. The MOE has the authority to require mandatory reporting on water use under the PTTW program. No mandatory reporting for water quantity is in place at this time. Environment Canada and Statistics Canada collect water use data for municipal and industrial users. MNR has access to published data stored at Environment Canada through data sharing agreements.

To meet the requirements of the Great Lakes Water Use Database, data is compiled from several different sources. Environment Canada maintains the Municipal Water Use Database, which stores water use information for municipalities with populations of 1000 or more. This national survey program provides data on public supply water and some information on domestic self supply for survey years. In non- survey years public supply data is available through direct

contact with water works. A one time Rural Water Use Survey was conducted in 1996 by researchers at the University of Guelph. This survey applied coefficients to agricultural census data and provided data on self-supply domestic, self supply livestock and self supply irrigation categories. Environment Canada provides access to the Industrial Water Use Survey Database that collects data every five years. MNR collects water use data for power generation categories through direct contact with station operators. Navigation data from the National Canal survey makes up the bulk of water use for the other category.

Data collection is specific to the Great Lakes Basin for power generation, self supply domestic and other categories. Industrial and public supply categories are collected nationally but are geo-referenced and easily extracted for the Great Lakes. Basin related data for rural and agricultural uses is more difficult to extract.

A mandatory, provincial water use reporting program would help to co-ordinate the collection of water use data and alleviate the amount of work required. There is no mandatory reporting for consumptive uses. The MNR has the equivalent of one full time employee working on water use reporting. Other staff and consultants have been brought in to assist with these efforts. Funding requests to support changes in the water use reporting program are under consideration.

Water Conservation

Water Conservation regulations exist at the municipal and provincial level. Under the Municipal Act, municipalities can enact bylaws to limit water use. The Ontario Building Code requires low-flow plumbing fixtures in new buildings and the Provincial Planning Act requires "regard for" water conservation during planning. Similarly, consideration of conservation is a component of the PTTW program.

Provincial water conservation education initiatives are undertaken by the MOE, through programs, fact sheets, information on best management practices and publications. Municipalities take on an active educational role during low water conditions. A federal Action Plan on Municipal Water Use Efficiency was published in 1994. This initiative funded several community based projects to reduce public water use. A Provincial Water Use Strategy led by the MNR was also developed in the early 1990's.

Drought Contingency Plan

Drought is managed through the Ontario Low Water Response Plan for which MNR is the lead agency. This response plan involves partnership between local and provincial agencies, including Conservation Authorities, municipalities, and multiple provincial ministries. The plan draws on existing legislation to ensure provincial preparedness and to support and co-ordinate local response in the event of low water conditions.

The plan involves three drought indicator levels. MNR monitors streamflow and precipitation at a tertiary watershed level and alerts the local Conservation authority, who confirms indicator levels. A local Water Response Team is formed of stakeholders and they work with provincial ministries to formulate a plan for the watershed. At level I, the target is for a voluntary 10 percent reduction in water use. At Level II a voluntary 20 percent reduction is sought, and municipal bylaws may be enacted to restrict or prohibit non-essential uses. At level III

mandatory water use restrictions are implemented and recommendations are made on allocation priorities. Under the OWRA, permits to take water can be limited at the discretion of the Minister of the Environment. However, the Ontario Low Water Response Plan builds support for restrictions at the local level.

Other Items of Interest

MNR, MOE, Conservation Authorities and Environment Canada are involved in a multi-year study on water use and supply in the Ontario portion of the Great Lakes Basin. The first phase of the water use portion involved collecting 1996 water use data on a tertiary watershed level and looking at seasonal changes in use. The second phase beginning in fall 2001 involves demand forecasting. As Ontario seeks a more permanent strategy for water use, the information in this report is likely to change.

Summary of Ontario's Water Use Reporting Program, January 1, 1998

	Agencies Involved (lead agency in bold)	Authorizing Laws/Regulations	Total Principal Facilities	Percent Principal Facilities Reporting	Data Reporting Frequency	Data Compilation Methods	Consumptive Use Reporting*	Specificity of Data to Great Lakes Basin	Consistent with G.L. Charter	Funding	Staffing
Overall Program	Ministry of Natural Resources; Ministry of Environment; Environment Canada	Ontario Water Resources Act	2827	N/A	N/A	Measured and estimated	N/A	Sometimes	Mostly	N/A	1 FTE
Public Supply	Ministry of Natural Resources; Ministry of Environment; Environment Canada	Ontario Water Resources Act; Drinking Water Protection Regulation #459/00	249	N/A	N/A	Facility measured; reported in MUD	N/A	No	Mostly		
Self-Supply Domestic	Ministry of Natural Resources; Ministry of Environment; Environment Canada	Ontario Water Resources Act	0	N/A	N/A	Estimated	N/A	Yes	Mostly		
Self-Supply Irrigation	Ministry of Natural Resources; Ministry of Environment; Environment Canada	Ontario Water Resources Act	N/A	N/A	N/A	Estimated	N/A	No	Mostly		
Self-Supply Livestock	Ministry of Natural Resources; Ministry of Environment; Environment Canada	Ontario Water Resources Act	N/A	N/A	N/A	Estimated	N/A	No	Mostly		
Self-Supply Industrial	Ministry of Natural Resources; Ministry of Environment; Environment Canada	Ontario Water Resources Act	N/A, but EC survey had 2043 responses	N/A	N/A	Facility measured	N/A	No	Mostly		
Self-Supply Thermoelectric	Ministry of Natural Resources; Ministry of Environment; Environment Canada	Ontario Water Resources Act	9	N/A	N/A	Facility measured	N/A	Yes	Mostly		
Self-Supply Nuclear	Ministry of Natural Resources; Ministry of Environment; Environment Canada	Ontario Water Resources Act	6	N/A	N/A	Facility measured	N/A	Yes	Mostly		
Hydroelectric	Ministry of Natural Resources; Ministry of Environment; Environment Canada	Ontario Water Resources Act	61	N/A	N/A	Facility measured	N/A	Yes	Mostly		
Other	Ministry of Natural Resources; Ministry of Environment; Environment Canada	Ontario Water Resources Act	67	N/A	N/A	Estimated by MNR	N/A	Yes	Mostly		

Pennsylvania

Water Use

The Pennsylvania Department of Environmental Protection takes the lead on water use in the commonwealth. The DEP's Division of Water Use Planning within the Bureau of Watershed Management administers Pennsylvania's Water Allocation Program. This includes the development of policies and procedures for the issuance of permits, monitoring activities, permit compliance, technical assistance, training and instream flow needs assessments. The division is also involved in water planning and administers the Water Resources Data System.

The Administrative Code of 1929, Section 1904-A, provides the DEP with powers to oversee water use. Under the Water Rights Act of 1939, public supply agencies must obtain a permit before withdrawing surface waters. The DEP maintains a Water Use Database System (WUDS) that tracks information on sources for public water supply and other use types. WUDS provides information about water users downstream of projects and is used to monitor any public water supply surface withdrawals done without a permit. The 1939 law does not provide clear enforcement powers, but enforcement actions are generally not needed. There are no rules and regulations for the water allocation process.

Water Use Reporting Program

Water use data is collected based on two regulations. Chapter 109 Rules and Regulations, administered by the DEP's Bureau of Water Supply and Waste Water Management provides authority for collection of public supply water use information. The Bureau of Watershed Management has been delegated the Annual Water Supply Report effort. Public suppliers are required to submit annual data by the end of the first quarter of the subsequent year. Beginning with the 2001 report, the agency will also collect information on bottled water, vended water systems, retail water facilities, and bulk water hauling systems. Administrative Code Section 1904-A(3) provides for data collection for other use categories. However, this is done for inventory purposes, and the DEP has no ability to require submission of the data.

Data is collected for facilities using 100,000 gallons per day or more, but for non-public supply categories, the DEP does not have the statutory power to force users to report data. Legislation introduced in late 2001 would strengthen the agency's data collection powers. The DEP goes beyond the 100,000 gallon per day cutoff in many instances because if facilities desire to share information, it is entered into WUDS. Data is collected on all public supply facilities, both principal and non-principal. Between 80 percent and 100 percent of other principal facilities report their water use. Data is compiled through facility measurements and estimates, and consumptive use is based on facility estimates.

The state-wide portion of the program has 5.5 full time equivalents and the Great Lakes portion of Pennsylvania has 0.1 full time equivalents for water use reporting, and efforts are focused on program administration. About \$6,700 is spent annually on the Great Lakes Basin portion of the program.

Water Conservation

In Pennsylvania public water supply agencies withdrawing or using surface water are required to develop a water conservation program. The Department of Environmental Protection provides its Drought Information Center guidelines to assist in development of these programs. The elements of water conservation programs are reviewed under a Permit Compliance Report to ensure that a variety of conservation efforts are occurring. The Delaware and Susquehanna River Basin Commissions have jurisdiction for the water conservation programs within their watersheds.

Drought Contingency Plan

The state has drought regulations, which require water supply agencies to provide the Department of Environmental Conservation with drought contingency plans. Within these plans, agencies must identify measures they will take to respond to drought conditions. These can include providing public notice of the situation, implementing a conservation program, and rationing. Additionally, commercial and industrial water users that use more than 100,000 gallons per day in any 30-day period must have a plan that includes the information on water conservation measures taken, potential measures that could be taken, and a plan of action for phased reduction of water use.

Stream flow, ground water levels, precipitation, reservoir storage and the Palmer index are all used as drought triggers to determine one of three stages of drought. Within each stage various levels of water conservation are targeted: Each water user reduces water use by 5 percent in drought warning, 10 to 15 percent in drought watch and at least 15 percent in drought emergency. Water suppliers can ration water during the emergency stage with approval from the state Emergency Management Agency.

Other Items of Interest

Demand forecasting is done for public water supply systems on a five to ten year basis.

Summary of Pennsylvania's Water Use Reporting Program, January 1, 1998

	Agencies Involved	Authorizing Laws/Regulations	Total Principal Facilities	Percent Principal Facilities Reporting	Data Reporting Frequency	Data Compilation Methods	Consumptive Use Reporting	Specificity of Data to Great Lakes Basin	Consistent with G.L. Charter	Funding	Staffing
Overall Program	Department of Environmental Protection's Bureau of Watershed Management	Chapter 109 Rules and Regulations; Administrative Code Section 1904-A(3)	26	N/A	Annual	Facility estimated or measured	Facility estimated	Yes	Mostly	\$6,700	0.1 FTEs
Public Supply	DEP's Bureau of Watershed Mgmt. and Bureau of Water Supply and Waste Water Mgmt.	Chapter 109 Rules and Regulations	10	100	Annual	Facility measured	Facility estimated	Yes	Yes		
Self-Supply Domestic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Self-Supply Irrigation	DEP's Bureau of Watershed Management	Administrative Code Section 1904-A(3)	11	80-100	Annual	Facility estimated or measured	Facility estimated	Yes	Yes (mostly)		
Self-Supply Livestock	DEP's Bureau of Watershed Management	Administrative Code Section 1904-A(3)	0	80-100	Annual	Facility estimated or measured	Facility estimated	Yes	Yes (mostly)		
Self-Supply Industrial	DEP's Bureau of Watershed Management	Administrative Code Section 1904-A(3)	5	80-100	Annual	Facility estimated or measured	Facility estimated	Yes	Yes (mostly)		
Self-Supply Thermoelectric	DEP's Bureau of Watershed Management	Administrative Code Section 1904-A(3)	0	80-100	Annual	Facility estimated or measured	Facility estimated	Yes	Yes (mostly)		
Self-Supply Nuclear	DEP's Bureau of Watershed Management	Administrative Code Section 1904-A(3)	0	80-100	Annual	Facility estimated or measured	Facility estimated	Yes	Yes (mostly)		
Hydroelectric	DEP's Bureau of Watershed Management	Administrative Code Section 1904-A(3)	0	80-100	Annual	Facility estimated or measured	Facility estimated	Yes	Yes (mostly)		
Other	DEP's Bureau of Watershed Management	Administrative Code Section 1904-A(3)	0	80-100	Annual	Facility estimated or measured	Facility estimated	Yes	Yes (mostly)		

Québec

Water Use

The Ministry of the Environment oversees most of the water use in Québec (quality, hydrology), but the Ministry of Natural Resources oversees hydroelectric power and several other ministries and municipalities are involved in a number of water use issues. The Ministry of Agriculture and Fisheries is responsible for agriculture-related water use and Hydro-Québec is involved in power-related water use. Coordination of the functions carried out by these several agencies occurs through inter-ministerial committees and agreements. The various layers of government involved in an issue can create problems associated with governmental priorities.

Québec has several different regulations dealing with water use. Transporting water outside Québec is not allowed under the Water Resources Preservation Act, passed in October 1999. Some exceptions include production of electric power, drinking water in containers 20 liters or smaller, and supplying water to areas bordering the basin. The Environment Quality Act requires a certificate of authorization from the Environment Minister before a variety of activities can occur on water bodies. Québec's Ministry of the Environment and Ministry of Natural Resources share responsibilities for water use for hydroelectric power as outlined in the Watercourse Act. Hydroelectric projects are subject to government approval. The province has a number of other regulations dealing with impacts associated with alterations to waterways. Also, under the Policy on Ecological Flow for Fish and Fish Habitats Protection, models are used to determine whether minimum flows are being maintained that allow for various demands on the water, such as habitat protection, navigation and water intakes.

Water Use Reporting Program

Québec has no formal water use reporting program that includes the categories in the Great Lakes Water Use Regional Database, but municipalities, agencies and ministries collect and estimate some information. Environment Canada and Statistics Canada collect data every five years on self-supply industrial water use. There are a total of 155 facilities surveyed and consumptive use is estimated by Environment Canada. Hydro-Québec collects data on the self-supply thermoelectric and hydroelectric categories on an irregular basis. The hydroelectric data is measured and is specific to the Great Lakes Basin. Between 70% and 80% of hydroelectric facilities report their water use.

Water Conservation

The province has no regulatory or mandatory water conservation program, but conservation efforts occur at the local level and provincial ministries provide financial support to some non-governmental organizations that focus on water conservation. Municipalities take measures such as limiting hours when lawns can be watered. Also, some municipalities and organizations, such as the Montreal Urban Community, have education programs in schools and awards for institutions that improve their water management. Québec's Ministry of the Environment and Ministry of Municipal Affairs provide financial resources to a non-governmental organization called RÉSEAU-Environment, which promotes water conservation through a variety of publications, conferences, publicity campaigns and a website. The Ministry of Municipal Affairs' "Les eaux vives du Québec" program also provides financial support to small municipalities for replacement or improvement of drinking and wastewater infrastructure.

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Project priority is based on the value of a project in solving public health problems, providing a better water supply and curbing pollution problems.

Drought Contingency Plan

Québec has no formal drought contingency plan.

Summary of Quebec's Water Use Reporting Program, January 1, 1998

	Agencies Involved	Authorizing Laws/Regulations	Total Principal Facilities	Percent Principal Facilities Reporting	Data Reporting Frequency	Data Compilation Methods	Consumptive Use Reporting	Specificity of Data to Great Lakes Basin	Consistent with G.L. Charter	Funding	Staffing
Overall Program	Municipalities, Ministry of Agriculture and Fisheries, Industries, and Hydro-Quebec	Ministry of the Environment; Watercourses Act; Quality of the Environment Act; other ministries	171	70-100	When requested	N/A	N/A	Only for Hydroelectric	No	0	0
Public Supply	Municipalities	Ministry of Municipal Affairs; Ministry of the Environment; Quality of the Environment Act	N/A	N/A	N/A	N/A	N/A	No	N/A		
Self-Supply Domestic	Municipalities	Ministry of the Environment; Quality of the Environment Act	N/A	N/A	N/A	N/A	N/A	No	N/A		
Self-Supply Irrigation	Ministry of Agriculture and Fisheries	Ministry of Agriculture and Fisheries	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Self-Supply Livestock	Ministry of Agriculture and Fisheries	Ministry of Agriculture and Fisheries	N/A	N/A	N/A	N/A	N/A	N/A	N/A		
Self-Supply Industrial	Municipalities-Industries	Ministry of the Environment; Quality of the Environment Act	155	100	Once every 5 years	Facility measured (Environment Canada)	Estimated through EC survey	No	No		
Self-Supply Thermoelectric	Hydro-Quebec	Ministry of Natural Resources; Watercourses Act; Quality of the Environment Act	2	N/A	N/A	Facility measured (Hydro-Québec)	N/A	No	No		
Self-Supply Nuclear	N/A	N/A	0	N/A	None	None	None	N/A	N/A		
Hydroelectric	Hydro-Quebec	Ministry of Natural Resources; Watercourses Act; Quality of the Environment Act	14	70- 80	When requested	Facility measured	Facility measured	Yes	No		
Other	N/A	N/A	0	N/A	None	None	None	N/A	N/A		

Wisconsin

Water Use

The Wisconsin Department of Natural Resources is the sole agency overseeing water use in the state. The state's regulations for water use cover installation of high capacity wells, surface water diversions, instream flows and water conservation. The Wisconsin legislature passed Act 60 in 1985, largely in response to the Great Lakes Charter. This act provides for regulation of water withdrawals, diversions, and consumptive use, and deals with both surface and groundwater. Act 60 was designed to meet the legislative test set forth by the Supreme Court in *Sporhase*, so the state must demonstrate the need for conserving and protecting its water resources to provide for the health and welfare of the state's citizens. A water withdrawal must be registered if it will average more than 100,000 gallons per day in any 30-day period. The state tries to ensure registration of facilities through existing programs, such as permits for well construction. Registration exemptions are granted if a permit has been issued for the withdrawal and reported information includes the volume and rate of water withdrawal. In addition, Wisconsin diversions resulting in a 2 million gallon loss in a 30-day period require approval under Wisconsin State Statute 30.18.

Water Use Reporting Program

The DNR collects water use data based on the authority in Wisconsin State Statute 281.35 and the associated rules in Natural Resources 142, Wisconsin Administrative Code. Wisconsin receives information that is either measured or estimated by facilities on an annual basis for all of the nine water use categories used in the Great Lakes Water Use Regional Database. Consumptive use data is estimated use state-mandated coefficients for the irrigation, livestock, and industrial categories. For other categories, facilities provide the DNR with their coefficient and the method used for its calculation. The data that is gathered has specificity to the Great Lakes Basin, although data is collected across the state. Wisconsin has one person, or 0.2 full time equivalent, involved in the statewide water use reporting program, and activities focus mostly on data review and evaluation. The statewide program is funded with \$14,000 per year, a decrease from 10 years before.

Water Conservation

Wisconsin has no required formal water conservation plan, but the state recommends water conservation plans as part of wellhead protection plans, which are required for all new municipal wells. Part of a conservation plan includes self-reporting, but there are no formal compliance provisions. Agencies involved in water conservation include the Department of Natural Resources, the Public Service Commission and the Department of Commerce. The DNR regulates supply sources and users such as community water supplies and hydroelectric facilities. The PSC regulates water rates, pressure standards and system losses, and the Department of Commerce regulates the maximum water use for newly installed plumbing fixtures. To help coordinate tasks among the agencies, ad hoc interagency committees can be formed when necessary.

Drought Contingency Plan

In addition to these efforts, water conservation is part of the state's statewide drought contingency plan. This statewide drought contingency plan, which can include mandatory

conservation measures, takes effect when the governor declares an Emergency Executive Order. This plan can includes mandatory water conservation measures that occur as a drought increases in severity, but there are no compliance provisions. A statewide technical advisory committee has given consideration to the criteria for determining the stages of a drought, but no statute or rule has been adopted.

Other Items of Interest

The WDNR has a website for its drinking and groundwater program.

Summary of Wisconsin's Water Use Reporting Program, January 1, 1998

	Agencies Involved	Authorizing Laws/Regulations	Total Principal Facilities	Percent Principal Facilities Reporting	Data Reporting Frequency	Data Compilation Methods	Consumptive Use Reporting	Specificity of Data to Great Lakes Basin	Consistent with G.L. Charter	Funding	Staffing
Overall Program	Department of Natural Resources	State Statute 281.35; Natural Resources 142, Administrative Code	414	100	Annual	Facility measured or estimated	Facility estimated	Yes	Yes	\$14,000	0.20 FTEs
Public Supply	Department of Natural Resources	State Statute 281.35; Natural Resources 142, Administrative Code	234	100	Annual	Facility measured or estimated	Facility estimated	Yes	Yes		
Self-Supply Domestic	Department of Natural Resources	State Statute 281.35; Natural Resources 142, Administrative Code	0	N/A	Annual	Facility measured or estimated	Facility estimated	Yes	N/A		
Self-Supply Irrigation	Department of Natural Resources	State Statute 281.35; Natural Resources 142, Administrative Code	111	100	Annual	Facility measured or estimated	Facility estimated	Yes	Yes		
Self-Supply Livestock	Department of Natural Resources	State Statute 281.35; Natural Resources 142, Administrative Code	0	N/A	Annual	Facility measured or estimated	Facility estimated	Yes	N/A		
Self-Supply Industrial	Department of Natural Resources	State Statute 281.35; Natural Resources 142, Administrative Code	40	100	Annual	Facility measured or estimated	Facility estimated	Yes	Yes		
Self-Supply Thermolectric	Department of Natural Resources	State Statute 281.35; Natural Resources 142, Administrative Code	11	100	Annual	Facility measured or estimated	Facility estimated	Yes	Yes		
Self-Supply Nuclear	Department of Natural Resources	State Statute 281.35; Natural Resources 142, Administrative Code	2	100	Annual	Facility measured or estimated	Facility estimated	Yes	Yes		
Hydroelectric	Department of Natural Resources	State Statute 281.35; Natural Resources 142, Administrative Code	16	100	Annual	Facility measured or estimated	Facility estimated	Yes	Yes		
Other	Department of Natural Resources	State Statute 281.35; Natural Resources 142, Administrative Code	0	N/A	Annual	Facility measured or estimated	Facility estimated	Yes	N/A		

Conclusion

Each of the jurisdictions in the Great Lakes Basin has taken its own unique approach in development of its water use, water use reporting, and water conservation programs. There are many areas that can be further developed, particularly as regional coordinative efforts continue to unfold. In areas where some jurisdictions have gaps, lessons can be learned from within the basin. Ideally, this document will help each state or province learn more about what occurs elsewhere in the basin so that current efforts to coordinate will continue and be improved.

Most states have water withdrawal programs that are fairly consistent with the principles of the Great Lakes Charter. Small gaps exist in several states, but these may not be significant enough to need to worry about. At the very least, states without data collection activities in certain categories need to correct this problem. Water use reporting is occurring in the basin, but approaches can be improved and made more consistent. More direct measurements could occur in place of estimation, and consolidation of the data collection could occur in some jurisdictions to allow the process to occur more consistently. The permitting programs appears to be stronger than registration programs in ensuring that data collection occurs, so jurisdictions may want to consider using registration programs. Water conservation efforts also are occurring, but room exists for improvement in many areas of the basin.

Overall, those areas in which improvement would be most beneficial to the overall process should be identified so appropriate action can be taken. To assist these efforts, each jurisdiction should determine goals and determine whether current resources will be adequate to attain those goals.

Despite any inadequacies in the current management of water resources, the Great Lakes Basin should focus on the successful convergence of state and provincial programs. Similar information about water use reporting programs was presented in the 1986 USGS report, "Water-Use Data-Collection Programs and Regional Data Base of the Great Lakes-St. Lawrence River Basin States and Provinces." Based on a cursory comparison, the Basin appears to be moving in the right direction to be able to provide comparable programs for the states and provinces that will facilitate regional coordination.

Appendix:

- **Summary of All Jurisdictions' Overall Water Use Reporting Programs**
- **Notes on Tables**
- **Descriptive Survey of State/Provincial Water Use Programs in the Great Lakes-St. Lawrence System**
- **Membership List of Water Withdrawal and Use Technical Sub-committee**

Summary of All Jurisdictions' Overall Water Use Reporting Programs, January 1, 1998

	Agencies Involved (lead agency in bold)	Authorizing Laws/Regulations	Total Principal Facilities	Percent Principal Facilities Reporting	Data Reporting Frequency	Data Compilation Methods	Consumptive Use Reporting*	Specificity of Data to Great Lakes Basin	Consistent with G.L. Charter	Funding	Staffing
Illinois	Department of Natural Resources ; State Water Survey	Level of Lake Michigan Act/ Regulation Title 17 Part I (h)/ Voluntary Survey	34	?	Annual	Facility measured	N/A	Yes	Yes	\$80,000 \$70 DNR \$10 Survey	1.35 FTE 0.35 Survey 1 DNR
Indiana	Department of Natural Resources	Indiana Code 14-25-7: Water Resource Management Act	540	100	Annual	Facility/state measured or estimated	State estimated	No	Mostly	\$10,000 (estimate)	0.2 FTE
Michigan	Department of Environmental Quality	Public Act 451 of 1994 Public Act 399 of 1976	2221	Nearly 100	Annual	Facility/state measured or estimated	Limited (Facility Estimated)	Yes	Mostly	\$53,000 (annual fees)	0.9 FTE
Minnesota	Department of Natural Resources	Statute 103G.265; Rules 6115.0600	118	Nearly 100	Annual with monthly data	Facility measured	None	No	Yes	From State General Fund	0.4 FTE
New York	NYS Department of Environmental Conservation ; USGS; ACOE; NYSDOH	NYSECL 15-1609, NYCRR PART 675	641	N/A	Annual/ Biennial	Measured or estimated	Measured or estimated	No	Mostly	\$35,367	0.65 FTE
Ohio	Department of Natural Resources, Division of Water	Ohio Revised Code Sections 1521.15 and 1521.16	262	100	Annual	Measured and estimated	N/A	No	Yes	\$19,410	0.30 FTEs
Ontario	Ministry of Natural Resources ; Ministry of Environment; Environment Canada	Ontario Water Resources Act	2827	N/A	N/A	Measured and estimated	N/A	Sometimes	Mostly	N/A	1 FTE
Pennsylvania	Department of Environmental Protection's Bureau of Watershed Mgmt.	Chapter 109 Rules and Regulations; Administrative Code Section 1904-A(3)	26	N/A	Annual	Facility estimated or measured	Facility estimated	Yes	Mostly	\$6,700	0.1 FTEs
Quebec	Municipalities, Ministry of Agriculture and Fisheries, Industries, and Hydro-Quebec	Ministry of the Environment; Watercourses Act; Quality of the Environment Act; other ministries	171	70-100	When requested	N/A	N/A	Only for Hydroelectric	No	0	0
Wisconsin	Department of Natural Resources	State Statute 281.35; Natural Resources 142, Administrative Code	414	100	Annual	Facility measured or estimated	Facility estimated	Yes	Yes	\$14,000	0.20 FTEs

Notes on Tables

- 1) Information on total number of principal facilities for Wisconsin, Pennsylvania, and Illinois (partly) gathered from the Great Lakes Water Use Regional Database.
- 2) Authorizing Laws/Regulations are not necessarily comprehensive, but do include a statute or regulation that allows water use reporting to occur.
- 3) Principle Facilities are defined as those that withdraw 100,000 gallons or more per day. The percent facilities reporting category is based on those facilities that pump this quantity. Definition of principal facility: Facilities withdrawing or consuming in excess of the Great Lakes Charter uniform trigger level of 100,000 U.S. gal/day (380,000 L/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. (Annual Report of the Great Lakes Regional Water Use Data Base Repository, 1995, representing 1992 data)
- 4) Data compilation methods refers to whether data is measured or estimated by the state or the facilities. In many cases a mixture of approaches is used.
- 5) Consumptive use reporting was classified in a manner similar to data compilation methods.
- 6) Specificity to Great Lakes Basin refers to whether the data collected is Basin specific. For those categories that are not, the data can often be extracted from larger data sets quite easily. The ability of states to extract this information is included in the main writeup.
- 7) Consistent with Great Lakes Charter refers to whether the jurisdiction has a common base of data as described in the Great Lakes Charter. These determinations are often subjective based on evidence that states or provinces have inadequacies in their data collection processes.
- 8) Funding and staffing amounts are Basin specific, so this is often an estimate of a larger data processing effort.
- 9) For the most part, the tables are a snapshot of information on Jan. 1, 1998, but other items have been included in some cases.

**Descriptive Survey of State/Provincial Water Use Programs
in the Great Lakes-St. Lawrence System
July 2001**

Please answer the following questions, as well as the accompanying matrix. If a particular question does not apply to your jurisdiction, please mark N/A and provide any further explanation as necessary.

WATER CONSERVATION

1. Is there a formal water conservation regulatory program/mandated policy in your state/province? Or, is water conservation associated more with a drought contingency plan?

2. If there is a jurisdiction-wide emergency water conservation plan associated with drought conditions, when does it take effect? Are there specific trigger levels built into the plan?

3. What institutional arrangements are in place to oversee water conservation efforts (i.e. task force), and how do they operate?

a. for the water conservation program

b. for the drought contingency plan

4. If multiple agencies are involved in the water conservation program/plan, how are functions coordinated among agencies, and what specific tasks are assigned to each agency?

a. for the water conservation program

b. for the drought contingency plan

5. What sectors/industries are regulated by the water conservation regulatory program?

6. Does your state/province have the ability to monitor program compliance? If so, how does monitoring occur?

a. for the water conservation program

b. for the drought contingency plan

7. What additional functions are involved in the water conservation program (such as publicity, consumer education)?

a. for the water conservation program

b. for the drought contingency plan

8. What types of water conservation measures are pursued under the formal regulatory program/mandated policy?

9. What is the main purpose of the formal regulatory program/mandated policy (i.e. is the specific aim water conservation, or is there another purpose?)?

10. Is there a specific emphasis or preferred approach for conserving water under the formal water conservation regulatory program (such as use of technology, improved water quality)?

GENERAL WATER USE

11. Describe the regulatory framework for water use in your state/province. Include within this description the sectors/industries regulated and the minimum quantities of water use/withdrawal for each sector that require regulation.

12. What water use regulations, if any, will be needed to implement the Great Lakes Charter and Annex 2001?

13. What is the lead agency that oversees water use in the state or province?

14. If multiple agencies are involved in the water use programs, how are functions coordinated among agencies, and what specific tasks are assigned to each agency?

15. What types of mechanisms are used for coordinating communication among agencies that share jurisdiction over an area of water use? How do these mechanisms work and what drives them?

16. What level of staffing and funding for jurisdiction-wide water use programs comes from federal sources, and what portion of the whole is provided through federal and other non-state/provincial resources? Include in your response a description of any in-kind contributions and/or other unique arrangements.

17. What problems are involved in the coordination and interaction of state/provincial water use programs with regional programs, such as the Great Lakes Regional Water Use Data Base? Are there institutional changes at the state/provincial or regional levels that would help resolve any of these problems?

18. Does your state/province/agency do demand forecasting? If so, how frequently?

19. Does your agency have a website or newsletter for your water use program?

20. What additional functions not addressed in the survey are involved in the water use program (such as publicity, consumer education)?

21. Following are two matrices that solicit additional information on staffing and funding issues for the data portions of water use reporting programs. Please fill them in using fiscal year 2001 information.

STAFFING FY 2001		Program Administration		Database Management		Data Compilation		Data Review/Evaluation		Report Preparation		Total	
		State-wide	In-Basin	State-wide	In-Basin	State-wide	In-Basin	State-wide	In-Basin	State-wide	In-Basin	State-wide	In-Basin
Allocations													
Lead Agency Staff	No. Staff												
	Total FTE*												
Other Agencies	No. Staff												
	Total FTE*												
Consultants	No. Staff												
	Total FTE*												

BUDGET FY 2001		Program Administration		Database Management		Data Compilation		Data Review/Evaluation		Report Preparation		Total	
		State-wide	In-Basin	State-wide	In-Basin	State-wide	In-Basin	State-wide	In-Basin	State-wide	In-Basin	State-wide	In-Basin
Allocations													
Annual/Biennial Allocation													
Change in 10 years**													

* Full-time equivalent. For example 5 full-time employees devoting 20% of their time equals 1 FTE.

**Adjusting for inflation, has the budget increased, decreased or remained constant over the last 10 years?

Attachment #1: Relevant Clauses Extracted from the Great Lakes Charter

(For determining Consistency of State/Provincial Water Use Reporting Programs with the Great Lakes Charter.)

Common Base of Data

The Great Lakes States and Provinces will pursue the development and maintenance of a common base of data and information regarding the use and management of Basin water resources and the establishment of systematic arrangements for the exchange of water data and information. The common base of data will include the following:

1. Each State and Province will collect and maintain, in comparable form, data regarding the location, type, and qualities of water use, diversion, and consumptive use, and information regarding projections of current and future needs.
2. In order to provide accurate information as a basis for future water resources planning and management, each State and Province will establish and maintain a system for the collection of data on major water uses, diversions, and consumptive uses in the Basin. The States and Provinces, in cooperation with the Federal Governments of Canada and the United States and the International Joint Commission, will seek appropriate vehicles and institutions to assure responsibility for coordinated collation, analysis, and dissemination of data and information.
3. The Great Lakes States and Provinces will exchange on a regular basis plans, data, and other information on water use, conservation, and development, and will consult with each other in the development of programs and plans to carry out these provisions.

Basin Water Resources Management Program

In order to guide the future development, management, and conservation of the water resources of the Great Lakes Basin, the signatory States and Provinces commit to the development of a cooperative water resources management program for the Great Lakes Basin.

Such a program should include consideration of the following elements:

1. An inventory of the Basin's surface and groundwater resources;
2. An identification and assessment of existing and future demands for diversions, into as well as out of the Basin, withdrawals, and consumptive uses for municipal, domestic, agricultural, manufacturing, mining, navigation, power production, recreation, fish and wildlife, and other uses and ecological considerations;
3. The development of cooperative policies and practices to minimize the consumptive use of the Basin's water resources; and
4. Recommended policies to guide the coordinated conservation, development, protection, use, and management of the water resources of the Great Lakes Basin.

A Water Resources Management Decision Support System for the Great Lakes Water Withdrawal and Use Technical Sub-committee

January 11, 2002

Illinois

Jim Casey, Civil Engineer
Office of Water Resources
Illinois DNR
310 S. Michigan Ave.
Chicago, IL 60604
PH: 312/793-3123
FAX: 312/793-5968
jcasey@dnrmail.state.il.us

Indiana

James Hebenstreit, Assistant Director
Indiana DNR
Division of Water
402 W. Washington
Room 264-W
Indianapolis, IN 46241
PH: 317/232-4160
FAX: 317/233-4579
jhebenstreit@dnr.state.in.us

Ralph Spaeth
Indiana DNR
Division of Water
402 W. Washington
Room 264-W
Indianapolis, IN 46241
PH: 317/234-1101
FAX: 317/233-4579
rspaeth@dnr.state.in.us

Michigan

Ron Van Til, Water Use Analyst
Drinking & Radiological Protection Div.
Michigan DEQ,
Groundwater Supply Section
P.O. Box 30630
3423 N. Martin L. King Jr. Blvd.
Lansing, MI 48909-8130
PH: 517/335-9045
FAX: 517/335-9434
vantilr@state.mi.us

Minnesota

Sean Hunt, Hydrologist
Division of Waters
Minnesota DNR
500 Lafayette Rd.
Third Floor
St. Paul, MN 55155-4032
PH: 651/296-0509
FAX: 651/296-0445
sean.hunt@dnr.state.mn.us

New York

Michael Holt, Environmental Engineer II
Bureau of Water Permits
New York State DEC
625 Broadway
Albany, NY 12233-3505
PH: 518/457-9514
FAX: 518/485-7786
mdholt@gw.dec.state.ny.us

Ohio

Leonard Black
Division of Water
Ohio DNR
Bldg. E-3
1939 Fountain Square
Columbus, OH 43224
PH: 614/265-6758
FAX: 614/447-9503
leonard.black@dnr.state.oh.us

Ontario

Scott Christilaw, Project Manager
Water Resources Information Project
Ontario MNR
P.O. Box 7000
300 Water St.
Peterborough, ON K9J 8M5
PH: 705/755-1870
FAX: 705/755-1267
scott.christilaw@mnr.gov.on.ca

Pennsylvania

Tom Denslinger, Chief
Resource Management Section
Bureau of Watershed Conservation
Pennsylvania DEP
P.O. Box 8555
Harrisburg, PA 17105-8555
PH: 717/772-5679
FAX: 717/787-9549
tdenslinge@state.pa.us

Québec

Francois Godin, Edifice Marie-Guyart
Direction de l'hydraulique et de l'hydrique
aile Rene-Levesque 1er etage
674, boul. Rene-Levesque Est
Quebec, QC G1R 5V7
PH: 418/521-3876
FAX: 418/644-7100
francois.godin@menv.gouv.qc.ca

Wisconsin

Linda Talbot, Great Lakes Coordinator
Bureau of Watershed Management
Wisconsin DNR
P.O. Box 7921
Madison, WI 53707
(608) 266-8148
Fax (608) 267-2800
talbot@dnr.state.wi.us

Mr. Terry Lohr

Water Quality Specialist/GEF2
Bureau of Watershed Management
Wisconsin DNR
P.O. Box 7921
Madison, WI 53707
PH: 608/267-2375
FAX: 608/267-2800
lohrt@dnr.state.wi.us

U.S. Geological Survey

Deborah Lumia, Hydrologist
Water Resources Division
USGS
425 Jordan Rd.
Troy, NY 12180
PH: 518/285-5668
FAX: 518/285-5601
dlumia@usgs.gov

Carol L. Luukkonen, Hydrologist
Water Resources Division
USGS
6520 Mercentile Way, Suite 5
Lansing, MI 48911-5991
PH: 517/887-8920
FAX: 517/887-8937
clluukko@usgs.gov

Environment Canada

Karl A. Schaefer
Water Science Policy and Liaison
Science Liaison Branch
National Water Research Institute
867 Lakeshore Road, P.O. Box 5050
Burlington, (Ontario) L7R 4A6 Canada
Room R278
PH: 905_336_4884
FAX: 905_336_6444
karl.schaefer@ec.gc.ca

Great Lakes Commission

Argus II Bldg.
400 Fourth Street
Ann Arbor, MI 48103-4816
PH: 734-665-9135
FAX: 734-665-4370

Tom Crane, Program Manager
Resource Management
terane@glec.org

Marilyn Ratliff, Project Specialist
mratliff@glec.org