



Illinois Department of Natural Resources

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JB Pritzker, Governor
Colleen Callahan, Director

Water Conservation and Efficiency Program Review Illinois' Twelfth Report to the Compact Council and Regional Body

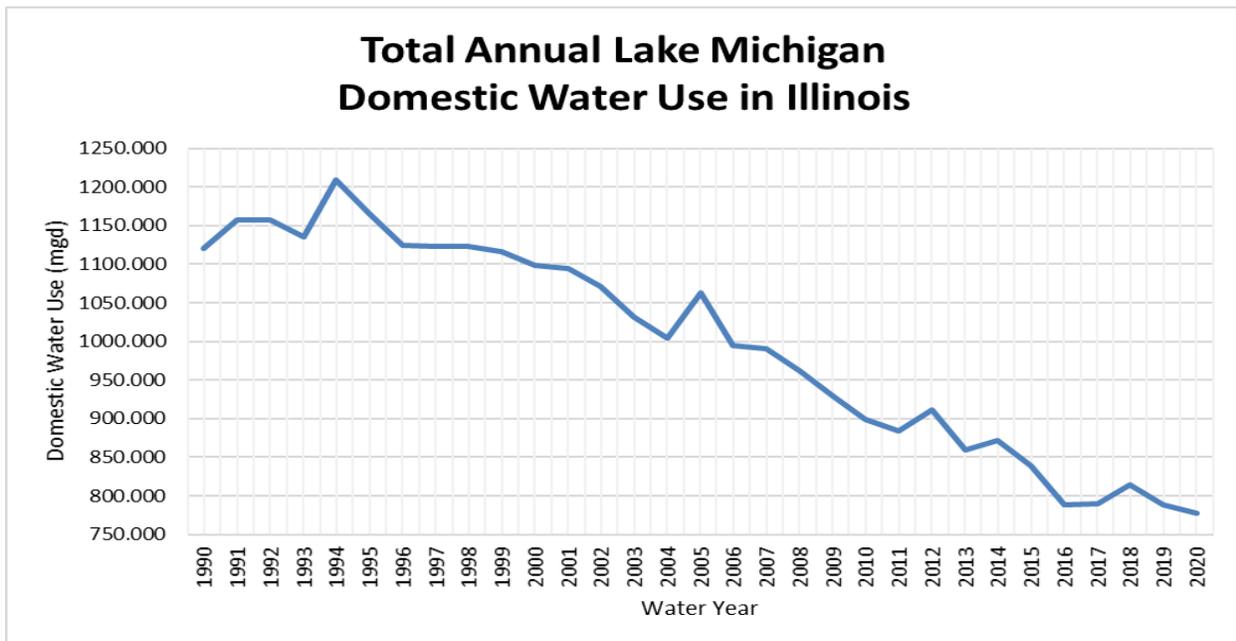
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Illinois' water conservation and efficiency program

A. Status of Illinois' Domestic Water Use from Lake Michigan



In water year 2020 total domestic Lake Michigan water use was 778 million gallons per day (mgd), a decrease of approximately 11 mgd from water year 2019's pumpage. Overall, the plot above shows the long-term decline in total domestic use of Lake Michigan water. The drought years of 1994, 2005 and 2012 are clearly visible, but the overall downward trend in water use that has occurred over the last 30 years is significant. In water year 2020 the annual precipitation was 41.31 inches, 5.85 inches less than 2019's 47.16 inches.

Water use summaries for the 2010 through 2017 water years are on our website: <http://www.dnr.illinois.gov/WaterResources/Pages/LakeMichiganWaterAllocation.aspx>. This information was obtained from the Annual Water Use Audit Reports (LMO-2). LMO-2 data for water years 2018 through 2020 are not yet available. The Department's monthly pumpage reports (LMO-3), submitted by direct diverters are used for reporting to the Great Lakes Regional Water Use Database.

B. Program Legal Basis

The U.S. Supreme Court Decree [Wisconsin v. Illinois, 449 U.S. 48 (1980)] that limits Illinois' diversion of Lake Michigan water also contains language directing Illinois to implement a water conservation program. The Level of Lake Michigan Act [615 ILCS 50] incorporates the Decree language which states that:

“...all feasible means reasonably available to the State and its municipalities, political subdivisions, agencies and instrumentalities shall be employed to conserve and manage the water resources of the region and the use of water therein in accordance with the best modern scientific knowledge and engineering practice.” [615 ILCS 50/5]

This is the operative judicial and statutory language that directs the Illinois Department of Natural Resources (Department) to develop and implement a water management and conservation program covering all permittees of Lake Michigan water.

C. Program Objectives

In 2010, the Department developed and posted on our website Illinois' Lake Michigan Water Conservation Goals and Objectives, as required by the Compact and the Regional Agreement. <http://www.dnr.illinois.gov/WaterResources/Pages/LakeMichiganWaterAllocation.aspx>

The Department's water conservation and efficiency program objectives are:

- Enforce the adoption of standards that require the efficient use and conservation of Lake Michigan water by the end user (homeowner, business/industry).
- Establish standards for good water system management and leakage control by the owner/operator of a water supply system.
- Ensure that Lake Michigan water diverted directly into the Chicago Waterway system for various purposes is kept to a minimum.
- Collect water use data annually; monitor changes in water use patterns. Encourage public water supply systems to evaluate the effectiveness of their conservation efforts.
- Prepare and maintain long-term water demand forecasts.
- Promote the adoption of water rate structures that encourage conservation and water efficiency.
- Encourage water suppliers to invest in water infrastructure and the use of innovative technology to improve water systems management.
- Encourage research, development and implementation of water efficient technologies. Develop linkages with organizations such as USEPA's WaterSense Program, the Alliance for Water Efficiency and others, to keep abreast of the latest conservation technologies.
- Inform, educate and increase awareness regarding water use, conservation and efficiency via newsletters and other such means of communication.
- Work with our Lake Michigan water allocation permittees and our Great Lakes basin partners to enhance information sharing.

D. Program Activity – Implementing Revised Administrative Rules

The Department revised its Rules and Regulations for the Allocation of Water from Lake Michigan (IL Admin. Code, Title 17, Part 3730) in November 2014. Water year 2020 (October 2019 – September 2020) was the sixth year implementing these revisions. Here is a summary of actions taken in the past year.

- Beginning in water year 2015, Lake Michigan water allocation permittees were required to use the American Water Works Association’s Free Water Audit Software (AWWA FWAS) to assist with the completion of the annual LMO-2 data submittal to the Department. The AWWA FWAS is based upon the methodology described in the American Water Works Association’s (AWWA) M36 manual “Water Audits and Loss Control Programs” (2016). The transition to using the M36 methodology and AWWA FWAS has been challenging and permittees continue to struggle to complete their LMO-2 submittals. The specific issues range from simple math errors to a lack of familiarity with the fundamentals of the M36 methodology. Community comments submitted as part of outreach efforts related to the Illinois State Water Plan update continue to reflect frustrations with the reporting process. In response to the identified challenges and permittee input, the Department has assembled a team to develop and implement modifications to the data collection process. These modifications will modernize and simplify the data collection process in the coming years. In the short-term, the Department has provided technical support to permittees as part of the LMO-2 data review process through conference calls and training events in an effort to assist permittees through the LMO-2 data submittal process until the program modifications can be implemented.
- With the transition to using the M36 methodology, the Department implemented a non-revenue water standard for assessing water loss. This standard is defined as the volume of non-revenue water as percent by volume of water supplied. In water year 2015, the standard was set at 12% and was reduced to 10% in water year 2019. Water year 2020 is the second year that permittees have been required to meet the 10% standard. Permittees with water systems that are not in compliance with the non-revenue standard are required to prepare and submit a water system improvement plan describing the structural and non-structural measures that they will implement in order to reduce non-revenue water. Communities that have submitted a water system improvement plan are required to submit progress reports each year with the LMO-2 data submittal.

E. Program Activity – Develop Linkages with other Conservation Organizations

During this past year, the Department’s has continued partnerships with other groups/organizations to further our water conservation program efforts. These include:

- Member of the American Water Works Association (AWWA) M36 Working Group.
- On the Illinois Section of the AWWA’s Water Efficiency Committee.
- On the Great Lakes Commission’s Green Infrastructure Champions.
- On the Great Lakes Commission’s Blue Accounting Group.
- Working with regional organizations such as the Chicago Metropolitan Agency for Planning, the Northwest Water Planning Alliance, the Northeastern Illinois Regional Water Supply Planning Group, and the Center for Neighborhood Technology, and the Metropolitan Planning Council to further our outreach to communities in the areas of water supply planning, drought management, water loss control and sustainable water resource management.

F. Program Activity – Water Use and Water Loss Monitoring

Water loss information was again collected in water year 2020 using the revised LMO-2 form which utilizes the AWWA Water Loss Audit methodology. Permittees not meeting the 10% non-revenue water standard are required to submit water system improvement plans that will reduce their non-revenue water to a level below the Department’s regulatory standard.

G. Program Activity – Control of Direct Diversion into Chicago Waterway System

The total amount of Lake Michigan water diverted into the Chicago Waterway System for discretionary diversion and navigation makeup flow was 206.86 cubic feet per second (cfs) in water year 2020. At the end of the 2020 water year, the five-year running average of these two components of direct diversion stands at 184.45 cfs or 70.55 cfs below the combined allocation (255 cfs) for these two components of direct diversion. The Metropolitan Water Reclamation District of Greater Chicago holds the Lake Michigan water allocation for both discretionary diversion and navigation makeup. This total allocation was reduced from 305 cfs to 255 cfs in water year 2017.

The other primary use of Lake Michigan water diverted directly into the Chicago Waterway System is to operate the navigation locks at the mouth of the Chicago River and on the Calumet River. Both lock facilities are operated and maintained by the U.S. Army Corps of Engineers. Illinois does not have any control over the amount of water diverted for lockage or for leakage through these structures, although this water is included in the accounting for Illinois’ diversion under the U.S. Supreme Court Decree. Lake Michigan water levels have a significant impact on the amount of water diverted for the operation of the navigation locks.

H. Project Activity – Status of Water Demand Forecasts and Water Use

Approximately every 10 years, the Department reviews and revises, as needed, each permittee’s Lake Michigan allocation. In 2008, the Department completed a comprehensive water reallocation for each of its water supply permittees. As part of this reallocation, water demand forecasts for each year out to 2030 were developed and ultimately included in the Department’s updated Lake Michigan water reallocations. A primary reason for this long timeframe is to ensure that the Department’s water allocation program is sustainable over the foreseeable future and will continue to keep Illinois’ total diversion below the authorized U.S. Supreme Court Decree limit of 3200 cfs. The allocation information used for water year 2020 was based upon the 2008 reallocation study.

The Department initiated a reallocation study in 2020 and is currently in the process of updating the allocations. We anticipate having the revised allocations effective beginning in water year 2023 and the allocations will extend out through water year 2050.

I. Project Activity – Status of New Petitions

The Department received an application for a new Lake Michigan water allocation from the City of Joliet in 2020. Joliet continues to rely on a deep aquifer well water supply that groundwater modeling efforts indicate will not be able to meet the City’s daily demands by 2030. The Department reviewed the application and issued a decision to grant Joliet an allocation permit on September 1, 2021 (LMO-20-01). A special condition of Joliet’s permit requires that Joliet reduce their non-revenue water percentage from 34.5% (as reported for 2019 in Joliet’s

application) to 10% or less before they begin using Lake Michigan water. Joliet anticipates that they will begin using Lake Michigan water in calendar year 2030. The Department recently received an application for a Lake Michigan water allocation from the Village of Lemont and staff has begun reviewing the request.

J. Project Activity - Water Infrastructure

During water year 2020, the City of Chicago continued to pursue initiatives to upgrade their water, wastewater and stormwater infrastructure. In water year 2020, the City replaced 26 miles of water main which brings the total amount of water main replaced since 2009 to 733 miles. Until recently, Chicago has been aggressively replacing water meters through their Meter Save Program. In water year 2020 the Meter Save Program was suspended due to concerns regarding water quality associated with the installation of new meters, therefore no meters were reported installed for water year 2020.

Several other Lake Michigan communities have also developed or are working on conservation/sustainability initiatives. The northeastern Illinois region has several organizations who work with local government to help them become more sustainable. These initiatives are also moving outside the Lake Michigan water service region.

Conclusion

Illinois has had a Lake Michigan water conservation and efficiency program for over 35 years. Our program is consistent with and fully supports the Great Lakes-St. Lawrence River Basin Water Conservation and Efficiency Objectives. The unique nature of Illinois' Lake Michigan water use and diversion as allowed under a U.S. Supreme Court Decree has resulted in a water conservation and efficiency program that is implemented primarily as a regulatory program, with additional measures, such as encouraging conservation pricing, conservation education and information sharing, implemented through a non-regulatory effort.