



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

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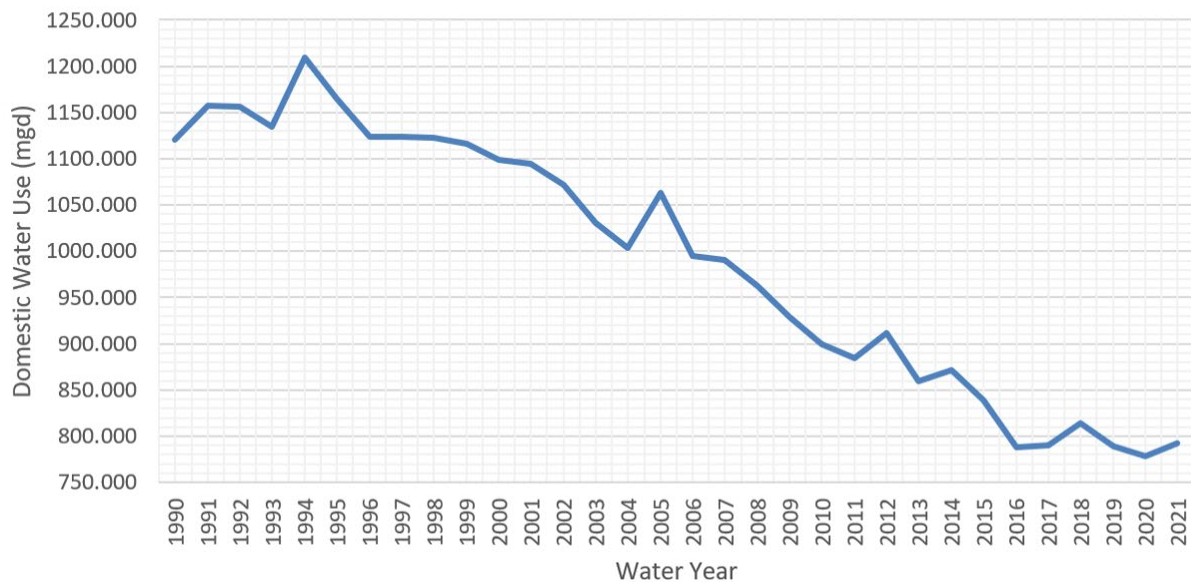
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Illinois' Water Conservation and Efficiency Program

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

**Total Annual Lake Michigan
Domestic Water Use in Illinois**



In water year 2023 total domestic usage of Lake Michigan water went down to use amount of 780 million gallons per day (mgd), a decrease of approximately 6 mgd as compared to water year 2022's pumpage. There is a concerted effort for pipe replacement and conservation across the Lake Michigan basin from the Illinois perspective. 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

since 1990 is significant. In water year 2023 the annual precipitation was 33.73 inches, approximately 1 inch less than 2022's value and remains at 97 percent of the 30 year average for yearly precipitation.

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 and 2019 will soon be 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 2023 (October 2020 – September 2021) was the ninth year implementing these revisions. The items below summarize recent and ongoing actions related to the implementation process:

- 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 fourth edition of 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% for water year 2019 and thereafter. Water year 2023 is the fifth 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 their LMO-2 data submittal.

E. Program Activity – Develop Linkages with other Conservation Organizations

Throughout the past two years, the Department has continued developing partnerships with groups/organizations to further our water conservation program efforts. These include:

- Member of the American Water Works Association (AWWA) M36 workgroup.
- Coauthor of the 5th Edition of the AWWA’s M36 Manual (release in 2023)
- Member of Great Lakes Commission’s Water Infrastructure Blueprint workgroup.
- Member of the Great Lakes Compact Science Strategy Work Group
- Member of the Great Lakes Commission’s Blue Accounting workgroup.
- Partner in EPA’s WaterSense program
- Presenter at the Illinois Section of the American Water Works Association

In addition, we continue working with regional organizations such as the Chicago Department of Water Management, 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 2023 using the revised LMO-2 form which utilizes the AWWA’s M36 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 navigational makeup flow was 186.29 cubic feet per second (cfs) in water year, which is the latest available data according to the US Army Corps of Engineers Lake Michigan Diversion report. The five-year running average of these two components of direct diversion stands at 190 cfs or 65 cfs below the combined allocation (255 cfs) for these two components of direct diversion. The Metropolitan Water Reclamation District of Greater Chicago (MWRDGC) holds the Lake Michigan water allocation for both discretionary diversion and navigational makeup. A revised allocation permit was issued to the MWRDGC on February 28, 2018 for the total allocation related to discretionary diversion and navigation makeup. This total allocation was reduced from 305 cfs in water year 2017 to 255 cfs in water year 2018. The allocation will remain 255 cfs until water year 2031 when it will be reduced to 136 cfs.

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 2021 was based upon the 2008 reallocation study.

The Department initiated a reallocation study in 2020 and has currently updated and published permittee allocations. The revised allocations are to be effective during water year 2023 and the allocations will extend out through water year 2050.

I. Project Activity – Status of New Allocation Petitions

The City of Joliet received a Lake Michigan water allocation permit in November 2021. The review and hearing process took over a year to complete. A special condition of the allocation permit requires Joliet to reduce its non-revenue water percentage from 34.5% (as reported for water year 2019 in Joliet’s application) to 10% or less before Joliet begins using Lake Michigan

water. This reduction in non-revenue water is primarily going to be achieved by replacing nearly 200 miles of existing water main by 2030 which is when Joliet anticipates transitioning to Lake Michigan for its water supply. The Department continues to coordinate with Joliet to monitor the progress of their water main replacement and non-revenue water reduction efforts.

Between September 2021 and August 2023, the Department received nine applications for Lake Michigan water allocations. These include the following entities:

- Village of Lemont, IL
- Village of Romeoville, IL
- City of Crest Hill, IL
- Village of Oswego, IL
- Village of Channahon, IL
- Village of Minooka, IL
- Village of Montgomery, IL
- United City of Yorkville, IL
- Pekara System – Lake County, IL

The review and hearing process has currently been underway and Orders have either been approved or are in the process of being approved in the year 2023.

In addition to the applications mentioned above, South Barrington is preparing for a program allocation of Lake Michigan water, along with DuPage County. The Village of Oak Brook and Aqua Illinois, Inc. are working together to remove five non-contiguous areas from Oak Brook's current allocation and have Aqua Illinois, Inc. acquire the associated water systems. Aqua Illinois, Inc. would then apply for five new allocations for the removed areas and own and operate the systems in the future.

J. Project Activity - Water Infrastructure

In order to remain in compliance with the Department's non-revenue water requirement, communities are required to perform leakage monitoring related to their distribution systems and resolve identified infrastructure inadequacies. For many communities, this means replacing water infrastructure. The water system improvement plans submitted by permittees allow the Department to monitor progress related to infrastructure renewal and replacement. In addition, this allows the Department to compare the actions being implemented by the permittee with the LMO-2 data to assess the overall effectiveness of the permittee's plan.

Conclusion

Illinois has had a Lake Michigan water conservation and efficiency program since 1977. 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.