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

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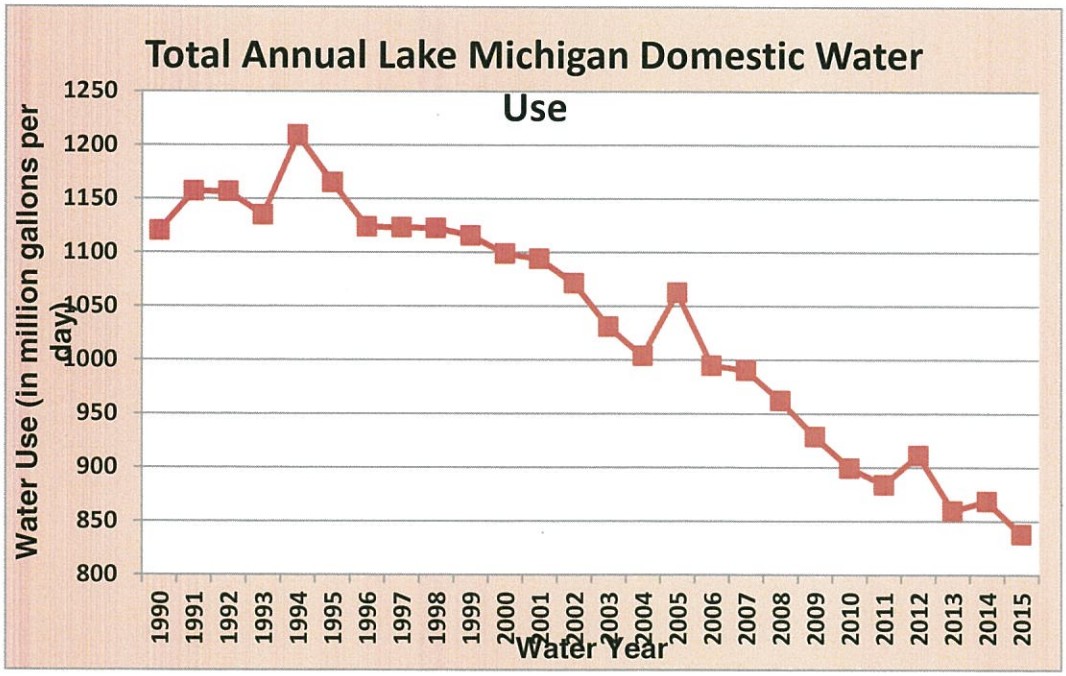
Illinois' water conservation and efficiency program

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



In Water Year 2015 total domestic Lake Michigan water use was 837 million gallons per day (mgd), down approximately 30 mgd from Water Year 2014's pumpage. Overall, this table 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 20 years is significant, about a 370 mgd reduction since the early 1990's. In 2015 the annual precipitation was 32.30 inches, almost 4 inches below the 23 year average of 36.7 inches.

Water use summaries for the 2010 through 2015 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). The Department's monthly pumpage reports (LMO-3), submitted by direct diverters, and 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 2015 (October 2014 – September 2015) was the first year implementing these revisions. Here is a very brief summary of actions taken in the past year.

- The Department revised its annual water audit form (LMO-2) to utilize the American Water Works Association's (AWWA) Water Loss Audit methodology. All Lake Michigan Water Allocation permittees are required to complete the AWWA Water Loss Audit Software in order to complete the LMO-2.
- Water Year 2015 was the first year the Department implemented its Non-Revenue Water standard. The new standard limits non-revenue water so that it is less than 12% of net annual pumpage, decreasing to 10% in Water Year 2019. Water systems not in compliance with the non-revenue standard have been required to prepare and submit a water system improvement plan.
- The Department is currently in the process of ensuring that all Local/Municipal plumbing codes/ordinances are being updated to require that new and replacement plumbing fixtures be a labeled WaterSense product and all lawn sprinkling ordinances have been revised to comply with the Department's new regulations.

E. Program Activity – Lake Michigan Water Allocation Newsletter

The Department did not prepare a newsletter during the last year as our efforts were concentrated on working with our permittees on implementing the changes to our rules and completing the 2015 water rate survey. The last newsletter was distributed in September 2014, and is still available on the Lake Michigan Water Allocation homepage: http://www.dnr.illinois.gov/WaterResources/Pages/LakeMichiganWaterAllocation.aspx

F. 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:

- Maintaining our membership in USEPA's 'WaterSense Partner' program and updating our rules to require the use of 'Water Sense' labeled plumbing fixtures as our standard for water efficient plumbing fixtures.
- 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.

- Working with the Illinois Environmental Protection Agency (IEPA) to better integrate our water conservation program with their administration of the Clean Water Initiative Fund, a $1 billion low interest loan fund that significantly expands Illinois' State Revolving Fund. These funds are available to help Illinois communities improve their water and wastewater infrastructure, and will be particularly useful for Lake Michigan communities that need to upgrade their water infrastructure in response to our new non-revenue water thresholds.

G. Program Activity – Water Use and Water Loss Monitoring

Water loss information was again collected in 2015; this is the first year using the revised LMO-2 form which utilizes the AWWA Water Loss Audit methodology. In the past the LMO-2 form allowed permittees to claim a credit (Maximum Unavoidable Leakage) based on the length, age and type of water mains in their water system. The new LMO-2 form eliminates this credit; as a result the average percent non-revenue water/unaccounted for flow has increased from 6.9% in Water Year 2014 to 15.5% in Water Year 2015, with approximately 50% of permittees out of compliance with the Department's new non-revenue standard of 12%. Permittees not meeting this standard are required to submit Water System Improvement Plans that they feel will reduce their non-revenue water to below the Department's regulatory standard.

H. 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 253.61 cubic feet per second (cfs) in Water Year 2015. At the end of the 2015 Water Year, the five year running average of these two components of direct diversion stands at 287.32 cfs or 17.68 cfs below the combined allocation (305 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.

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 of these 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.

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

In 2008, the Department completed a comprehensive water reallocation for all our 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. It is anticipated that sometime during the next 5 years the Department will undertake another comprehensive water reallocation and extend allocations out to at least the year 2040.

During this past year the Department issued a new water allocation to Aqua Illinois – North Maine Utility for 2.650 mgd through Water Year 2030. This is not an additional allocation as Aqua Illinois purchased an existing Lake Michigan water system from the Village of Glenview. Also Golf Green Wood Gardens Improvement Association's Lake Michigan water allocation (0.014 mgd) was transferred to the Aqua Illinois – North Maine Utility.

J. Project Activity - Water Infrastructure

During this past year the City of Chicago continued to pursue a number of initiatives to upgrade their water, wastewater and stormwater infrastructure. In 2015 the City of Chicago reported the installation of over 29,000 new water meters and proposes to replace an additional 15,000 meters in 2016. This is a great accomplishment and shows Chicago's commitment to conserving Lake Michigan water. Chicago also terminated of 1,521 unused water services and replaced 95 miles of old water main.

A number of other Lake Michigan communities have also developed, or are working on conservation/sustainability initiatives. The northeastern Illinois region has a number of 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 30 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 conservation pricing, conservation education and information sharing, implemented through a non-regulatory effort.