



# Illinois Department of Natural Resources

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Pat Quinn, Governor  
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## Water Conservation and Efficiency Program Review Illinois' Fourth Report to the Compact Council and Regional Body

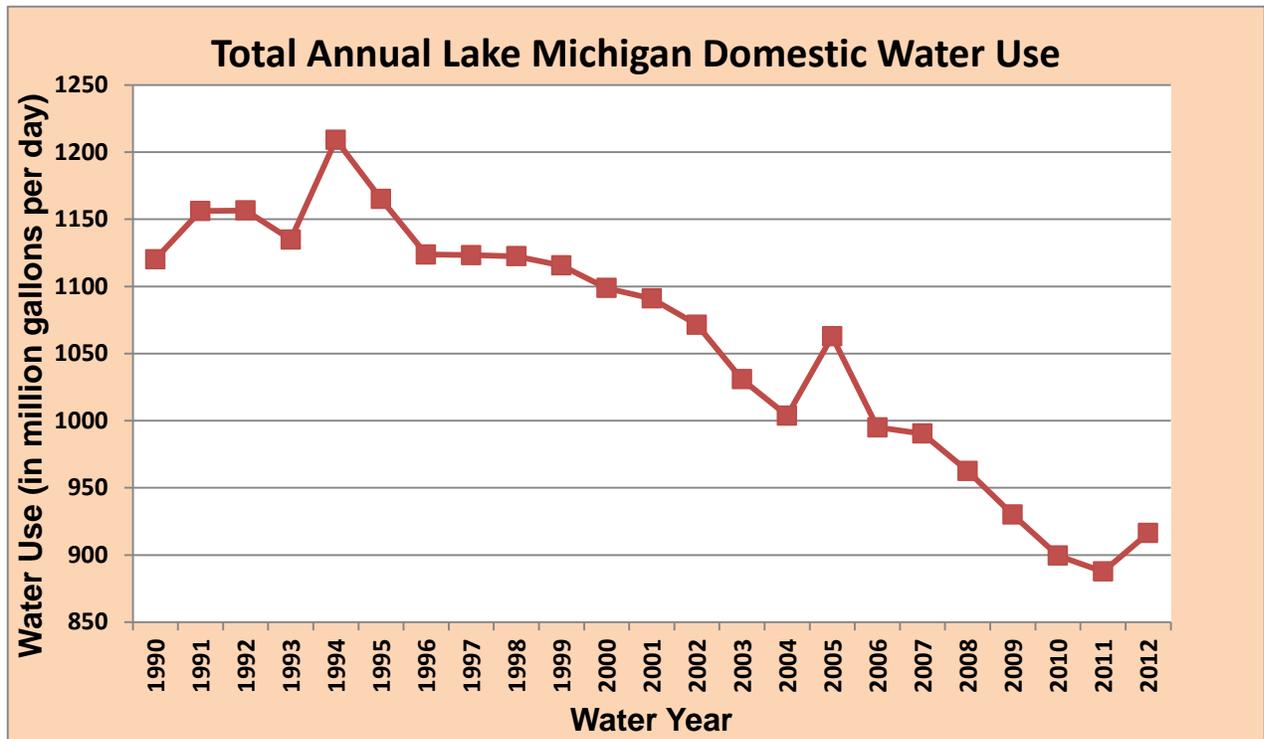
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### Illinois' water conservation and efficiency program

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



Total domestic use of Lake Michigan water was 916 million gallons per day in Water Year 2012. This was a slight (3.1%) increase from the domestic use of Lake Michigan water in 2011, and is likely due to the fact that for most of 2012 Illinois was in severe drought. Given the length and severity of the 2012 drought, this is a very small increase, especially when compared to the spike in water use in previous drought years (in 1994 domestic use increased 6.5% and in 2005 it increased 5.9%).

Preliminary data for Water Year 2013 show that total Lake Michigan domestic water use will be around 890 mgd, an approximately 3% decrease in pumpage compared to Water Year 2012. Though the first 6 months of calendar year 2013 were the wettest 6 month period in Illinois history, the rest of Water Year 2013 was very dry, and a new term, “Flash Drought”, was used to describe our climate pattern during the summer months.

For a detailed summary of water use in 2012 go to:

<http://www.dnr.illinois.gov/WaterResources/Pages/LakeMichiganWaterAllocation.aspx>.

## B. Program Legal Basis

A U.S. Supreme Court Decree [Wisconsin v. Illinois, 449 U.S. 48 (1980)] limits Illinois' diversion of Lake Michigan water to an annual average of 3200 cubic feet per second (cfs), approximately 2.1 billion gallons/day. The Decree and Illinois state law specifically require 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.” [Level of Lake Michigan Act (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

Illinois' first report to the Compact Council and Regional Body (dated December 8, 2009) reviewed the water conservation requirements that all domestic users of Lake Michigan water must comply with as a condition of receiving a Lake Michigan water allocation permit. In 2010, the Department developed and posted to our website (see above) Illinois' Lake Michigan Water Conservation Goals and Objectives, as required by the Compact and the Regional Agreement.

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 – Updating Administrative Rules

Since last year's report the Department has made significant progress in our efforts to update the Lake Michigan water allocation administrative rules. On February 19, 2013 the Department released a draft of the proposed changes to the administrative rules and began a public review/comment period that lasted until May 31, 2013. The proposed rules, along with a summary of the substantive changes were sent to all 215 public water supply

systems that utilize Lake Michigan water as well as to other interested parties. During the month of May 2013, 3 public meetings were held throughout the Lake Michigan water service area, and over 170 people attended. We received a total of 52 written comments, 44 of which were from Lake Michigan water allocation permittees and 8 from other interested parties.

Following the public review/comment period, Department staff spent considerable time reviewing the comments received, and made several significant changes to the proposed rules in response thereto.

The Department plans to submit the proposed amendments to the Lake Michigan Water Allocation Rules to the Joint Committee on Administrative Rules, the legislative body that oversees state agency rulemaking, before the end of this year and anticipates that the proposed changes will become final sometime in mid-2014.

Most of the proposed changes to the administrative rules relate directly to the Department's water conservation and efficiency requirements. Of most significance is that the proposed updated administrative rules move to a water audit methodology that closely resembles the American Water Works Association M-36 methodology. The previous allowance for a maximum unavoidable leakage component in the annual water use audit form will be eliminated, and the unaccounted-for-flow standard will be replaced with a non-revenue water standard. Many of our permittees have expressed concern with the economic cost to upgrade water system infrastructure, so the Department has proposed a phased approach and will allow permittees to develop a water system improvement plan that allows for improvements to be implemented over a period of time.

The proposed administrative rules will also require that plumbing fixtures in new construction or major remodeling be a USEPA 'Water Sense' labeled product. Additional guidelines for lawn sprinkling have also been included, as well as recommendations for sub-metering in new multi-family building construction where practicable and feasible and setting water rates to reflect full cost pricing. Further information can be found on our

website:

<http://www.dnr.illinois.gov/WaterResources/Pages/LakeMichiganWaterAllocation.aspx>

E. Program Activity – Lake Michigan Water Allocation Newsletter

Due to the extensive outreach and public review and comment period as part of our process to update the Lake Michigan water allocation rules and regulations we did not prepare an annual newsletter during 2013.

F. Program Activity – Develop Linkages with other Conservation Organizations

One of the Department’s water conservation program objectives is to ‘encourage research, development and implementation of water efficient technologies’, primarily through the development of linkages with organizations that focus on conservation. In 2013 the Department continued as a ‘WaterSense Partner’ with the USEPA’s WaterSense Program and will be incorporating the use of ‘Water Sense’ labeled plumbing fixtures in our standard for water efficient plumbing fixtures.

The Department is also coordinating with the Illinois Environmental Protection Agency (IEPA). IEPA administers Governor Quinn’s 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 we hope will be particularly useful for our Lake Michigan communities that need to upgrade their water infrastructure to comply with the new standards in our proposed updated administrative rules.

We also continued working with the Chicago Metropolitan Agency for Planning and the Center for Neighborhood Technology on a project that involves working with a number of our Lake Michigan communities to assist them in better understanding the nature of their particular water loss issues and how their particular infrastructure needs can be clarified

and an investment strategy developed. During the months of November and December they will be meeting with several of our permittees to explore the use of the AWWA M-36 water audit methodology in advance of our proposed updated administrative rules.

#### G. Program Activity – Water Rate Survey

While no formal water rate survey was conducted this past year, information indicates that water rates continue to increase in the Lake Michigan water service area. Over half of our Lake Michigan water systems purchase water from the City of Chicago, which has increased its water rate, effective January 1, 2014 to \$3.32/1000 gallons. In 2013, Chicago's water rate was \$2.89/1000 gallons and 10 years ago it was only \$1.26/1000 gallons. While this new rate increase will help Chicago continue to address its' aging water infrastructure, many suburban communities will need to increase their rates over and above the wholesale cost of water from Chicago to implement their own infrastructure improvement program.

#### H. Program Activity – Water Use and Water Loss Monitoring

Improving the management of municipal water systems offers the greatest potential for more efficient water use, so we continue to regulate, on a yearly basis, the reported unaccounted-for-flow (UFF) of all our domestic Lake Michigan water suppliers. In 2012, the average UFF in the Lake Michigan water service region was about 4.8%. While this regional average continues to be below our regulatory standard of 8%, we've noticed a steady increase in reported maximum unavoidable leakage. In 2011 the regional average maximum unavoidable leakage was 7.5% of total domestic use, compared to about 5% in 1990. It was apparent that our unaccounted-for-flow standard and allowance for calculating maximum unavoidable leakage was no longer an appropriate benchmark for good water system management. As discussed earlier, our proposed updates to the Lake Michigan water allocation rules will eliminate the maximum unavoidable leakage allowance and will replace our unaccounted-for-flow standard with a non-revenue water

standard. Our goal is for the new non-revenue standard to support and encourage our permittees to operate, maintain and upgrade water system infrastructure to promote the efficient use and conservation of Lake Michigan water.

In anticipation of the expected approval of our updated administrative rules in 2014, the 2013 Annual Water Use Report form has been modified to allow our domestic permittees to estimate and report the value of their non-revenue water. Combining the total amount of unaccounted-for-flow and maximum unavoidable leakage will approximate a non-revenue water quantity, and by using their wholesale cost of water they can develop a conservative estimate of the value of lost water. This will be the first year that we have asked our permittees to translate their water loss data to a dollar amount, which should serve to illustrate the value of undertaking infrastructure improvements to a water system.

I. 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 304.1 cubic feet per second (cfs) in water year 2013. At the end of the 2013 water year, the five year running average of these two components of direct diversion stands at 294 cfs, or 11 cfs below the combined allocation for these two components of direct diversion.

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. Lower lake levels have reduced the amount of water diverted in the operation of the navigation locks.

#### J. Project Activity – Status of Water Demand Forecasts

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 the year 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.

In 2013, the Department did not issue any new water allocations.

#### K. Project Activity - Water Infrastructure

Last year’s report described a proposed City of Chicago water infrastructure program. Recently the City prepared and released a report entitled “2015 Sustainable Chicago”, [http://www.cityofchicago.org/city/en/progs/env/sustainable\\_chicago2015.html](http://www.cityofchicago.org/city/en/progs/env/sustainable_chicago2015.html) which outlines a number of major initiatives the City plans to undertake with the overall goal of becoming a more sustainable city. A major component of this report is the City’s commitment to upgrading their water, wastewater and stormwater infrastructure. They expect to achieve a 2%/year reduction in water use from this effort.

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. During this past year a community that applied for a Lake Michigan water allocation included a water infrastructure improvement plan as part of their application submittal.

#### Conclusion

Illinois has had a Lake Michigan water conservation 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.