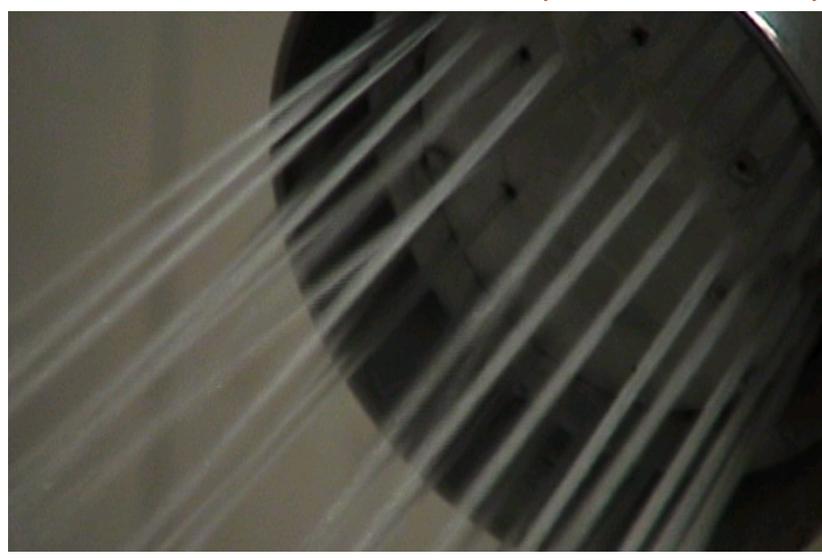


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A running faucet uses about a gallon of water per minute, according to the Department of Water Management. CJ HOLTZMAN/MEDILL

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## That lake? It may look like an infinite supply, but it's not

BY ANDREW PALEY AND CJ HOLTZMAN  
MARCH 11, 2010

Water. Middle school science and decades of environmental awareness programs agree: It's important. You know, you've heard it before.

CJ HOLTZMAN/MEDILL  
Josh Ellis of the Metropolitan Planning Council discussed why water meters could save Chicago residents and the city a lot of money.

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But that hasn't stopped Chicagoans from taking it for granted. The good news? People are trying to change that. In the city, suburbs and surrounding counties, northeastern Illinois residents are still wasting millions of gallons of water every day.

### Chicago's water supply and the Lake Michigan Diversion

The Lake Michigan Diversion, which was decided in by the Supreme Court in 1967, allows for 3,200 cubic feet per second of Lake Michigan water to be used by Chicago and its surrounding municipalities.

Right now only 2,800 cubic feet are being used, but as the population grows so will the amount of water being used from the lake.

Ten lake county communities are in the process of applying to receive water from Lake Michigan, and as more communities begin to tap into this source, a solution will need to be found to keep within the allotted amount.

One way to provide more Lake Michigan water to communities is by controlling the storm water loss. Storm water is created when rainwater falls on roofs and streets and flows into the sewers to the waste water system.

Since the Chicago River was reversed in 1900, storm water has flowed away from Lake Michigan and therefore counts as part of Chicago's water taken from the diversion allotment.

"It's not water that we use for anything," said Josh Ellis of the Metropolitan Planning Council. "In fact we pay a lot of money to treat it and to get rid of it, through grates in the street and sewers, and it causes a lot of problems, like flooding and eroding foundations."

He said the only options are to catch and use the water or to put it back in the lake. Otherwise, it is wasted.

VIDEO

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The Chicago Metropolitan Agency for Planning recently issued a report, "Water 2050: Northeastern Illinois Regional Water Supply/Demand Plan," offering suggestions on conservation. If half of the total water demand in the region — 1.6 billion gallons every day — were subjected to nine conservation measures, we could be saving 269.4 million gallons daily.

SCIENCE

- Autism & Asperger's: The spectrum of a merger**
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- Cochlear implants restore**

If you can't wrap your head around that many milk jugs, just try to imagine roughly 6,800 backyard swimming pools.

To get to that kind of water savings,



BUSINESS

Hi-ho, the dairy-o! A farmer in the 'burbs

Mind-expanding retailer is expanding

Northbrook alarm company goes green with solar subsidiary

you can start at home. Installation of high-efficiency toilets, faucets and shower heads; replacement of old, wasteful clothes washers; observation of basic water waste prohibition rules. All could reduce waste by many million gallons a day, if the changes were adopted in homes regionwide. *(See graphic to learn what you can do.)*



But when it comes to implementing those measures on a large scale, the authors were hopeful-but-realistic: Change doesn't come easy. Given that, the overall plan assumes tiers of potential adoption.

The good news: Even a small step could yield significant water savings. If 10 percent of the total water demand was subjected to nine measures outlined in the report, there would be a total savings of 77.8 million gallons daily (or, in swimmer's terms, nearly 2,000 backyard pools).

And change isn't the only thing that doesn't come easy. The report itself is the product of a three-year effort on behalf of the Chicago Metropolitan



Agency for Planning and the Regional Water Supply Planning Group — 35 representatives from counties, municipalities, and other pertinent industry leaders. Much of the data it builds on comes from two other studies by Southern Illinois University and the Illinois State Water Survey. *(Check the map to see if the report's focus region includes your county.)*

The Time Is Now

What all the studies found was that now is the time to act.

"From these studies we learned that our use of these resources is not really that sustainable," said Hala Ahmed, an associate planner at CMAP. "There should be a commitment of the region to conservation and more water-efficient practices to ensure that the supply and population match."

Edward Glatfelter, water conservation director at the Alliance for the Great Lakes, said he thinks water conservation is critical now because of the looming global water crisis. Though the threat may seem vague to many in northeastern Illinois, thanks in large part to the Great Lakes — home to 20 percent of the world's fresh water — it can't be relied on forever.

"Certainly in other parts of the world where water shortages are more apparent, people are moving toward water conservation in a major way," Glatfelter said. "We obviously have a great resource here when looking right out our window at the Great Lakes, but even that resource is limited, and I think a lot of people don't realize that."

In short, water conservation is only going to get more important; much more important, in fact.

Two areas of the city already put storm water back into the lake, the roof of McCormick Place and Lake Shore Drive.

"As of 2005, of all the water that we took from lake Michigan, 28 percent of it was storm water loss," Ellis said. "We never used it for anything. 525 million gallons of water per day on average, instead of treating it and using it, we are losing it."

World Water Day

"Clean Water for a Healthy World" is the theme for this year's World Water Day, celebrated on March 22.

The goal this time around is twofold: raise awareness of water quality issues and encourage proactive involvement in pollution prevention, clean up and restoration of freshwater supplies.

To that end, dozens of events are planned across the globe. There's the Water for Life conference in Calgary, Canada; the World Water Day concert in Kerala, India; the "Water and Peace" Global Forum in Otsu City, Japan; the Semana del Agua in Trevelin, Argentina; and the World Water Day Walk in Sandefjord, Norway, just to name a few.

And the official UN event is slated for Nairobi, Kenya. To learn more, you can download the official brochure [here](#) (pdf).

History

World Water Day is the product of a declaration from the United Nations General Assembly in 1992 and was first observed on March 22, 1993.

Ever since, it's been celebrated annually on or around that date. Each year's events and general theme are decided upon by the UN Water group.

In recent years, they've included "Coping with Water Scarcity," "Water and Culture," "Water and Disasters," and "Water for Development."

Visit the [World Water Day site](#) to learn more.

As the population served by the public water system in the region is projected to jump by nearly 3 million people between now and 2050, public water demands could grow by well over 50 percent, according to the report. And it's not just because there more people will be flushing toilets and taking showers — it's also a function of related development, agriculture and industry growth.

And there's only so much of it to go around.

"In general, our use of that resource needs to be limited because the resource itself is not as abundant as it appears," Glatfelter said. "We need to be careful to put back as much as we can from what we've withdrawn so that we can sustain that water for future uses — both for the environment and for future generations."

The report lays out three scenarios for potential growth in the region over the next four decades and stacks them against levels in implementation of the water conservation measures.

The formulas are complex, but the outcome is simple: If development is pursued with resource management and other factors in mind and the region adopts the conservation measures, we can keep water demand relatively close to current levels. But that's a best-case scenario, and the reality thus far has been far from it.

### **It All Comes Down to Management**

The key factors in sustaining the water supply at the municipal and regional level are management and efficiency. Thus far, Chicago has had trouble with both.

Josh Ellis of the Metropolitan Planning Council, a non-profit, non-government organization that has been around for 75 years, said his group has been working on water supply issues for the past 10 years.

"Here in Illinois, as a region, we don't really face water scarcity, not like they do in the western part of the United States where it's really dry," Ellis said. "What we face is immense water inefficiency problems."

One of the primary problems is Chicago's pipe system. The city and its surrounding municipalities have thousands of miles pipes, many of which were installed 80 to 100 years ago.

And they leak.

When these pipes were installed, the demand context was different, Ellis said. In some areas, the population grew faster than the pipes could be upgraded; in others, population expectations were set too high, leaving some pipes not operating at full capacity.

However, the city is now planning to increase its annual replacement rate, which will help pipes to work at full efficiency.

"They want in the next couple of years to go from replacing about 30 miles of pipe a year to somewhere around 70," Ellis said. "But we're talking about replacing 70 miles of pipe a year in a system of about 4,200. It's going to take a while for them to catch up."

By increasing its pipe replacement rate, the city predicts it will be able to provide an additional 400,000 people with water. That shows how much it's losing today, Ellis said.

"That's what happens. We pay for water every day that never arrives at our homes," he said. "You have to pay for it because they're pumping it, but it never gets there."

On this issue, Chicago is not unique. Many cities across the U.S. lose water to leaky pipes. A loss of 10 percent is considered exemplary, Ellis said.

### **Metering Water for Cost and Conservation**

One way the city is looking to remedy this problem is through water metering, which would allow homeowners to pay for the amount of water they use instead of

a flat rate.

And on this point, Chicago is behind — it's the last city in the U.S. not universally metered.

“People should be paying for what they're using,” said Tom LaPorte, Chicago's water department spokesman. “[A] big reason is the water conservation benefits.”

But another big reason is actual consumer cost. Roughly 350,000 single-family and two-flat homes are currently without water meters in the city, and that doesn't even take into account apartment and condo buildings, which have meters but whose tenants are never aware of individual use.

LaPorte said most residential customers fear meters because they think they will have to pay bigger monthly bills.

“The historic falsity in this town has been that as soon as you get a meter, your bills go up,” LaPorte said.

In fact, 98 percent of people who have received meters are paying 25 to 75 percent less, according to Chicago's Department of Water. *(To learn more about the water metering programs offered in Chicago, click on the video link.)*

### **Paying For What You Use**

Finally, Illinois must explore the issue of full-cost pricing as many communities keep their water prices artificially low as an economic incentive.

They do it by supplementing actual water costs with other sources of revenue. So citizens and businesses get cheaper water access — which can entice business and residential development — but the cost comes back, for example, in sales taxes.

The disconnect between use and true cost is, at minimum, a potential issue for municipal bottom lines — especially in an economic downturn.

The DuPage Water Commission, which buys water from the city of Chicago and distributes it to county municipalities, was forced to consider raising its artificially low rates 43 percent at once late last year because of a significant drop in sales tax revenue.

But rate incentives are the wrong focus anyway.

“The competition should not be who has the lowest rates because that leads to people artificially keeping them low,” Ellis said. “The competition should be who manages water supply most sustainably and probably that in itself will lead to lower rates.”

And that's the larger issue of artificially low water rates: They don't prioritize conservation because waste is less costly.

It's simple. Full cost pricing leads to a water conscious mindset, according to Glatfelter at the Alliance for the Great Lakes.

“More and more the cost of water is moving in the direction of reflecting its true value,” Glatfelter said. “As it begins to reflect its true value, the industries that use it become more aware there is a cost associated with it.” *(Lake Michigan water diversion is also a water supply issue for Chicago. See the sidebar for more information.)*

### **Water Today, Water Tomorrow**

Taken on a grand scale, all of these water issues come back to a simple fact: If governments, industries and citizens don't begin to conserve water, future generations will need to struggle to find new water sources — and that global reality could come back home to northeastern Illinois.

“What also concerns me is the growing shortages of water outside of the Great Lakes basin relative to the waters we have access to,” Glatfelter said.

If the Great Lakes states can't show that they are being good stewards of 20

percent of the world's fresh water supply, calls could grow for water diversion to other regions.

“So I think we have to show that we are taking good care of it to prevent that from happening,” he said.

There's plenty of work to do. And it's not just about retrofitting toilets — there's people to convince, development to design and further studies to conduct.

With all that in mind, the Chicago Metropolitan Agency for Planning is convening a regional summit concerning Water 2050 on March 22 —World Water Day. (*To learn more about World Water Day events, see the sidebar.*)

## Water Conflicts

Water has its own place in history and has been the source of many conflicts internationally. This timeline is a collection of only a few water wars. If you would like to see a more comprehensive list, [click here](#).

