

The State of Michigan's Water

A conversation on Michigan's proposed water legislation with P&N President, Thomas Newhof, P.E.

Q. A lot of people are worried about Michigan's water. Are we in danger of using too much?

There's a perception out there that Michigan has a very limited amount of water, that it's almost gone, and that there are people out there trying to steal it – or worse, sell it and profit from it. So people say, "We have to stop that; anything we can do to get people to use less water is good."

I think people forget about the unique character of water. It can't be used up, like oil or natural gas. It keeps coming back. All the water we have on the earth now is all the water we've ever had.



On an average day, 150,000,000,000 gallons of water arrive in Michigan through rain and snow, and we only use 6.7% of it. The rest stays in our groundwater, lakes, and streams until it evaporates or flows out to the Atlantic Ocean.

And when we talk about "using" water, what does that mean? Michigan communities, businesses, and individuals "use" over 10 billion gallons of water every day, but most of it quickly re-enters the water cycle. Almost 80% is used as cooling water in thermoelectric power plants and released right back into the Great Lakes. The rest is used for public and private drinking water supply, farming, and manufacturing – after which it passes through our drainage or wastewater systems and re-enters Michigan's lakes and streams.

My point is, when we use water, we don't destroy it. As it continues through the water cycle, the water eventually evaporates, forms clouds, and ends up as rainfall somewhere

else – in the same way that the Great Lakes water that we're so protective of came from clouds that formed over the Pacific Ocean and the Gulf of Mexico.

Q. Is it true that drier areas of the country want to take water from the Great Lakes?

What you're talking about is called a diversion. All the land area that sheds its water into the Great Lakes is called the Great Lakes Basin. A diversion is transporting water from the Great Lakes to somewhere outside the basin – building a pipeline between Lake Michigan and southern Indiana, for example.

The thing everyone's afraid of, it seems, is that someone will want to build a big pipeline out to Colorado or Arizona. When I ask engineers out there about it, they just laugh. The cost would be enormous. Instead, states in the southwest are working hard on desalination – removing salt from sea water. Large diversions like this might be dangerous, but they have never happened, and they're not going to happen. There are already significant legal ways to prevent them. For example, when the issue of diversions was raised in the 1980s, the governors and provincial premiers from the Great Lakes Basin states and provinces (Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Ontario, Pennsylvania, Quebec, and Wisconsin) met to create the Great Lakes Charter – an agreement that all of them would protect the Great Lakes by minimizing pollution and preventing diversions.

"In reality, there's no threat that our water will be depleted... Good legislation to protect the Great Lakes already exists."

Then in 1986, Congress passed the Water Resource Development Act (WRDA), which gives Great Lakes governors the authority to veto diversions. Any governor can veto any diversion from the Great Lakes; and Michigan governors have used this before.

In reality, there's no threat that our water will be depleted. There are a few communities outside the basin that would like to have it, but they can't get it. Good legislation to protect the Great Lakes already exists.

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Q. Hasn't over-pumping dried up private wells?

It's true that there are places in Michigan where groundwater isn't very abundant and it's possible to over-pump the ground water and dry up wells. There have been cases where this has happened. It's also true that groundwater is connected to surface water, so if we pump too much groundwater out, steam levels can drop, endangering the habitat of fish and other aquatic organisms.

Fortunately, the state legislature has established a Dispute Resolution Procedure (P.A.177 of 2003) to handle disputes over water. If a well begins to run dry because someone is drawing more than an aquifer can supply, the well's owner can file a complaint with the DEQ. The DEQ sets up a team to investigate and to work out a resolution between the two parties. So far, all disputes have been resolved amicably.

Q. Are bottled water companies a threat to the Great Lakes?

The idea of bottled water companies selling "our" water makes a lot of people nervous, but we have to remember two things. First, thousands of companies across Michigan already send water out of the Great Lakes Basin in the form of canned goods and drinks (beer, fruit juice, baby food, canned fruit and vegetables, etc.). These companies have been sending our water all over the world for decades, and Michigan's environment hasn't suffered. If that doesn't concern us, why should bottled water?

“The emphasis should be on sustainability (using the right amount) not conservation (using less). If a . . . company is using water responsibly and not depleting the source, they should be allowed and encouraged to continue.”

Second, before we worry that bottled water companies will take “too much” water, we need to figure out what “too much” is. In each case, we have to study the proposed water source (a stream, a groundwater aquifer, etc.) and figure out what it can provide. That's called sustainability – measuring how much water goes into a water source, evaluating how much will be taken from it, and determining if the source can sustain the demands. In other words, let people use the water, but make sure they don't dry up or damage the source.

The Nestle bottled water plant in Mecosta County draws about 500,000 gallons of water each day. If you compare that to 150,000 million gallons per day in rainfall, it's a miniscule 0.0003%. And just to be sure that isn't too much, the State of Michigan asked Nestle to do studies before building the plant. Nestle invested \$1.5 million studying the impact its plant would have on the groundwater, and they determined that the plant would not over-tax the groundwater nor harm a nearby swamp and creek.

Nevertheless, people still have this idea in their mind that producing bottled water is dangerous to our water supply. That's totally unfounded. If Nestle doubled, tripled, or quadrupled their output, the impact on the Great Lakes would be insignificant – but Michigan would gain hundreds more jobs and thousands more dollars in the state budget.

The emphasis should be on sustainability (using the right amount) not conservation (using less). If a bottled water company is using the water responsibly and not depleting the source, they should be allowed and encouraged to continue.

Q. If the Great Lakes are already well protected from diversions, what is the currently proposed legislation trying to accomplish?

Reportedly, some of the other states in the basin have been criticizing Michigan for not doing enough to conserve and regulate its water. This is contrary to USGS statistics, which report that Michigan has the 8th largest population but the 33rd highest per capita water use. Nevertheless, there are a number of laws in the works to impose water permits and restrictions on communities and businesses **within Michigan**.

The Michigan State Senate recently passed five bills in an attempt to track and supervise everyone's water use. (See page 3 for more details.) Bill 857 gives the DEQ authority over local water systems and requires communities to get DEQ approval for any system changes. Bill 850 requires businesses to obtain a permit before drawing water and to file an annual report on their water use. Bill 852 requires that most new wells be registered with the DEQ. And Bill 854 gives the Director of the DEQ the authority to restrict anyone's water use – without a hearing – if there is evidence that their withdrawal is “likely to cause an Adverse Resource Impact.” These bills must be passed by the Michigan House of Representatives before they become law.

In addition, the Council of Great Lakes Governors recently passed Annex 2001, an addendum to the Great Lakes Charter of 1985. Annex 2001 imposes standards for all water withdrawals within the Great Lakes. It also requires all Great Lakes states to inventory and regulate their water withdrawals, to set conservation goals, and to develop programs to meet these goals. (See page 3 for more details.) Annex 2001 must be approved by the U.S. Congress and all of the Great Lakes states before it becomes law.

In other words, the government has decided that we simply use too much water, and they're going to help us use less.

Q. What effect will this legislation have on Michigan?

I think the legislation is misguided and that it will end up harming Michigan rather than helping it. First, the emphasis is all wrong. We should be talking about sustainability, not conservation. Telling people to use less water is simplistic, and it's not feasible. Our water supply can support a great deal of economic and population growth, as long as we use it wisely. We should be helping people use our water sustainably, not trying to keep them away from it.

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Pending Legislation

This summary is condensed and paraphrased from the original documents. Sources: AWWA, Michigan Groundwater Conservation Advisory Council.

Michigan Senate Bills

These bills have been passed by the Michigan Senate; they now wait approval by the Michigan House of Representatives.

Senate Bill No. 850

- Private water users must obtain a Water Withdrawal permit prior to making a new or increased withdrawal of 2 mgd from groundwater or 5 mgd from surface water. The permit will be granted if the water (less consumptive use) is returned to the Great Lakes watershed, and if the withdrawal doesn't cause an Adverse Resource Impact.
- Permit holders must file an annual report with the DEQ, stating the amount of water withdrawn, the uses of the water, the amount of consumptive use of water withdrawn, and other information.
- No one can make a Large Quantity Withdrawal that causes an Adverse Resource Impact. A water user who knowingly causes an Adverse Resource Impact shall be fined up to \$5,000 per day of violation.

Senate Bill No. 851

- The Groundwater Conservation Advisory Council will create a Water Withdrawal Assessment Tool to determine if a withdrawal is causing an Adverse Resource Impact.

Senate Bill No. 852

- Commercial water users must register with the DEQ before making a new or additional Large Quantity Withdrawal from a well.

Senate Bill No. 854

- Each permit holder is encouraged to form a Water Users Committee of its peers to evaluate its water use. If a permit holder causes an Adverse Resource Impact, the DEQ will work with its Committee to create a solution.
- The Director of the DEQ may, without a prior hearing, order someone to restrict their withdrawal if there is an imminent threat of an Adverse Resource Impact.

Senate Bill No. 857

- Every water system must file the plans and specifications for its entire system with the DEQ, which will determine if the system has adequate capacity and meets drinking water standards. If the DEQ isn't satisfied, they can require changes to the system.
- For systems that draw more than 2 mgd from groundwater or 5 mgd from surface water, the DEQ may also evaluate whether the withdrawal causes an Adverse Resource Impact.
- A water system must apply for a permit before making any change to its water system.

Terms (as defined by Michigan Senate Bill 850)

Adverse Resource Impact

Decreasing the flow of a stream or decreasing the level of a body of surface water, such that its ability to support characteristic fish populations is functionally impaired.

Consumptive Use

Water withdrawn from the basin and assumed to be lost or otherwise not returned to the Great Lakes Basin due to evaporation, incorporation into products, or other processes.

Great Lakes Basin

The watershed of the Great Lakes and the St. Lawrence River.

Large Quantity Withdrawal

An average withdrawal of over 100,000 gallons per day.

Waters of the Great Lakes Basin

The Great Lakes and all streams, rivers, lakes, connecting channels, and other bodies of water, including groundwater, within the Great Lakes Basin.

Withdrawal

Removal of water from its source for any purpose, other than hydroelectric generation.

Annex 2001

Annex 2001 is an amendment to the Great Lakes Charter. It must be approved by each Great Lakes state and by the U.S. Congress before it becomes law.

Diversions

New or increased diversions are prohibited. Exceptions can be made to provide public water supply for areas that are outside the basin but are part of a county or community which straddles the basin boundary.

Withdrawals

Each state will create a program to regulate new and increased withdrawals, assuring that water use does not have a significant impact on the Basin. Within 5 years,

each state will develop a water resources inventory of all withdrawals greater than 100,000 gallons per day.

Decision-Making Standard for In-Basin Use

All in-basin water withdrawals must return water to the source watershed (less consumptive use), must ensure there are no adverse impacts to the source, must incorporate environmentally sound and economically feasible water conservation measures, must comply with all applicable laws and agreements, and must be reasonable.

Water Conservation & Efficiency Programs

Each state will develop water conservation goals and will develop voluntary or mandatory water conservation and efficiency programs to meet these goals.



Second, I think it would needlessly harass growing communities and hurt our struggling economy. If this legislation passes, communities will need permission from the DEQ to grow, and they'll have to spend even more of their time and their community's money to make necessary system improvements. Businesses will have to jump through many expensive hoops (applying for permits, hiring consultants to conduct tests and write reports, etc.) before they can do business or bring jobs to the state. In addition, communities and businesses will have to meet the state's "conservation goals" – a difficult task when they want to grow and expand. In short, this legislation will increase water supply costs to municipalities and consumers, and it will make businesses much more hesitant to move to Michigan. We have more water than any other state in the country, and we're telling people they shouldn't use it. I simply don't see the advantage. I think we should recruit more bottled water plants instead of hassling the one we have. They would bring jobs to Michigan and pay a great deal of property tax, payroll tax, and income tax – just the kind of thing we're trying to promote. We're trying to attract industry to Michigan, and our most abundant resource – one no one else can match – is our fresh water.

Q. What do you propose instead? Should we “leave well enough alone,” or can we improve our water use?

We need to grow, but we have to grow responsibly. Sustainability is the key. I'm not advocating reckless use; I believe we should consider some kind of sustainability standard. I'm advocating using our own water wisely to our economic advantage.

More importantly, we have to start talking about the quality of our water. When I bring this topic up, people ask, “Don't they take care of that at the wastewater treatment plants?” Yes, they do treat it, but most of our plants are using old technologies. They are returning water that still contains potentially harmful contaminants to our lakes, streams, and ground water.

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For example, there are microorganisms that are resistant to chlorine. There are microorganisms so small that they pass through our best filters. There is a family of chemicals known as Endocrine Disruptors (originating in hormone therapy drugs) that disrupt our glands and body chemistry. There's another family of chemicals called Personal Health Care Products, which includes everything from soap and shampoo to deodorants, perfumes, and cosmetics. Finally, there's all of the prescription drugs we take.

Whether we use them to clean our homes, affect our bodies, or how ever we use them, all of these chemicals eventually end up at our wastewater plants, which aren't capable of dealing with them. The people who test our water are finding all of these products in our surface water, and there's a big concern that the chemicals are finding their way into our drinking water as well. My point is, if we want to protect our water, we should think first about quality, not quantity.

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