An aerial photograph showing the shoreline of Lake Superior. The water is a deep, vibrant blue, and the shoreline is a mix of light-colored sand and dark green forest. The forest extends inland, covering a large portion of the right side of the image. The text is overlaid on the left side of the image, following the curve of the shoreline.

*Today, when I stand
on the shores of Lake
Superior, I don't see a
lake. I see a sprawling
deep blue battleground
that stretches from
Duluth, Minnesota, to
Trois Rivieres, Quebec
— and I wonder, who
will win the war?"*

– Peter Annin,
“The Great Lakes Water Wars”

A firm hand on the spigot

A compact of Great Lakes states and provinces aims to protect this liquid treasure from a thirsty world.

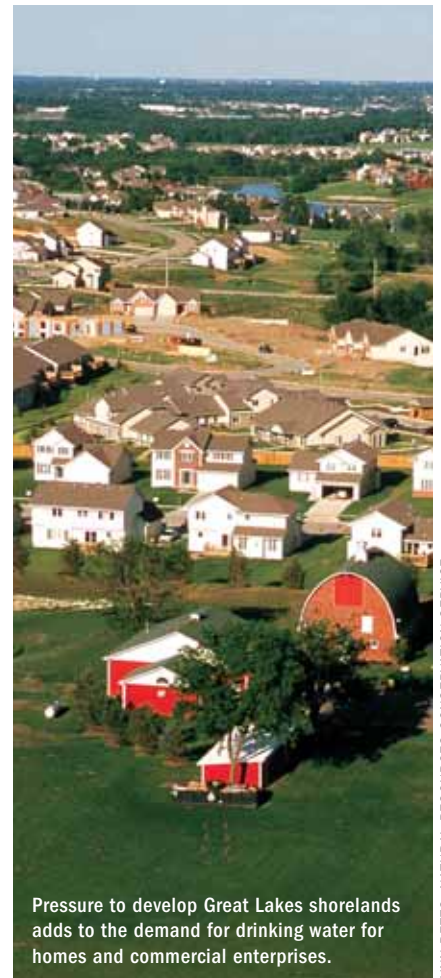
Lisa Gaumnitz and Shaili Pfeiffer



GREAT LAKES AQUATIC HABITAT NETWORK AND FUND

Warships likely won't patrol the lower Great Lakes as during the War of 1812, nor will citizens take to the streets with guns, knives and pitchforks as Waukesha residents did in 1892 to protect their storied "healing" springs. But tension over who can lay claim to Great Lakes' water is rising rapidly and will hit the high water mark this century, Annin argues in his book, "The Great Lakes Water Wars," and during an interview in a Madison coffee shop.

A growing global water shortage will put tremendous pressure on the water-rich regions of the world to open up the spigots. Pressure will be particularly intense on the Great Lakes — repository of fully 18 percent of all the fresh surface water in the world, neighbor to thirsty western U.S. states, and home to a growing number of communities facing replacing contaminated groundwater supplies.



LYNN BETTS, NATURAL RESOURCES CONSERVATION SERVICE



BROWN COUNTY PORT OF GREEN BAY, COURTESY OF DEAN HAEEN

Combined consequences of drought, climate change and potential water diversion raise concerns. If water levels drop, freighters might face restrictions in their loads or channels might have to be dredged deeper.

BELOW: Drinking water intakes, like this one in Green Bay, might have to extend the length and depth of intake pipes to reach waters deeper into the Bay.



PAUL PEETERS

“One billion people lack access to clean drinking water today and the United Nations predicts that two-thirds of the global population will face water shortages by 2025,” says Annin, an award-winning former *Newsweek* correspondent, Madison resident and associate director of the Institutes for Journalism and Natural Resources in Missoula, Montana. “They’re not knocking at the door right now, but the fear is they will be.”

The good news is the region has a tremendous opportunity to be prepared for the inevitable conflict. A water use agreement signed Dec. 13, 2005, by governors and premiers of the Great Lakes

states and provinces (and a companion “compact” that was signed by the U.S. governors) lay the foundation for the region to work together to sustain and to meet the water needs of citizens living in the Great Lakes states.

Each state’s legislature and the U.S. Congress must ratify the agreement for it to be binding, an uphill climb but one that’s underway right now in Wisconsin and other Great Lakes states. Annin says it’s disappointing but not unexpected that special interests “have begun to pick away” at the compact.

“We’re losing the big picture,” he says. “In particular, a lot of local officials and politicians are thinking locally,

selfishly you could argue, and that ultimately could break down what the governors and premiers have worked so hard to build.

“The region should seize the opportunity when it’s at hand,” he says. “We have the Saudi Arabia of water on two of our coasts of Wisconsin. If people in the Great Lakes region don’t figure out a way to manage and protect this internationally significant resource, somebody else will do it for us.”

A vast but vulnerable resource

The glaciers that receded from North America 11,000 years ago left behind a watery legacy — Lakes Erie, Huron, Michigan, Superior and Ontario. Together, they contain 6 quadrillion gallons of water, enough to cover the lower 48 states to a depth of 9.5 feet.

The lakes, tributaries and more than 200,000 square miles of land that drain into these waters create one of the world’s largest ecosystems. They are home to 40 million Americans and Canadians. They anchor the world’s third largest economy and they serve as the nation’s playground. Fully one-third of the boats registered in the United States are in Great Lakes states and recreation such as fishing, boating, hunting and wildlife watching generates \$50 billion annually in the region.

Yet these vast inland seas are vulnerable. They’re much cleaner than a generation ago, thanks to Clean Water Act requirements that greatly decreased pollution from municipal and wastewater treatment plants. But the lakes continue to be threatened by stormwater, barnyard runoff, contaminated sediments, airborne mercury and sewerage overflows. An onslaught of invasive species is remaking the ecosystem. And people are beginning to realize that the lakes are vast, but not bottomless.

A 2000 report by the International Joint Commission, comprised of U.S. and Canadian officials, noted that less than one percent of the Great Lakes waters are replenished every year through rain, melting snow and groundwater. Further, there is no “surplus” water in the system if all of the basin’s water uses are considered, including hy-

dropower and the water needed to sustain the environment.

The supply will get even tighter as global climate change heats us. Experts predict that water levels on the Great Lakes will likely fall — some models suggest as much as eight feet — as warmer temperatures and shorter ice cover lead to significantly more evaporation.

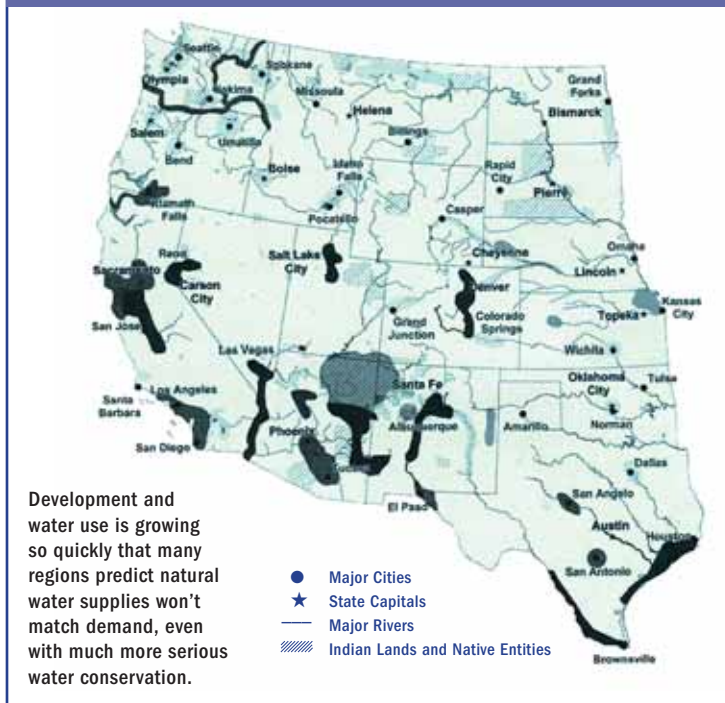
The loss will bring steep economic and ecological costs. Freighters will have to reduce the amount of cargo they carry. Ports will need to increase dredging at a tremendous cost. Recreational boating, hydropower generation and water supply systems will need to extend their reach to water. Fish and other aquatic organisms dependent on shallow water habitats will also suffer as critical spawning areas, food and forage areas are left high and dry, says Keith Reopelle, program director for Clean Wisconsin, a statewide environmental group that's been working to ratify the compact in Wisconsin.

"The Great Lakes are huge lakes, so people may not appreciate how vulnerable they are," Reopelle says. The net effect of climate change might lower Lake Michigan by three to eight feet. "We really should be concerned about every drop of water we take out of the lake," notes Reopelle.

A good faith agreement on water has its flaws

Great Lakes governors and premiers have been keeping a wary eye on Great Lakes water for more than a century and exhibiting, as Annin titles one of his chapters, "An Aversion to Diversion." Wisconsin, in fact, led efforts starting in the early 1900s to contest Chicago's ability to take water out of Lake Michigan and send it down the

WESTERN REGIONS FACING POTENTIAL WATER SUPPLY CRISES BY 2025



U.S. DEPARTMENT OF INTERIOR MAY 2003 STUDY

Chicago River to flush away and dilute the stockyard and other waste clogging its namesake river. Chicago now uses Lake Michigan water primarily to provide drinking water to its citizens and growing suburbs. A 1967 U.S. Supreme Court decision limited the Windy City's take to 2.1 billion gallons a day.

Efforts to manage water use in the Great Lakes basin have intensified in the last quarter-century in the wake of several proposals floated to send water westward. Alarmed Great Lakes governors and premiers signed a good-faith agreement in 1985, the Great Lakes Charter, to govern future diversion requests from outsiders and withdrawal requests from users within the basin. The charter committed the signatories to provide notice and consultation for any requests from outside the basin to withdraw over five million gallons per day. Importantly, it also committed the signatories to providing "notice" and "consultation" to one another when applicants inside the basin sought new or increased water use that would result in a water loss of five million gallons per day or more from the basin. Water experts consider water "lost" to a basin when it evaporates naturally, evaporates

in utility cooling towers, or if it's incorporated into that bottle of beer you're drinking or the canned peaches you're eating.

Congress took action on this issue back in 1986, passing the Water Resources Development Act (WRDA) that prohibited any water diversions out of the Great Lakes basin unless the eight Great lakes governors unanimously approved them. Minnesota and Wisconsin quickly enacted measures into law while Michigan didn't do so until 2006.

The Great Lakes governors had a way to say "No" to diversions, but WRDA was silent on water withdrawals from within the basin. Subsequent proposals for diversions and withdrawals revealed the law's

flaws — a lack of standards to evaluate proposals, and no set ways to appeal a decision. It led, in some eyes, to arbitrary decisions. Under WRDA, Michigan vetoed a proposal by Lowell, Ind., a city less than five miles outside the basin boundary, that was under federal orders to improve its drinking water. Lowell wanted to tap a million gallons a day of Great Lakes water to replace a water supply contaminated with excessive fluoride. Then, despite objections raised by other states, Michigan approved a withdrawal plan by farmers within the basin that would require 20 percent more water than Lowell sought to irrigate crops already produced in great surplus in the United States.

Other questions came up. How long would other governors have to respond to a proposal and what if no response was received?

Furthermore, WRDA didn't apply across the border, as the region discovered to its dismay in 1998 when a Canadian entrepreneur proposed filling tankers and shipping 158 million gallons of Great Lakes water to Asia every year. The resulting outcry from the U.S. and Canada killed that particular export proposal. Subsequent review of



CAROLE Y. SWINEHART, MICHIGAN SEA GRANT INSTITUTE

The agreement and Great Lakes Compact limit which areas could withdraw waters from the Great Lakes for residential, community, commercial, industrial and energy needs. Shoreland residences would be covered, but inland demands, especially those outside the watershed basin's borders will be scrutinized collectively by Great Lakes states and provinces.

WRDA by top water law experts concluded that the law was likely unconstitutional and ripe for legal challenge, Annin writes. The commerce clause of the U.S. Constitution severely limits individual states from turning away outsiders seeking Great Lakes waters, the legal team concluded.

That concern motivated the region's governors and premiers to develop stronger, more binding protections for the Great Lakes. After four years of negotiations by regional water managers (whom Annin calls "unsung heroes"); advisory meetings with industry, environmental and municipal stakeholders; and two rounds of public meetings, the Great Lakes governors and premiers signed the two documents in Milwaukee in December 2005: a Great Lakes-St. Lawrence Seaway Basin Sustainable Water Use Agreement and a companion "compact" on the U.S. side of the border.

Better protection for a shared resource

The agreement affirms that the Great Lakes are a precious public natural resource shared and held in trust by the states and provinces — not a commodity to be sold to the highest bidder, says Todd Ambs, Wisconsin DNR water division administrator and the lead

Wisconsin negotiator in recent years. It also affirms that the Great Lakes are interconnected and form a single hydrologic system, defining Great Lakes water to include rivers and groundwater within the basin.

"What we are trying to do is create a system that says people who use water in Milwaukee have an impact on the people who live in Cleveland or Toronto, and these people ought to have a say in that," Ambs says. "That's huge."

Importantly, the compact establishes that water management in the basin aims to protect, conserve, restore and improve the Great Lakes — not grant

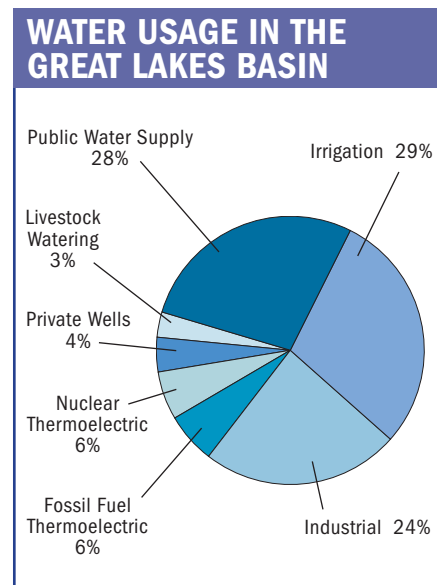
every request to use the water or let it die the death of 1,000 cuts. The agreement also recognizes that continued sustainable, accessible and adequate water supplies are vital for the people and economy of the Great Lakes region, Ambs says.

"While WRDA said 'No' to water use by communities or applicants outside the basin even when public health was at risk, the compact is a way to say 'Yes' in very limited situations when rigorous standards are met," Ambs says. And it sets standards for using Great Lakes water within the basin.

The agreement bans water from being piped out of the basin with limited exceptions: when communities straddle the basin boundary, when counties straddle the basin boundaries, and when proposing to transfer water from one Great Lakes watershed to another. All such uses must guarantee "return flow" by sending treated wastewater back to the basin.

Water users within the basin are affected by the compact as well. The agreement requires states and provinces to regulate water use by municipal utilities, industry, agriculture and other users to ensure that water is used efficiently without harm to the Great Lakes. It requires each jurisdiction to develop a water conservation plan if they expect outsiders to meet tough standards as well, Ambs says. This is a key part of the compact, Ambs says. We could not place stringent prohibitions on users outside of the Great Lakes without demonstrating we were using water efficiently within the basin, he says.

The compact makes sense for the economic health as well as the environmental health of the Great Lakes region. We are blessed with a water resource we will have for generations to come, if it is sustainably managed. Many parts of the country already can't say that, Ambs says. A 2003 U.S. Department of the Interior map highlighting areas where water supplies are not adequate to meet water demands for people, farms and the environment shows problems in nearly all the western states except South Dakota, but particularly in Arizona, Texas, California, New Mexico, Colorado, Utah and Nevada.



INTERNATIONAL JOINT COMMISSION

Our stake in getting strong water protections in place

Though five years in the making, the agreement's journey is only half done. Each state must pass enabling legislation that ratifies the compact and details water management programs. Congress must adopt the compact. The Canadians need to adopt similar regulations.

In February, Minnesota became the first state to ratify the compact. As of April 2007, Illinois was poised to ratify the compact with legislation passing both houses; Indiana, Michigan and New York all had active legislation.

Work is underway in the Wisconsin legislature to develop legislation aimed at ratifying the compact. A special committee with lawmakers from both parties and stakeholders including municipal utilities, environmental groups, industry and agriculture has been meeting for months to turn the compact's broad language into specific standards and draft legislation.

Michigan and Wisconsin will be key tests. Michigan citizens and political leadership have long fought against allowing any water to be piped across basin boundaries, which the compact would allow in limited cases. In part, that opposition reflects the strong emotional connections Michiganders have to the four lakes that define its boundaries, says Ambs, a born and bred Michigander. And because 99 percent of Michigan's land lies within the basin, the reality is that no Michigan communities have to worry about being allowed to get Great Lakes water, so the political calculus is much different for that state. It's easier for their politicians to propose banning all diversions than in states where less of the land area is within the Great Lakes basin.

Only one-third of Wisconsin's land drains to the Great Lakes and a growing number of Wisconsin communities that straddle the basin boundary or are just outside of it are actively seeking new water sources. They are currently dependent on groundwater drawn through rock layers that contain natural contaminants and the groundwater levels in parts of southeastern and northeastern Wisconsin have been drawn down 150



MICHAEL SEIDER

Sustained drought that has lowered Lake Superior to its second lowest level this year provides a vision of our concerns for increased water demand. TOP: Dried out sloughs on Fish Creek in April 2007.

BELOW: The boat ramp built on Bono Creek in Bayfield County in 1987 did not reach the water back in 2001. The waterline has receded even farther today.



STEVE SCHRAM

feet or more during the last century as water has been pumped out more quickly than it has been replaced naturally. The Great Lakes represent a tempting source of water communities would like to tap.

Bottom line, the compact is good for Wisconsin, says Reopelle, who serves on the committee developing legislation. It provides protection and would give communities that are on or near the Great Lakes border clear standards and a clear process to apply for access to use Great Lakes water. Currently any proposal a state receives to consider a water diversion faces an up or down vote by all eight states' governors. In the absence of clear, objective standards, a single dissenting vote could seal an applicant's fate.

While Reopelle thinks that Wisconsin and the rest of the Great Lakes states will ultimately ratify the compact, Ed Wilusz, a fellow member of the special legislative committee and a vice president of environmental relations for the Wisconsin Paper Council, isn't so sure.

He considers the compact "smart planning and a good idea," but puts the chances of ratifying the compact at 50-50. There are serious and very complex problems that need to be resolved, Wilusz says. Regulatory programs that

apply to existing users and new water users could have negative economic consequences unless they are done right. We are committed to working through these issues and finding ways to make the compact work, but it will take time and will not be easy. The governor, DNR staff and legislators are also committed to making the compact work, so hopefully we can come up with an implementation strategy that works for everyone, he says.

Annin observes that after years and years of negotiations, the Great Lakes Basin is at a historical crossroads. The question is, will regional officials take action to protect the lakes or bicker among themselves, creating legislative gridlock that leaves the lakes vulnerable in the future?

In the interim, any community or business in the Great Lakes region that files a lawsuit against WRDA and is successful in getting it thrown out will be seen as a pariah. "Then the floodgates [for water diversion] would be wide open to them and everyone else from Las Vegas to Phoenix to Beijing." ■

Lisa Gaumnitz is public affairs manager for DNR's water programs. Shaili Pfeiffer is a water resources specialist with DNR's Great Lakes program.