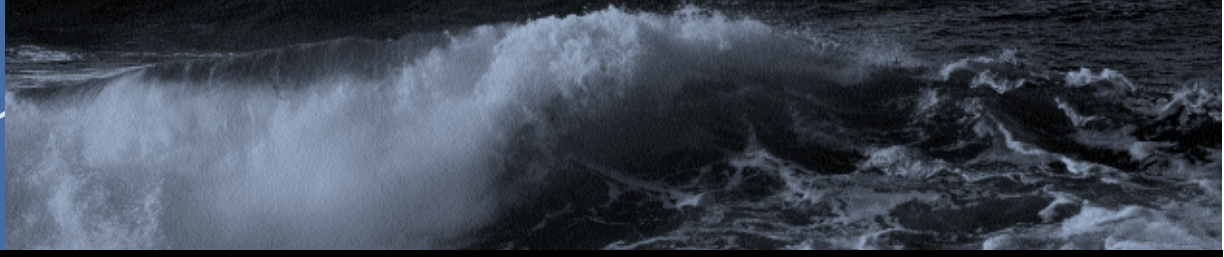

1 Natural Wonder

Choosing Fresh Water Forever

Rainfall and snowmelt replenish each year only about one percent of the water in the lakes, rivers, and aquifers that make up the Great Lakes basin. The other 99 percent of water in the basin is finite and nonrenewable.

THE FIVE FRESHWATER SEAS THAT DEFINE THE GREAT Lakes basin make up one of the greatest natural wonders of the world. Nowhere else on earth does the map turn so blue with water or the lives of so many people revolve around its gifts.

An immediate concern and responsibility of Great Lakes leaders, therefore, must be the job of keeping the region's freshwater resources safe for the well-being of future generations.

The basin holds nearly one-fifth of the planet's fresh surface water, yet this vast resource is just as vulnerable to depletion and degradation as the many aquatic ecosystems around the world that are drying up and plagued with pollution. Water waste and pollution, as well as export proposals, threaten the ability of Great Lakes families, farms, manufacturers, and others to use and enjoy the region's web of aquifers, wetlands, rivers, and lakes.

Great Lakes governments now are deciding whether to treat water as a common tradable commodity or as a vital natural resource to protect for the needs of future generations and the environment. But Great Lakes water is not a product to sell. The region's U.S. governors and Canadian premiers must act quickly to complete negotiations on a basin-wide plan that conserves, protects, and improves this globally unique freshwater source.

Fragile Resource

Rainfall and snowmelt replenish each year only about one percent of the water in the lakes, rivers, and aquifers that make up the Great Lakes basin. The other 99 percent of water in the basin is finite and nonrenewable. This slow rate of recharge is what makes the Great Lakes fragile and susceptible to long-term damage.

Threats to Great Lakes water security range from local overuse to misguided export schemes. Unregulated water use has stressed some Great Lakes-basin groundwater sources to the point that nearby wells fail regularly. In addition, private companies and others now propose selling and shipping Great Lakes

Crystal Lake. Beulah, MI.

▼ PLUMBING THE GREAT LAKES

Humans divert water into and out of the Great Lakes basin. But little is known about effects of these water projects. Below is a sampling of existing and proposed diversions.

Early **1800's** New York State Barge Control diversion from Great Lakes to Hudson River watershed.

1848 Illinois-Michigan Canal diversion from Lake Michigan to Mississippi River.

1860 Construction of Portage Canal diversion from the Mississippi River into Great Lakes.

1939 Long Lac diversion redirects water naturally flowing to James Bay into Lake Superior.

1943 Ogoki diversion also sends James Bay water to Lake Superior to support power generation.

1959 Great Recycling and Northern Development Canal proposal to divert Great Lakes water to Saskatchewan, Southern U.S., and Mexico.

Lower Herring Lake and Lake Michigan. Benzie County, MI.

THE VALUE OF WATER

Water is the economic lifeline for key Great Lakes industries, such as the $4 billion commercial and sport fishing industry. Changes in lake levels and river flows can have a dramatic effect on power generation, manufacturing, and trade. Every inch of lost clearance from low water levels, for example, can cost shipping vessels up to $11,000 per day because of reduced cargo carrying capacity, according to the United States Great Lakes Shipping Association.

water out of the basin, where it no longer can replenish the fragile ecosystem.

A single water withdrawal, whether by a water bottling company or rock quarry, is not often perceptible in a system with the magnitude of the Great Lakes basin. But taken together, unlimited residential, commercial, and industrial water withdrawals — along with pollution's depletion of clean water supplies — can weaken a community's ability to sustain residents, businesses, and wildlife.

Keeping the region's precious water clean and abundant is a matter of conserving, recycling, and continually cleaning the freshwater resources that human activities increasingly waste and contaminate.

World-Class Protection

The solution is, first, to understand how vital and vulnerable Great Lakes water and water-dependent resources are to human activities. The next step is to establish policies as soon as possible that promote efficient water use, create clear standards for all water withdrawals, and improve the ecosystem's health.

Great Lakes leaders already have taken the initiative and begun to address these issues in an important and cooperative agreement called the Great Lakes Charter Annex.

In it, the region's governors and premiers outlined in June 2001 the basic principles that state and provincial governments need for evaluating water withdrawal proposals and avoiding harmful projects.

The Great Lakes Charter Annex also calls on the states and provinces to develop coordinated standards that guide individual water use decisions toward the common goal of protecting and enhancing the Great Lakes ecosystem.

The principles advanced by the agreement, however, remain nonbinding. They must become standards that are legally enforceable. ■

1983 Bid to construct 400-mile concrete canal from Lake Superior to the Missouri River.

1984 Proposal to pipe Great Lakes water to High Plains and Southwest U.S.

1987 Federal plan to send Lake Michigan water to Southern Illinois.

1998 Nova Group, a private company, proposes to ship Lake Superior water to Asia in tankers.

ACTION STEPS

Great Lakes governments now are negotiating a common strategy to implement the Great Lakes Charter Annex, and protect all water users — from farms and cities to fish and forests. To develop a truly effective plan, leaders must:

- **LAY DOWN THE LAW.** Turn general principals for protecting Great Lakes water into enforceable law with no loopholes.
- **PROTECT IT ALL.** Protections should apply to the entire freshwater system, including groundwater and small streams that feed the Great Lakes.
- **SEEK PUBLIC PARTICIPATION.** States and provinces must involve citizens, businesses, and communities in decisions that affect their freshwater resources.

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- Lake Michigan Federation
- Michigan Environmental Council
- Michigan Land Use Institute
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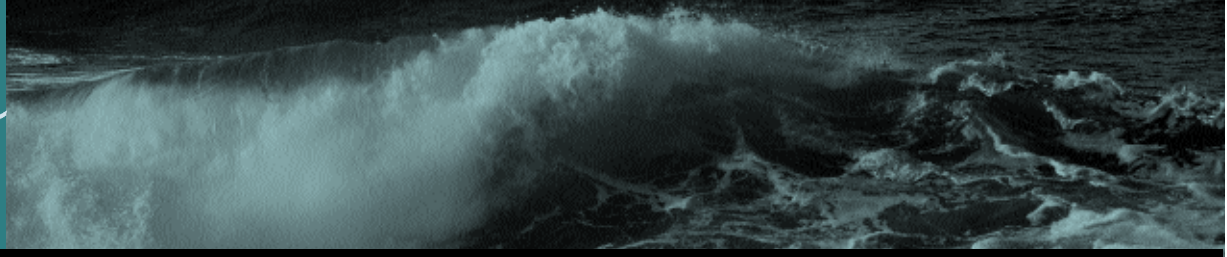


Communities Feel Drain on Great Lakes First

The future prosperity of Great Lakes communities depends on managing the region's water — locally and basin wide — not frivolously as an endless sea but realistically as a finite and fragile global resource.

ACUTE WATER SHORTAGES SEEM IMPOSSIBLE IN THE Great Lakes — a region defined by the largest system of fresh surface water on the planet. But a growing number of Great Lakes communities face serious questions about future access to water, including Rochester, NY; Waterloo, Ontario; Toledo, OH; Monroe County and Saginaw, MI; Chicago; and Green Bay, WI.

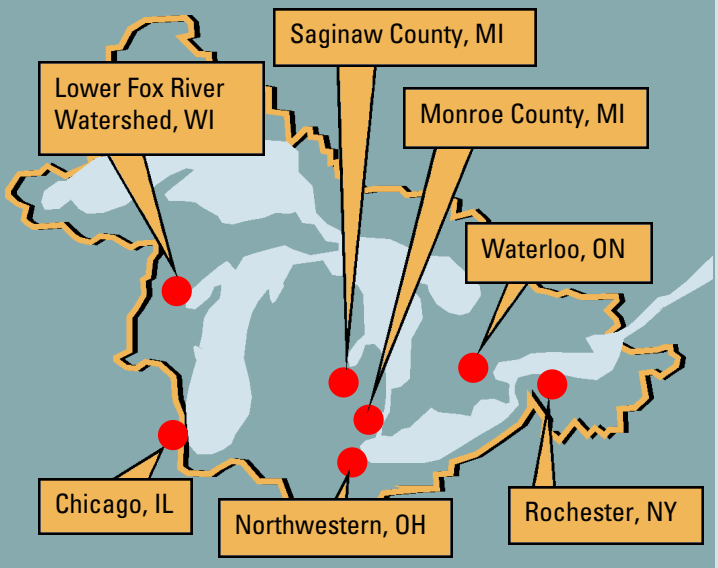
The reason? No comprehensive laws exist to balance the rising consumption of water with the amount that actually is available in local areas. The solution is a new basin-wide water ethic, defined by clear and enforceable standards, that recognizes the potential for scarcity amidst seeming water abundance.

Drink Locally. Think Regionally.

Failure to manage water supply results in unrestrained use by suburban, agricultural, and industrial consumers. These combined demands stress public water facilities, deplete local groundwater reserves, and can reduce the amount of water that naturally sustains interrelated resources, such as wetlands, rivers, and wildlife.

The future prosperity of Great Lakes communities depends on managing the region's water — locally and basin wide — not frivolously as an endless sea but realistically as a finite and fragile global resource.

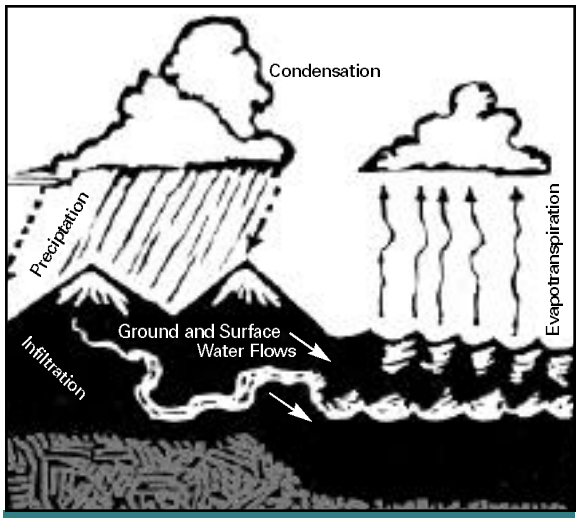
SHORTAGES ALREADY: PROBLEM AREAS IN THE GREAT LAKES



Monroe County, Michigan, sits on the western shore of Lake Erie's 9,910 square miles (25,700 square kilometers) of fresh water. Still, groundwater supplies in several of the county's townships regularly fail to meet the cumulative needs of local residents.

Drought and large groundwater withdrawals, particularly by rock mining operations in the area, have caused significant drops in subsurface water levels; allowed toxic elements, such as sulfur, to infiltrate private wells; and forced many residents to import water for drinking and domestic use. The withdrawals also threaten the water that replenishes the Great Lakes because groundwater supplies 67 percent of the water in streams that feed the Great Lakes.

Elsewhere in the basin, unplanned suburban growth and the absence of water supply oversight has led to shortages, environmental damage, and high management costs in large urban areas of New York, Ohio, Illinois, and Wisconsin.



Rain and snowmelt replenish each year only 1 percent of the water in the Great Lakes system. The other 99 percent is finite and nonrenewable.

Little Decisions Add Up

Local development choices directly affect the Great Lakes because the quantity and quality of Great Lakes water depends on the condition of the region's interrelated inland lakes, subsurface groundwater, rivers, and wetlands. Groundwater in particular is the lifeblood of communities, providing households and businesses with affordable water. It also supports the natural environment by keeping nearby streams and the Great Lakes themselves supplied.

Individual, local decisions about water use have widespread importance because the Great Lakes are one system — one regional web of interdependent streams, underground aquifers, wetlands, and lakes. Yet businesses and governments in the Great Lakes have given little thought to the water problems that unplanned and unlimited wells might create for local water users, natural habitats, and the basin itself.

Drilling a new, large-scale well to provide a subdivision with water, for example, can have far-reaching consequences if a community has not prepared for additional water uses with policies that promote efficiency and water supply planning.

The new well, when taken together with existing uses, can intensify the steady drawdown on the local area's freshwater supply.

Real Protection Proposed

Local decision makers need reasonable rules based on efficiency and environmental improvement to guide their choices about new or increased water uses. Such rules can help communities plan for new water needs while protecting existing and future water users, the natural environment, and the strength of the overall Great Lakes system.

Great Lakes governments, through the Great Lakes Charter Annex, are considering a regional water policy to guide local development decisions. The region's states and provinces now have the opportunity to craft legislation that protects all water users by basing decisions on the effects that withdrawals would have on the healthy functioning of local ecosystems. ■

Water-efficient irrigation. Manistee County, MI.

ACTION STEPS

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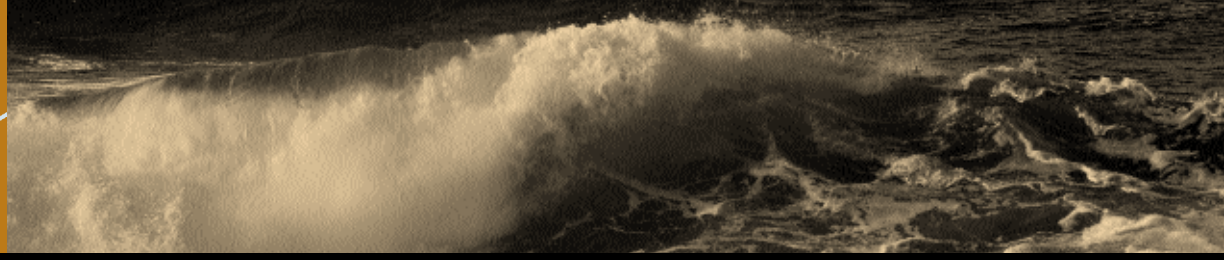


3 Time to Act

Secure the Future of Great Lakes Water

Protections from export plans and unrestrained water use are weak or nonexistent in the Great Lakes. The solution is a regional system of standards to protect and enhance the basin.

EVEN THE GRANDEST OF RESOURCES CAN DRY UP, blow away, or fall to misuse. Consider the vivid example of the Lumber Baron era and its 19th-century disregard for seemingly endless natural resources. Rampant clearcutting devastated entire ecosystems and left Great Lakes communities with barren land and depressed economies.

The recipe for such disaster — surging demand and unlimited access — is at work today in global water markets, where solutions to water scarcity center on selling and moving water from place to place instead of conserving and managing supplies for long-term water security. Proposals for exporting Great Lakes water, along with previously unthinkable groundwater shortages in many Great Lakes communities, now are showing the region's citizens and leaders how precious and vulnerable their water is.

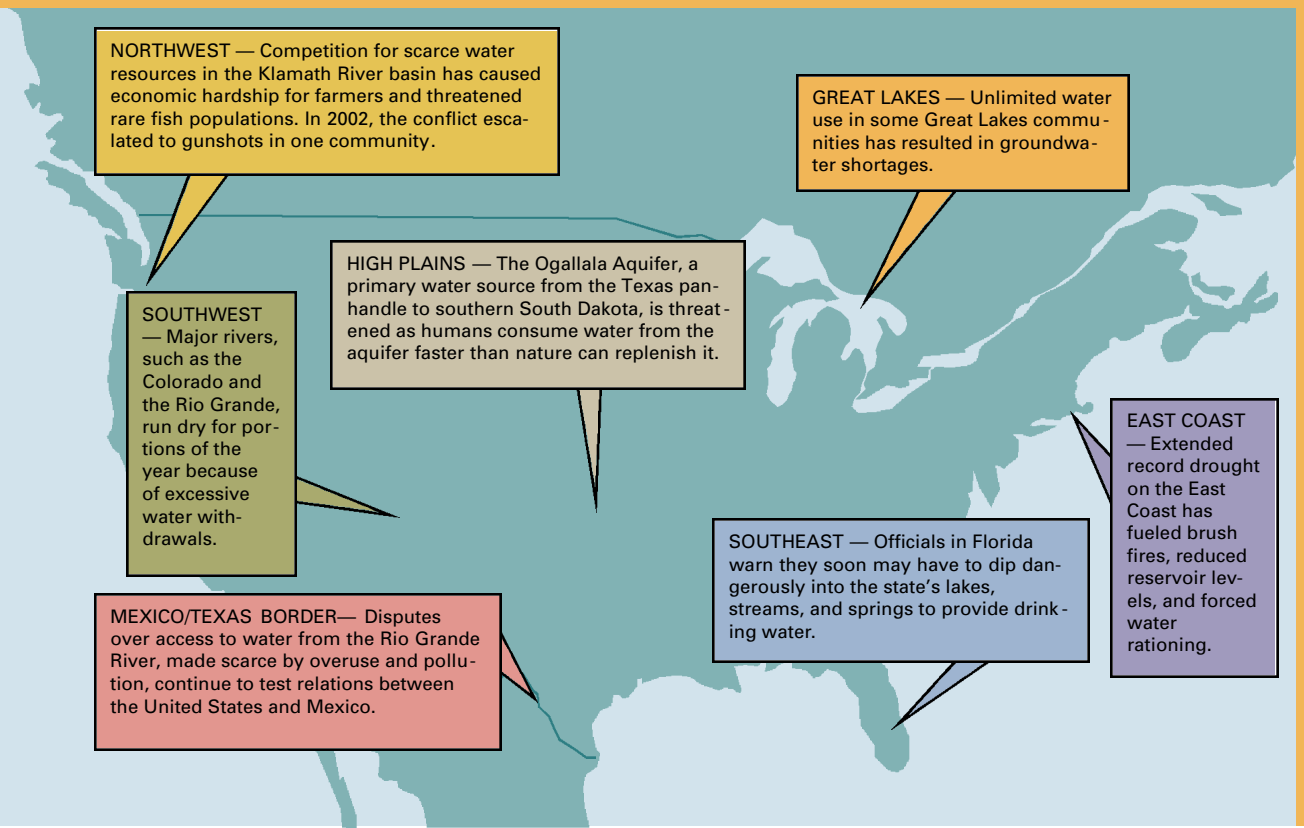
Protections from export plans and unrestrained water use, however, are weak or nonexistent in the Great Lakes. That must change if farms, cities, and families hope to have enough water in the future. Per capita water consumption in the United States is more than four times higher than the global average. Water waste, along with pollution's contamination of available supplies, now jeopardizes important public resources, such as the Great Lakes system of interrelated aquifers, streams, and lakes.

Time to Act

In 2001 Great Lakes governments took the first step toward protecting the region's water from misuse when they signed the Great Lakes Charter Annex. The unprecedented agreement promises to enhance the basin's economy and aquatic habitats with practical water use.

But state and provincial leaders must turn these visionary principles into concrete and binding standards before they actu-

WATER SUPPLY STRESS IN NORTH AMERICA



Depleted water supplies, diversion proposals, and damaged ecosystems already fuel protests and conflicts on many continents, including North America. The problem is that overuse and water pollution continue even as global water consumption doubles every 20 years — more than twice the rate of human population growth.

Freighter on the St. Lawrence Seaway.

ally will protect the basin's water for the future. Leaders have committed to doing so by 2004. Meeting that deadline may be the region's last chance to protect Great Lakes water forever.

The Need for New Protections

Many legal experts agree that current laws designed to protect the Great Lakes are limited. Under these laws, the region's governments, they suggest, cannot respond to massive export plans by simply banning proposals to ship water from the basin.

Powerful international trade agreements may require Great Lakes states and provinces to treat requests that involve shipping water outside the basin the same as they treat local and regional withdrawals that keep water in the basin. In that case, all regulation of water withdrawals would need to apply equally to all users, whether that's a proposal for building a water pipeline from Lake Michigan to the arid southwest or a power plant cooling intake in the basin that draws water from Lake Erie.

The solution is a regional system of standards that requires all users to protect and enhance the basin's unique and interrelated system of water resources. Such standards can provide a fair and legally defensible regulatory foundation for Great Lakes communities — and make large-scale exports virtually impossible.

Great Lakes Charter Annex

The Great Lakes Charter Annex is the cornerstone of this regulatory foundation with its goal of basin-wide standards by which the region's governments can judge all new or increased water withdrawals. The standards will be based on three key principles:

• Every new project must include all reasonably feasible water conservation measures.

• No new project can cause significant harm — individually or in combination with other projects — to the Great Lakes, their tributaries, or the people and wildlife they support.

• Every project must be designed to actually improve the Great Lakes and their tributary lakes, streams, and underground aquifers. Avoiding harm is not enough.

Next Steps

The challenge now is for the region's governments to turn the amendment's non-binding principles into legal standards:

• The governors and premiers must develop comprehensive and enforceable standards to manage Great Lakes water effectively.

• State and provincial lawmakers also must enact legislation that puts these basin-wide standards into practice at home.

• This bi-national process may also require approval from the U.S. Congress and Canadian Parliament.

• The public must have the opportunity to participate in development of standards.

Thinking Ahead

Only by example and by consistent application of comprehensive standards can the region's leaders, citizens, and businesses set the rules of the region's water future. ■

ACTION STEPS

Great Lakes governments now are negotiating a common strategy to implement the Great Lakes Charter Annex, and protect all water users — from farms and cities to fish and forests. To develop a truly effective plan, leaders must:

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