

# Current Landscape Vulnerabilities



COUNCIL OF THE GREAT LAKES REGION  
Solving for Sustainability

In a competitive, purpose-driven marketplace, ignoring water risks is not an option. By prioritizing water stewardship, businesses unlock strategic value, reducing costs, mitigating risk, and strengthening stakeholder trust. Lead boldly and turn vulnerabilities into opportunities for growth.

The Great Lakes region is an economic powerhouse, generating over US\$8 trillion in activity across the U.S. and Canadian economies. Home to 84% of North America's surface freshwater, it supports a wide range of industries, from manufacturing and agriculture to emerging sectors, driven by its abundant water resources, reliable energy, and highly skilled workforce.



## A Growing Resilience Gap in the Great Lakes

The Great Lakes region faces a widening vulnerability landscape as climate change, economic growth, and population pressures intersect with aging infrastructure and uneven governance. Rising water stress, deteriorating quality, and escalating demands on shared freshwater systems are exposing weaknesses in regional resilience, testing the capacity of institutions, utilities, and industries to adapt.

- Intensifying pressures from development and climate change are straining limited water resources
- Persistent water quality risks show minimal improvement across the basin.
- Limited corporate and cross-border coordination weakens collective resilience.
- Data and monitoring gaps undermine effective risk management.
- Insufficient transparency and efficiency policies in emerging sector heighten exposure to water stress, energy strain, and community conflict.

### Climate Change Impacts



Climate change is amplifying stress across the Great Lakes system, driving changes that disrupt hydrological patterns and leave ecosystems and communities increasingly vulnerable to extreme weather events.

Climate change touches all aspects of the Great Lakes and will continue to amplify pressures in the region.

### Economic and Population Expansion



Population growth and rapid economic development in the region is straining freshwater resources, with higher withdrawals and more wastewater entering already stressed systems.

### Aging Grey Infrastructure



Changes in the Great Lakes precipitation patterns is driving pressure on aging infrastructure, along with increased rates of dumping polluted stormwater/sewage into tributaries and nearshore zones; fixes are capital-intensive and slow.

### Emerging Contaminants of Concern



Increasing occurrence of emergent and legacy pollutants in the Great Lakes waters threatens human health, biodiversity, and long-term water security.

Regulation and mitigation lag behind the scale of the problem, with significant pressure and gaps in policy coverage increasing uncertainty.

## Data Centers, AI, and the Water-Energy Nexus



The rapid growth of data centers and AI infrastructure introduces sharp, periodic spikes in water and energy demand across the Great Lakes region. During peak stress periods, power needs can intensify local water withdrawals, increase thermal pollution, strain grid capacity, and heighten competition with municipal and industrial users. Without coordinated planning, transparency, and efficiency measures, these sectors risk amplifying existing vulnerabilities in an already pressured freshwater basin.

## Key Takeaways on Great Lakes Vulnerabilities

Climate change is a "crisis multiplier" that amplifies every water and infrastructure vulnerability in the Great Lakes region.

### Water Scarcity and Stress



Shifting rainfall and periodic droughts increase competition for limited water supplies, raising operational and treatment costs.

### Extreme Weather



Floods, storms, and heat waves disrupt supply chains and expose gaps in infrastructure and emergency preparedness.

### Water Quality Decline



Warmer temperatures and nutrient runoff degrade ecosystems, increasing regulatory, reputational, and compliance risks.

### Infrastructure Strain



Aging water and energy infrastructure is ill-equipped for modern climate extremes, heightening risks of service disruptions.

### Regulatory and Financial Risk



Climate variability strains utility revenue models and regulatory frameworks, creating uncertainty for business investment.

### Health and Service Disruption



Declining water quality and service interruptions pose health risks that ripple into the workforce, community, and operational stability.

## Key Recommendations for Business in the Great Lakes

Strengthening water resilience in the Great Lakes requires companies to step into a proactive, collaborative role. The actions below outline where industry can lead, reduce exposure, and contribute to basin-wide stability.

Use the Great Lakes Compact as an operational baseline

- Align corporate water use, reporting, and new facility siting decisions with Compact principles to maintain consistency and credibility in the basin.
- Use the Compact's definitions, threshold and priorities, target setting, policy language, and voluntary disclosure expectations.

Build adaptive capacity across sites and supply chains

- Stress-test operations for drought, flooding, and extreme weather; integrate climate scenarios into facility planning; and embed resilience criteria into capital investment.

Invest in modernizing infrastructure

- Upgrade aging onsite systems (cooling, treatment, conveyance) and collaborate with utilities to improve shared infrastructure reliability.

Advance corporate water stewardship beyond the fence line

- Conduct basin-level risk and dependency assessments, participate in collective action through WISE or local watershed groups, and co-fund restoration or green infrastructure.

Enhance data and monitoring systems

- Deploy real-time sensors, metering, and shared dashboards to improve detection of water risks and drive faster decision-making.

Promote awareness and incentives internally

- Train staff, set site-level goals, and use procurement or performance metrics to reinforce responsible water use and circularity.

