

WATER

Michigan has been shaped by water. Carved out by glaciers long ago, Michigan has 3,200 miles of Great Lakes coastline that offer iconic vistas like Pictured Rocks and Sleeping Bear Dunes, and the beauty of countless sunrises and sunsets. Michigan's fisheries, farms and forests depend on its abundant water; Michigan's people do too. Stand anywhere in Michigan, and you're no more than six miles away from a body of water.

Michigan has been shaped by water, and water will shape its future.

A FRESHWATER NEXUS

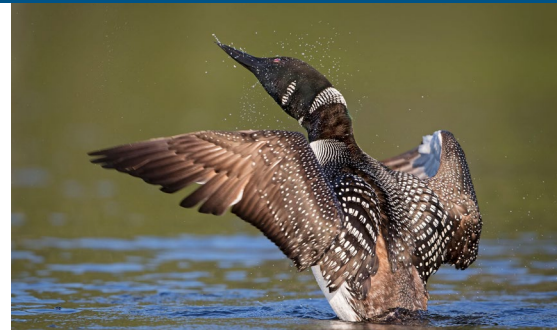
The Great Lakes are the freshwater heart of North America, containing over 20% of the world's surface fresh water. As global challenges around water continue to grow, the work of The Nature Conservancy (TNC) in Michigan contributes to a wellspring of Great Lakes learning and knowledge that informs freshwater solutions across the region, and around the world.

Fresh water connects us all: through the food we grow, the water we drink, the habitats that nurture wildlife and the infrastructure that provides for people and economies. It is the basis of a thriving future for people and nature—the future TNC envisions.

A PRECIOUS RESOURCE

TNC helps to protect Michigan's freshwater legacy and future by working with partners across the state to address system-wide issues including nutrient runoff, habitat loss, invasive species and aging infrastructure. People and nature alike depend on the services that healthy freshwater systems provide—and access to clean, abundant water is just the beginning.

COVER: Barton Lake, Kalamazoo County. © Jason Whalen/Big Foot Media; RIGHT: A loon shakes water free after a deep dive in a northern Michigan lake. © Scott Suriano/TNC Photo Contest 2019



GOALS

- Clean, plentiful and accessible water resources for all.
- Sustainable water use achieved through improved—and equitable—infrastructure, policies and programs.
- Widespread practices that protect and restore healthy aquatic systems throughout the Great Lakes region.



TNC'S WORK FOR WATER

Michigan Highlights

WATER POLICY

Water quality and affordability are important for all Michigan residents. TNC is advancing new policy and financing approaches to ensure Michigan's communities can maintain and deliver safe, affordable water services—which are vital to protecting clean water across the Great Lakes for people and nature.

PROJECT EXAMPLE | *Septic System Solutions*

Approximately 30% of Michigan residents have their wastewater treated by onsite septic systems. More than 10% of those are failing, posing a direct contamination risk to nearby water sources. TNC is helping to identify funding and resource solutions that address critical maintenance needs and decrease financial barriers for homeowners.

SOIL HEALTH & WATER QUALITY

Overabundant nutrients in waterways negatively impact water quality and stream ecology, and in some cases increase the risk of harmful algal blooms. With a focus on the Saginaw Bay watershed, TNC works with landowners and farmers to advance practices that protect water quality along with soil health, while also addressing climate impacts—with the goal of seeing these practices used on at least half of the watershed's farmland acres.

PROJECT EXAMPLE | *Drain Infrastructure Transactions for Clean H₂O (D.I.T.C.H.)*

In partnership with county drain commissioners, TNC developed a program to incentivize landowners to install "filter strips," or narrow areas of vegetation, along drainage ditches in agricultural areas. Filter strips capture sediments and nutrients and keep them from washing into streams.

HEALTHY FISHERIES

Thriving fisheries are an important part of a resilient freshwater system, but key Great Lakes species like cisco and lake whitefish face an uncertain future. TNC and partners are restoring fisheries habitat, conducting research to inform potential restocking efforts, addressing invasive species and more—all to support a sustainable foundation for Great Lakes fisheries.

PROJECT EXAMPLE | *Mapping the Great Lakes*

Drawing from data in 19th-century navigation charts, TNC staff have digitally mapped out the entire Great Lakes floor. As TNC and our partners build on the success of an innovative reef rebuilding effort in Grand Traverse Bay, these maps will provide a vital tool to help us identify where and how similar restoration efforts can have the best outcomes for fisheries.

COASTAL WETLAND RESTORATION

Michigan's coastal areas are some of the most biologically diverse and productive systems in the Great Lakes region, and simultaneously some of the most heavily used by people. With Great Lakes coastal wetlands at less than half of their historical extent, TNC is working with coastal communities to restore this unique habitat and the natural protections it provides to coastlines.

PROJECT EXAMPLE | *Erie Marsh Preserve*

Erie Marsh contains some of western Lake Erie's last remaining coastal wetlands. Here, TNC is completing a multi-year, 1,000-acre restoration effort that has reconnected the marsh to Lake Erie for the first time in decades—restoring the flow of water, opening the wetlands up to fish and other aquatic life, and improving habitat for migratory birds and waterfowl.

STORMWATER INFRASTRUCTURE

TNC is working with the City of Detroit and community partners to advance projects that incorporate green stormwater infrastructure (GSI), which helps more rainwater soak into the ground and reduces the runoff burden on the city's aging infrastructure system. Not only does this help lower the risk of untreated sewage overflows into Detroit's rivers, it also creates new greenspace in a highly urbanized landscape.

PROJECT EXAMPLE | *Sacred Heart Church*

TNC's first on-the-ground GSI project in Detroit was completed in 2019 at the historic Sacred Heart Church. The church's redesigned parking lot provides a tangible example of how GSI can not only protect water quality and reduce flooding in Detroit, but offer social, economic and environmental benefits too.

AQUATIC INVASIVE SPECIES

Over 180 non-native species have made their way into the Great Lakes, and many of those are considered invasive (causing ecological or economic damage). TNC works with partners to prevent the introduction of additional invasive species and to control (and hopefully eradicate) those already established, by developing new tools and solutions that protect the health of the Great Lakes.

PROJECT EXAMPLE | *Early Detection, Rapid Response*

TNC worked across state and international boundaries to develop a comprehensive surveillance framework for the entire Great Lakes region. This new framework enables scientists and management agencies to act more quickly and efficiently to prevent aquatic invasive species from entering Great Lakes waters.

RIVERSIDE HABITAT RESTORATION

Clean, plentiful water depends on healthy surrounding natural areas. For example, every part of a forest plays a critical role in cleaning, storing and protecting our water supply, from the tree canopy all the way down to root systems. Many of TNC's forest restoration efforts also enhance and protect these benefits.

PROJECT EXAMPLE | *Tree Planting in the U.P.*

TNC works with partners to restore forest connectivity, resilience and habitat quality along Upper Peninsula streams by planting tens of thousands of underrepresented tree species. By rebuilding natural diversity, we can help forests better resist pests, climate change and other threats, while also protecting stream habitat and water quality.

LEFT: TNC's reef restoration work at Grand Traverse Bay. © Big Foot Media; MIDDLE: Saugatuck Harbor Natural Area. © Stephen Carmickle/TNC Photo Contest 2019; RIGHT, TOP: TNC's stormwater infrastructure project in Detroit. © Jason Whalen/Fauna Creative; RIGHT, BOTTOM: An invasive rusty crayfish is measured. © Jason Whalen/Fauna Creative



Blue Accounting currently provides information and tracks progress on the following issues:

- Aquatic invasive species
- Source water
- Nutrient pollution
- Maritime transportation
- Coastal wetlands

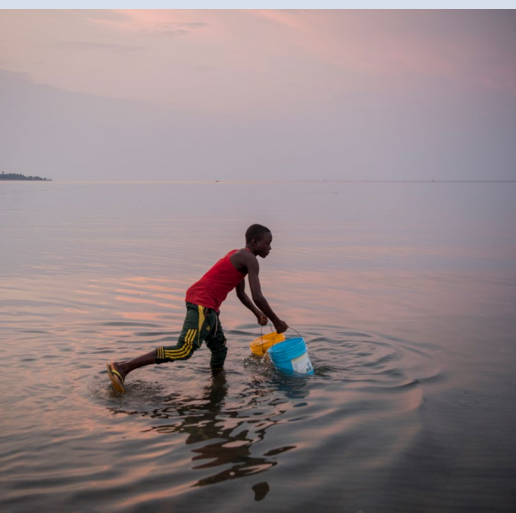
SUCCESS STORY: Blue Accounting

In 2013, the Conference of Great Lakes and St. Lawrence Governors and Premiers called for a smarter and more comprehensive approach to monitoring Great Lakes water resources. TNC and the Great Lakes Commission worked together to answer that call by launching Blue Accounting, a powerful regional initiative that provides cutting-edge information services about the Great Lakes.

A broad collaboration with state, provincial, federal and private organizations, Blue Accounting is focused on delivering the right information to the right people at the right time, and helps stakeholders track progress on efforts to sustain and enhance the Great Lakes. The tools and methods of Blue Accounting were piloted through five issues integral to the social, economic and ecological health of the Great Lakes.

Management of Blue Accounting was fully transferred to the Great Lakes Commission in 2021. To learn more about this initiative and its continued successes, visit www.blueaccounting.org.

ABOVE: Lake Superior waves crash against the Pictured Rocks shoreline. © Richard Thompson



GLOBAL CONNECTION

Fresh water is the lifeblood of our planet. It has powered nature for millions of years; today it powers our cities and economies as well. Yet freshwater ecosystems are the most threatened on earth. One-third of all freshwater species are in danger of extinction, while increasing demand for clean water is one of the greatest threats to political, social and economic security.

All over the world, TNC is establishing critical bridges of collaboration to address these shared challenges to Earth's vital freshwater resources.

LEFT: Together, the Great Lakes of Africa and the Great Lakes of North America hold about 45% of the world's surface fresh water. TNC's "Great Lakes to Great Lakes" initiative shares research and strategies between these two globally important systems, helping us better protect places like Lake Tanganyika—home to 250 fish species found nowhere else on Earth. © Ami Vitale



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