

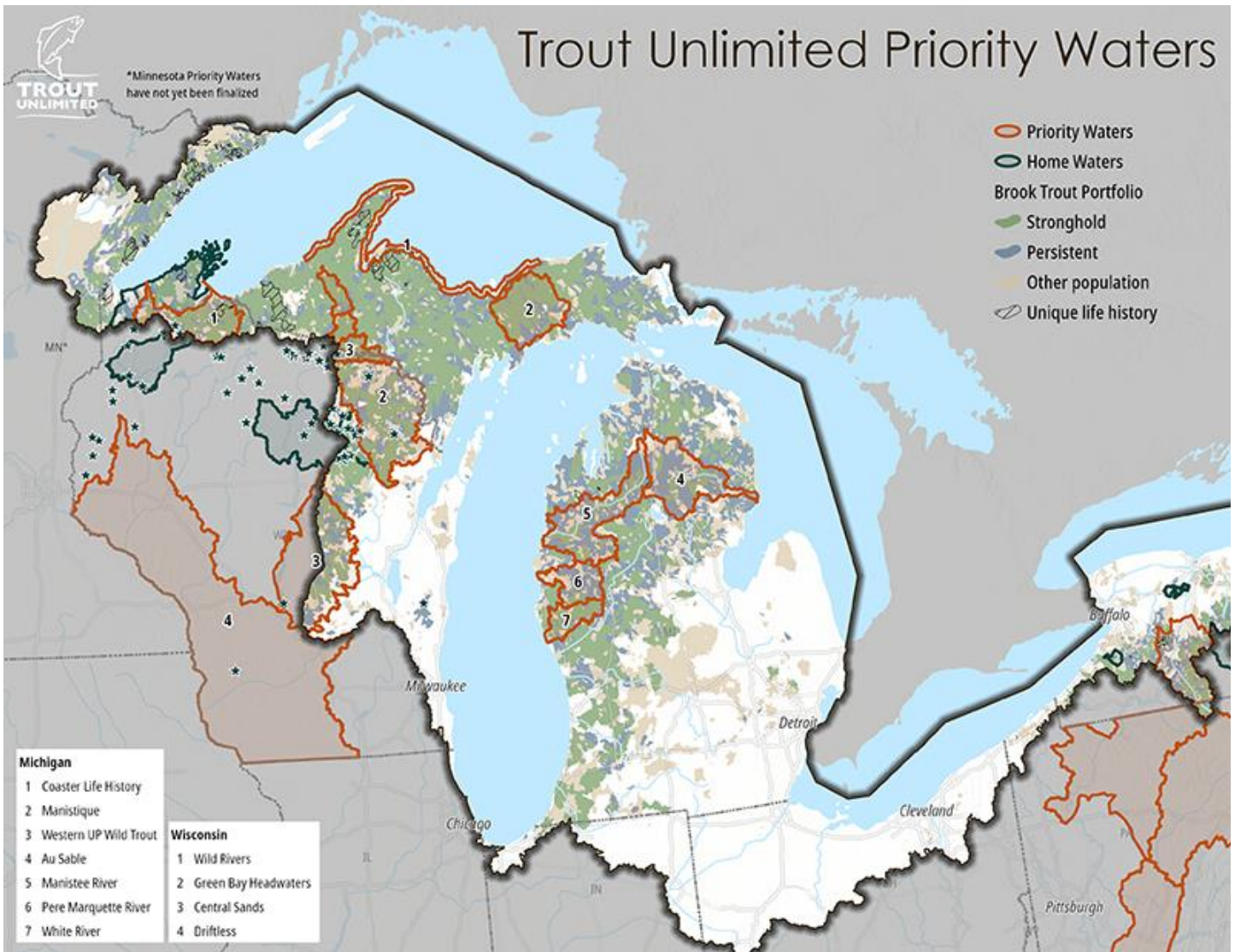


Trout Unlimited's Great Lakes Team Highlights Productive 2022 Season

This past year our Great Lakes team worked together to strategically care for and recover rivers and streams and laid a solid foundation to support these efforts in the future. Staff have worked with state councils, chapters, and partners to identify shared priority waters in the Great Lakes. With this effort, we can focus our conservation work in priority rivers and streams while leveraging the full power of the TU community of staff, volunteers, partners, and supporters in new ways behind a unified conservation agenda.

We have been able to secure funding from the **Bipartisan Infrastructure Law** to support fish passage in these priority waters and to build local capacity to address fish passage projects in these watersheds over the next five years. This support includes a \$40 million national agreement with the U.S. Forest Service and a recommendation from the National Oceanic and Atmospheric Administration (NOAA) to award Trout Unlimited \$105 million for 36 fish passage projects, including \$4.7 million to TU's Great Lakes program. To support this growing work, the Great Lakes staff continues to grow, with a total of 12 full-time staffers now assigned to the region. In 2022 we were pleased to welcome Scott Allen in Wisconsin and Emma Balliet and Kyle Dankert in Michigan.

—Nichol DeMol, Great Lakes Habitat Program Manager, nichol.demol@tu.org



Priority Waters in the Great Lakes Basin

To stay up to date on Trout Unlimited’s Great Lakes Program, follow us at facebook.com/GreatLakesTU and instagram.com/troutunlimitedgreatlakes

Removing Fish Barriers in the Huron-Manistee National Forest

TU staff and the Huron-Manistee National Forest staff have been working in tandem for many years implementing shared priority projects for watershed restoration and habitat reconnection. In 2022, this effective partnership directed their focus on some problematic road-stream crossings on Peterson Creek, a tributary to the Manistee River. A problematic road-stream crossing is typically a culvert that may be too small or perched too high to allow for a stream to flow through and organisms to travel between.



Before and After Photos of a culvert replacement on Peterson Creek

Peterson Creek and its tributaries are Michigan Designated Trout Streams and are classified as Top-Quality Trout Feeder Streams that support brook, brown and rainbow trout. Unfortunately, improperly designed and aging infrastructure like road-stream crossings can inhibit free movement of aquatic organisms like trout, which need to access upstream stretches of watersheds to find suitable habitat and cool down in the summer months.

After collecting pre-construction data with fish, macroinvertebrate, and habitat surveys, TU and the U.S. Forest Service replaced two undersized road-stream crossings with scientifically designed culverts that will allow for easy fish and organism passage and will better handle future severe storms, improving the local community's flood resilience. Later in the year, staff and volunteers planted a thousand native species along the streambank to further restore the health of Peterson Creek and repair areas disturbed by construction.



A brook trout collected on Peterson Creek.

In 2023, TU will continue working with its partners at the U.S. Forest Service to replace an additional culvert on Peterson Creek, as well as others on Claybanks Creek, Hinton Creek, Bigelow Creek, Big Cannon Creek, Comstock Creek, Woody Creek, and others.

This project was made possible by our partners at the **Huron-Manistee National Forest** as well as with funding from the U.S. Fish and Wildlife Service National Fish Passage Program, National Fish and Wildlife Foundation Sustain Our Great Lakes Program, and the Michigan Department of Natural Resources Aquatic Habitat Grant.

You can reach out to TU's Great Lakes Stream Restoration Manager Jeremy Geist (jgeist@tu.org) to learn more about restoration work in Michigan and how to get involved on waters like Peterson Creek.

Breaking Ground in Michigan's

Upper Peninsula

2022 marked significant growth in the Great Lakes program as TU's Stream Restoration Manager Sarah Topp implemented her first restoration project in Michigan's Upper Peninsula. TU partnered with the Hiawatha National Forest on a habitat improvement project on the middle branch of the Ogontz River. The project aimed to transition the Hiawatha National Forest away from having to mechanically maintain sediment basins for brook trout spawning habitat. To achieve self-sustaining brook trout habitat, large wood was strategically installed to naturally scour fine sediment and maintain clean spawning habitat for brook trout. Additional riparian restoration was also completed through planting streamside vegetation in areas disturbed by former sediment basin sites upstream, adding bank stability and important habitat.



Local contractor Kanouse Outdoor Restoration overseeing woody habitat implementation

2023 will be a busy year of restoration wins. We're expecting to replace three road stream crossings reconnecting 19 miles of coldwater trout habitat including projects on Trout Creek at Calderwood Road and Spargo Creek at FR 3660 both in the Ottawa National Forest and creek Number Eight at FR3159 in the Hiawatha National Forest. We're also supporting our partners at the Ottawa National Forest as they work to remove the Lower Dam on the Ontonagon River. Removing the dam will restore aquatic organism passage to more than 11 miles of high-quality

upstream habitat and reconnect nearly all 67 miles of the Wild and Scenic-designated East Branch Ontonagon River as well several dozen more miles of tributaries. TU is grateful for partners at the **Hiawatha National Forest**, **Ottawa National Forest**, county road commissions, the **Fred Waara Chapter of TU**, local contractors among others and is looking forward to amping up efforts to protect and restore the abundant, cold, quality trout waters of the UP.

You can reach out to TU's Great Lakes Stream Restoration Manager Sarah Topp (stopp@tu.org) to learn more about restoration work in Michigan's UP and how to get involved in upcoming projects.

Playing the Long Game on Wisconsin's Marengo River

Conservation goals aren't met overnight, and restoration work on Wisconsin's Marengo River illustrates just that. TU staff and partners have been championing a multi-year effort in this high-quality watershed in the **Chequamegon-Nicolet National Forest**, after historic floods impacted the waterway with over a foot of rain falling in a few hours in 2016. The storm and resulting flood left the Marengo River and other northwest Wisconsin river systems reeling from bank erosion, sedimentation, and road crossing failures that all combined to severely degrade coldwater habitat. Recovering from this damage would take a strong partnership and long-term vision.

In 2021, TU partnered with the U.S. Forest Service to lead restoration efforts on the Marengo River using full trees harvested on site to build natural material structure that would stabilize banks and restore in-stream habitat washed away by the floods. With the heavy construction work completed, TU pivoted to the next phase of rehabilitation: hands-on, volunteer-led restoration work.



A 150-foot log jam built from trees harvested from the site helps prevent erosion and provides deep pool habitat and hiding cover for fish.

In the spring of 2022, TU staff, the **Wild Rivers Chapter of TU**, U.S. Forest Service, **Superior Rivers Watershed Association** and local volunteers banded together to plant 750 tree seedlings to complement the prior restoration efforts by further stabilizing the banks and increasing healthy riparian vegetation. Over decades as these trees mature, they will uptake significant amounts of stormwater runoff, sequester carbon, hold the banks intact by limiting erosion, drop wood and leaves into the stream for healthy fish and macroinvertebrate habitat, and provide vital shade to the cool Marengo waters.



The Marengo River, like many other watersheds in the region, is a popular draw to anglers due to potamodromous fish migrations (meaning fish that move from one freshwater habitat to another to complete their life cycles) from Lake Superior and resident populations of native brook and wild brown trout. “It has some of the best trout water and areas for trout to spawn in that part of the national forest,” said Great Lakes Stream Restoration Manager, Chris Collier.

These restoration efforts will carry into 2023 and beyond, and TU staff are excited to invest more into this special watershed and get more community members out to get their hands dirty or lines wet in this river that’s on the mend. TU was recently awarded a Water Stewardship grant from Bell’s Brewery which will support more tree planting on the river this year, so keep an eye out for upcoming volunteer opportunities to get a chance to be a part of these relentless restoration efforts for resilient watersheds.

We’re thankful to our partners at the Chequamegon Nicolet National Forest as well as the National Fish and Wildlife Foundation and Wisconsin Trout Unlimited members who primarily funded the restoration work on the Marengo River.

Overall, TU staff in Wisconsin reconnected over 15 miles of coldwater habitat and launched two new science efforts to investigate trout population response to our projects and identify climate resilient waters to develop future projects. Watch TU’s new film, **Flowing Free**, to dive deeper into how we’re recovering native trout and increasing community resilience in northern Wisconsin.



You can contact our Wisconsin staff (Chris Collier, chris.collier@tu.org and Danielle Nelson, danielle.nelson@tu.org) to learn more about our projects or find ways to get involved in the Wisconsin Northwoods.

Harnessing Technology for Smarter Coldwater Conservation

TU staff scientists are refining cutting-edge methods for improving coldwater conservation using emerging technologies. Throughout 2022, TU staff worked to fine-tune the process of flying drones outfitted with a thermal imaging camera that detects variations in water temperature throughout the river.

Stream temperature is the most important factor influencing coldwater fish distribution, and groundwater inputs are primarily responsible for our coldwater rivers and streams in the Great Lakes. By gaining an understanding of where critical groundwater seeps and springs enter a river, we can better protect those coldwater inputs and invest resources for the maximum benefit to coldwater ecosystems.

Beyond simply exploring this new technology, TU staff have been hard at work to develop the capacity to capture and analyze the data in-house, becoming the lead technical resource providing support to teams across the country who are diving into thermal imaging work. “Then we could provide the service at a much more accessible cost for a Trout Unlimited chapter, a regional conservation organization, or the Forest Service,” said Jake Lemon, TU’s Monitoring and Community Science Manager, who is pioneering this effort. “We want to make this data more accessible to groups that are doing good on-the-ground work in Michigan, and hopefully elsewhere as it grows.”

TU staff had the pleasure of taking the Flylords out on the river to see the drone work firsthand. You can read about their experience [here](#).



TU's Jake Lemon and Matthias Bonzo running a drone flight on Michigan's Muskegon River. Photo courtesy of Cobi Pellerito.

TU also worked closely with U.S. Forest Service partners in 2022 at the **Geospatial Technology and Applications Center** and **Northern Research Station** to dial in and create guidance documents on the best practices for acquiring, processing, and using these thermal images. Next year, we'll continue working toward our goal of enabling the mapping of thermal refugia and groundwater discharges along rivers to inform land protection, stream reconnection, and in-stream restoration efforts.

You can contact Jake Lemon (jlemon@tu.org) to learn more about our science efforts or find ways to get involved.

Fostering Future Great Lakes Stewards

Engaging the next generation of stewards and anglers has long been a focal point of TU's Great Lakes team, and 2022 was a particularly meaningful year in that regard. Thanks to a grant from the **Great Lakes Fisheries Trust**, TU developed a new partnership with Kentwood Public Schools in the Buck Creek watershed, an urban trout stream that flows into the Grand River in Grandville, Michigan. Kentwood Public School District is the most diverse in the state of Michigan, with students born in over 60 different countries and more than 80 different languages spoken.

TU staff had the pleasure of working closely throughout the year with the Southwood Elementary School Science Club, a group of students with an affinity for science that meets monthly after school together, led by 4th grade teacher Mrs. Maureen Kaczanowski. Buck Creek meanders behind the school, providing an ideal opportunity for hands-on, place-based learning.

Each month, students explored a different aspect of the stream, from the surprising stream insects to the healthy habitat elements and surrounding land use. In the spring, students made connections between healthy water and trout streams to the joy of fly fishing and fly tying, and all the scientific facets that an angler learns to improve their craft.



Students determine the water quality of Buck Creek using macroinvertebrates.

At the end of the year, students transformed what they learned about their home waters into stewardship, working to remove invasive species along the creek and plant native flowers that are beneficial to water quality and the ecosystem. This partnership allowed for thoughtful, purposeful learning and relationship building with bright students eager to dig deeper into the science field, and it's been incredibly rewarding to engage these students in watershed education, fly fishing, and stewardship.

TU worked with over 600 students over the last year, from **STREAM Girls** camps to salmon releases and tree plantings, and we're looking forward to inspiring more future Great Lakes stewards in 2023.

You can contact the Great Lakes Engagement Coordinator, Jamie Vaughan (jvaughan@tu.org), to learn more or get involved in community activities in the Great Lakes.

Holding the Line on the Great Lakes

In 2022, TU ramped up efforts to address the threat of invasive carp in the Great Lakes. In the spring, nearly 600 advocates reached out to their legislators using TU's **Take Action** center, making their voices heard on this exigent issue. Specifically, TU and its supporters urged for greater federal funding for the Brandon Road Lock and Dam project in Illinois, our last and best chance to block carp from the Great Lakes. This would be achieved by increasing the federal share of the project costs from 80% to 100% in the Water Resources Development Act of 2022.

At TU, we recognize that the Great Lakes are our nation's greatest freshwater resource, and their safeguarding should be of national importance. The Great Lakes support a \$7 billion fishery and a \$16 billion tourism industry annually. Invasive carp pose a significant threat to the health of the Great Lakes and the economy of the eight Great Lakes states that they support.

At the end of 2022, it was clear that Congress did hear our message. In December, Congress finalized the Appropriations package, and the Water Resources Development Act of 2022 increased federal funding from 80% to 90%. While Great Lakes stakeholders were not able to secure full federal funding, we were pleased to see the boost of federal dollars and acknowledgement by our legislators that the Great Lakes are a national priority.

There's much more work to be done to ensure the Great Lakes are getting the abundant attention and investment they deserve, like demonstrating the success of funding from the Great Lakes Restoration Initiative, securing increased Great Lakes funding, and letting our elected officials know that the Great Lakes health matters to their constituents. We look forward to advocating for our region's resources in the coming year.

You can read more about Great Lakes issues in **A Case for the Great Lakes**, produced by the Trout Unlimited National Leadership Council Great Lakes Workgroup.

How Do We Track Success?

Trout Unlimited plans and prioritizes our projects using science, and that's the same approach we take to tracking the success of our projects.

While we love to hear anglers tell us that fishing is better in places where we've been doing work — and we hear that a lot — we also need to collect data that proves that there really ARE more fish. **Electrofishing** is the primary way we gather that information.

When electrofishing, we send an electrical current into the water. The current temporarily stuns fish so we can net and collect them.

On larger rivers and lakes, boats and rafts are typically the platform for e-fishing, with gas-powered generators powering the shocking gear. On smaller waters, **we use backpack units fitted with batteries.**



Electrofishing and tagging fish in Michigan with our partners at the US Fish and Wildlife Service

While a single electrofishing trip can give us a good idea of what fish live in a given stream or lake, the best way to track trends is to collect information over time. We will collect fish over a specific stretch of stream or for a specific time, then measure and weigh the fish, which can help us track growth rates, spawning success and other key metrics.

Electrofishing can be a lot of fun. It can be thrilling to see a giant trout come to the surface when surveying a tiny creek. It's also a lot of work. But, like the other work that we do, the hard work pays off.

Who's Who with TU's

Great Lakes Program:

Nichol De Mol, Great Lakes Habitat Program Manager
Chris Collier, Great Lakes Stream Restoration Manager (WI)
Jeremy Geist, Great Lakes Stream Restoration Manager (MI)
Sarah Topp, Great Lakes Stream Restoration Manager (MI)
Matthias Bonzo, Great Lakes Project Coordinator (MI)
Danielle Nelson, Great Lakes Project Coordinator (WI)
Emma Balliet, Great Lakes Field Coordinator (WI/MI)
Kyle Dankert, Great Lakes Field Coordinator (MI)
Jacob Lemon, Monitoring and Community Science Manager
Scott Allen, Great Lakes Stream Restoration Specialist
Chad Kotke, Great Lakes Stream Restoration Specialist
Jamie Vaughan, Great Lakes Engagement Coordinator

New Staff Highlights

TU's Great Lakes team continued to grow throughout 2022, gaining three additional full-time staff to support its protection and restoration efforts.



Scott Allen, Kyle Dankert and Emma Balliet

In July, Scott Allen (left) joined the team as our second Great Lakes stream restoration specialist. In this position, Scott works with the Great Lakes team to help with aquatic organism passage and stream designs in Wisconsin and Michigan. Scott is a professional engineer and certified floodplain manager with expertise in water resources

engineering, design, and construction. Scott is a lifelong outdoorsman with a deep-rooted passion for protecting and restoring natural resources, including aquatic habitat.

We are pleased to welcome Kyle Dankert (center) as our full-time field coordinator working in Michigan. Kyle has been with TU as a part-time employee since 2020, where he navigated through COVID-19 restrictions to help us inventory and assess culverts in the Upper Peninsula of Michigan. Since then, Kyle has been our lead field technician assisting us in a variety of data collection efforts, from culvert assessments to invertebrate and fish surveys. As a field coordinator, Kyle will continue to help coordinate our field work and crews and support Great Lakes staff with his skills in botany, GIS, photography, and much more.

Emma Balliet (right) also joined the team as a field coordinator in Wisconsin and Michigan's Upper Peninsula, after spending two field seasons working as a field technician. Like Kyle, Emma will coordinate field work and seasonal crews to collect valuable data through fish surveys, biological monitoring, temperature studies, and support the Great Lakes team with her passion for conservation, limnology, and stream ecology. Emma lives in Marquette where she enjoys all the recreation they have to offer, from hiking and kayaking to camping and snowboarding.

Get Involved

Interested in volunteering on a restoration project, collecting data, advocating for the Great Lakes, and more? Reach out to Jamie Vaughan (jvaughan@tu.org) to get connected with the Great Lakes program, and stay up to date by following our social media pages at facebook.com/GreatLakesTU and instagram.com/troutunlimitedgreatlakes



Volunteers planted 110 large trees along the newly daylighted stream at the Highlands with Land Conservancy of West Michigan

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