

Great Lakes Newsletter 2022

Trout Unlimited starts off 2022 with a new strategic direction, building on the great work that we have been doing. Under this new plan Trout Unlimited is building a foundation for the future of healthy waters and healthy fish on the strength of whole communities committed to their care and recovery across generations.

Our Great Lakes staff provide expertise in fisheries science, community engagement and project management that, when coupled with our meaningful connections to the communities we work in, translates to real conservation outcomes. Some of these outcomes over the past year include monitoring efforts to map stream temperatures using drone-mounted thermal cameras, inventorying more than 750 road stream crossings (which can be potential fish passage barriers), planting close to 19,500 trees along critical waterways, and reconnecting approximately 50 miles of coldwater stream habitat. More than 250 community volunteers played a meaningful role in the implementation of these projects.

The staff in the region continues to grow to meet the growing demands, with a total of nine full-time staffers now assigned to the region. In 2021 we were pleased to welcome Danielle Nelson in Wisconsin and Sarah Topp in

Michigan's Upper Peninsula to the Great Lakes team.



As always, if you have any questions about TU's work in the Great Lakes region, please reach out to the field staffers below, or to the team's leader, Nichol DeMol at nichol.demol@tu.org.

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

Great Lakes Stream Restoration – Michigan

Trout Unlimited's Great Lakes Stream Restoration staff had another productive year working in Michigan trout streams.

In 2021, we completed our sixth culvert replacement project on [Bigelow Creek](#), one of only two cold-water tributaries of the Muskegon River. The crossing at 58th St. was undersized, prohibiting fish passage while also creating sedimentation and flood resiliency issues. TU and partners replaced the undersized culverts with a channel-spanning timber bridge.



Before



After

Bigelow Creek

We have now reconnected over 20 miles of Bigelow Creek to the mainstem Muskegon, and with two more culvert projects we will have reconnected the entire Bigelow Creek watershed for resident and migratory fish.

TU worked in partnership with US Forest Service (USFS) staff in the Huron-Manistee National Forest, local conservation organizations, the Michigan Department of Natural Resources (DNR), and the Newaygo County Road Commission to complete the project. More information about the Bigelow Creek restoration effort can be found on [this story map](#).

TU also replaced two more crossings in the Hinton Creek watershed, bringing the total number of crossings completed to seven. We also replaced an undersized and failing culvert on Big Devil Creek in the Manistee watershed.



Before



After

Diamond Point White River

In partnership with the Huron-Manistee National Forest, TU completed a stream bank restoration on the White River at the Diamond Point Recreational Area and access site. Approximately 200 feet of bank was restored using whole trees and bioengineering practices to stabilize the slope while maintaining safe access for user groups. TU led a volunteer effort to replant the bank after construction was complete.

Working with Forest Service staff in the Huron-Manistee National Forest, TU field technicians continue to inventory and manage wood accumulations (such as channel spanning trees, log jams, etc.) in trout streams to maximize habitat benefits and provide safe passage for recreationists. The streams of primary focus are the White, the Pere Marquette, the Little Manistee and the Pine. The work is done by utilizing a mechanical grip hoist to reposition trees and woody material in the stream channel. This method helps to avoid cutting the trees into smaller pieces while minimizing disturbance during the process.

TU's Tree Army had its biggest year, planting 19,440 trees along critical stretches of coldwater rivers and streams.

The Tree Army initiative, which launched in the [Rogue River watershed](#) in 2018, expanded to new watersheds this year with plantings in the Pere Marquette, Muskegon, White, and Lower Grand River watersheds. These strategic plantings will not only add shade, bank stability, woody habitat, and flood management to West Michigan trout streams, but will also boost climate resiliency by assisting tree species migration due to a changing climate.



A work crew planting riparian trees where ash was lost to the emerald ash borer in the White River watershed.

Check out TU's new [Great Lakes Tree Planting Guide](#) to see how you can plant trees for clean water and climate change. TU's Tree Army will be back on the ground starting in March 2022 for another impactful year of science-driven coldwater restoration.

TU field staff continued its monitoring efforts in Northern Michigan trout streams, conducting water quality, fish and invertebrate surveys at more than 25 sites in the White, Pere Marquette, Little Manistee, Pine, Manistee and Au Sable watersheds across the Huron-Manistee National Forest. Additionally, TU and partners continue to collaborate and monitor for the invasive [New Zealand Mud Snail](#) in trout streams throughout Michigan.



Engaging and educating the public about the values of coldwater streams and National Forest Wild and Scenic Rivers helps to promote stewardship and conservation of these incredible resources. [TU continued to partner with the Huron-Manistee National Forest with a River Stewardship program](#) and brought on eight additional interns in 2021. The “River Rangers” were stationed along popular cold-water streams within the National Forest and provided public outreach and information to river users. The interns also participated in community-based events such as trash cleanups and stewardship events, and assisted TU field staff with water quality monitoring and restoration projects.

In Michigan’s Upper Peninsula, TU partnered with the Forest Service to provide seasonal technicians to collect habitat and biological data to help prioritize future work. In 2021, TU teamed with the Ottawa National Forest to remove remnant dam pieces and pilings in the East Branch Ontonagon River (above, right), opening approximately 20 miles of coldwater habitat.



TU staff is also working with the Michigan DNR to assess road-stream crossings across the western UP on state-managed roads and assessed nearly 1,000 crossings, which can be barriers to fish passage, during the 2021 field season.

Culverts at a dam on the Ottawa National Forest

TU staff are looking forward to the work lined up in 2022 in Northern Michigan's Lower Peninsula. Plans for the Manistee River, Muskegon River, Pere Marquette, White River and Au Sable River watershed include six to eight culvert replacement projects and several habitat-improvement projects. This work will add to the more than 75 miles of already reconnected habitat in these watersheds.

In the Upper Peninsula, several culvert replacement projects and a dam-removal project will be implemented in the East Branch 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. Additional efforts include a culvert replacement project on Spargo Creek as well as Trout Creek at Calderwood Road.

TU staff will continue to work with federal, state and local partners in 2022 to inventory cold-water biological communities, to monitor for invasive species and to assess problematic culverts throughout Michigan.

To learn more about TU staff projects and initiatives in Michigan, including volunteer opportunities, please reach out to Jeremy Geist (jeremy.geist@tu.org), Matthias Bonzo (matthias.bonzo@tu.org), or Sarah Topp (sarah.topp@tu.org).



Great Lakes Volunteer Engagement

In the summer of 2021, [TU's STREAM Girls](#) program had its most influential year yet in Michigan. TU staff and partners offered six STREAM Girls camps for more than 100 Michigan girls, engaging them in hands-on STEM activities as well as fly casting and tying.

For the first time, TU launched programs on the east side of the state, and hosted camps in three of Michigan's top five most diverse counties, offering quality environmental education to those who don't often have such opportunities.

TU also engaged and trained 13 new partner organizations and 28



A STREAM Girl exploring the macro-invertebrates in the Rouge River in Inkster, Mich.

volunteers in the program, which will greatly augment TU's capacity to continue to expand the program for more girls in the future. New partners included [Friends of the Rouge](#), [Camp Inspire](#), [Girl Scouts of Southeastern Michigan](#), [Camp Newaygo](#), [Clinton Valley Trout Unlimited](#), and more. TU is grateful for those who shared their expertise, passion, and time to help build girls' confidence in STEM and outdoor recreation and we look forward to another exciting year for STREAM Girls in 2022.

In addition to STREAM Girls, TU staff engaged over 1,000 students in hands-on citizen science, watershed restoration, and outdoor recreation. This included an intro to fly fishing with the Refugee Education Center, analyzing the health of the Grand River with the YMCA of Greater Grand Rapids, and working with eight local schools to monitor streams, study macroinvertebrates, plant rain gardens, and much more.

Jamie Vaughan is the Great Lakes Engagement Coordinator and can be contacted at jamie.vaughan@tu.org.



Southwood Elementary Science Club students studying the water quality of Buck Creek in Kentwood, Mich.



Northern Wisconsin Stream Restoration

TU staff had another productive year reconnecting and restoring habitat for trout and other coldwater species across northern Wisconsin's Great Lakes watersheds in 2021.

In northeast Wisconsin, we completed five road-stream crossing replacement projects reconnecting over 15 miles of coldwater habitat. Highlighting our reconnection efforts was a project on Rock Creek, a coldwater tributary to the Peshtigo River in Forest County.

The road crossing at Forest Road 2131 is within 500 feet of the Peshtigo River, disconnecting nearly the entirety of Rock Creek (including important spawning and cold-refuge habitat) from the Peshtigo system. By replacing the two culverts that created the aquatic organism passage barrier with a single-span concrete crossing we reconnected more than 9 miles of coldwater habitat.



Rock Creek after restoration.

A huge thank you to our project partners, including the US Forest Service, [National Fish and Wildlife Foundation Sustain Our Great Lakes Program](#), US Fish and Wildlife Service, [Great Lakes Fish Habitat Partnership](#) and [National Fish Passage Program](#), [Wisconsin DNR](#), the [Fund for Lake Michigan](#), [The Brico Fund](#), and our chapter members and volunteers for supporting this project and our aquatic organism passage program.

Jumping to the northwest corner of Wisconsin and the Lake Superior Watershed, we partnered with the Forest Service to restore aquatic habitat in the Marengo River.



Marengo before restoration.

The Marengo is a Class 1 trout stream at the project location, provides excellent brook trout fishing opportunities in the [Chequamegon-Nicolet National Forest](#), and is expected to be resilient to rising air temperatures from climate change, making it an important system to protect.

Historic flooding in 2016 scoured vegetation from the river's banks, creating major erosion issues and degrading in-stream habitat. The Forest Service designed a large wood restoration project that will stabilize the eroded banks, protecting them from future flooding while vegetation returns, and restored habitat in the Marengo. TU received funding from the [National Fish and Wildlife Foundation's Sustain Our Great Lakes Program](#) to implement the project and worked with Forest Service staff to oversee construction.

With the 2021 construction season behind us our team is working with the Forest Service, Fish and Wildlife Service, town and county governments, and state agencies to develop projects for 2022 and beyond. This includes exploring new opportunities offered through the recently passed [infrastructure bill](#) to find new ways to fund projects that improve infrastructure and community flood resiliency and protect and restore coldwater habitat. We are excited by the continued growth of our northern Wisconsin programs and cannot wait to see how that growth continues over the coming years.



Marengo after restoration.

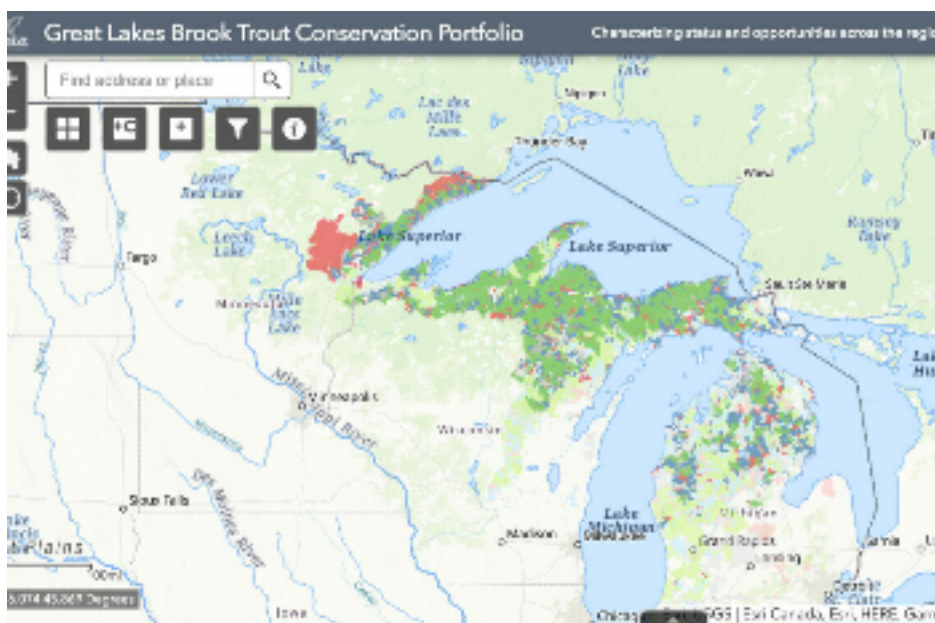
For more information on TU's stream restoration efforts in Northern Wisconsin, including volunteer opportunities, please reach out to Chris Collier at chris.collier@tu.org or Danielle Nelson at danielle.nelson@tu.org for information.



Great Lakes Science

TU had another year of growth in our science capacity in the Great Lakes.

This fall we released our [Great Lakes Brook Trout Conservation Portfolio](#) (right). Developed in partnership with the [National Fish and Wildlife Foundation](#) (NFWF), the Portfolio uses broad-scale spatial information to assess the characteristics of populations, habitat condition and vulnerability, and helps TU and our partners assess and prioritize watersheds where restoration and protection actions will have the best impact.



In 2021, TU kicked off another collaborative effort with NFWF, aimed at monitoring the effectiveness of its [Sustain Our Great Lakes](#) program, which funds aquatic organism passage, habitat restoration and other conservation projects that benefit brook trout. Over the summer, TU staff conducted fish community surveys at sites around the state of Michigan where NFWF has invested, with the goal of evaluating population responses to funded projects.

We also continued our work with the Forest Service to evaluate coldwater habitat suitability and species distribution in the Huron-Manistee National Forest. Efforts in 2021 were focused on the White River, Little Muskegon River and Big South Branch of the Pere Marquette.

This past year also saw the development of a new monitoring program in Northeastern Wisconsin's Lake Michigan basin.



With the addition of new staff, TU was able to deploy Radio Frequency Identification (RFID) arrays at two key project sites in Oconto County,

Wisconsin. These RFID arrays will allow TU to monitor brook trout passage at two culverts slated for redesign and replacement in the coming years.

The existing road crossing structures at these sites are thought to be a barrier to brook trout movement, blocking trout from reaching critical coldwater habitat upstream. Data collected through this monitoring program will allow TU staff to quantify any brook trout movement through the existing structures at this time, and through the newly redesigned fish-friendly structures that will be installed during upcoming construction seasons.

In July and August of 2021, TU partnered with the Forest Service and the Fish and Wildlife Service to electroshock brook trout in Barney Spring and McDonald Creek (above right) and tag the native fish with Passive Integrated Transponders, or PIT tags. Between the two streams, TU and partners tagged 200 brook trout ranging in size from 4 inches to over 14 inches.

TU staff from Wisconsin and Michigan constructed the RFID arrays at the two project sites in early summer 2021. The RFID arrays consist of an upstream and downstream antenna that record each time a trout with a PIT tag passes through the looped antenna. Using this data, TU staff can not only determine if brook trout are passing through the array, but also in which direction they are going, and when and how frequently each tagged trout is moving through the area.

This invaluable data will not only allow TU and partners to evaluate existing and replacement road-stream crossing structures but will also provide data about brook trout movement and habitat utilization. Additionally, with plans to repeat the tagging process at each site on an annual basis, TU and partners will be able to collect data about brook trout growth and survival rates in these streams.



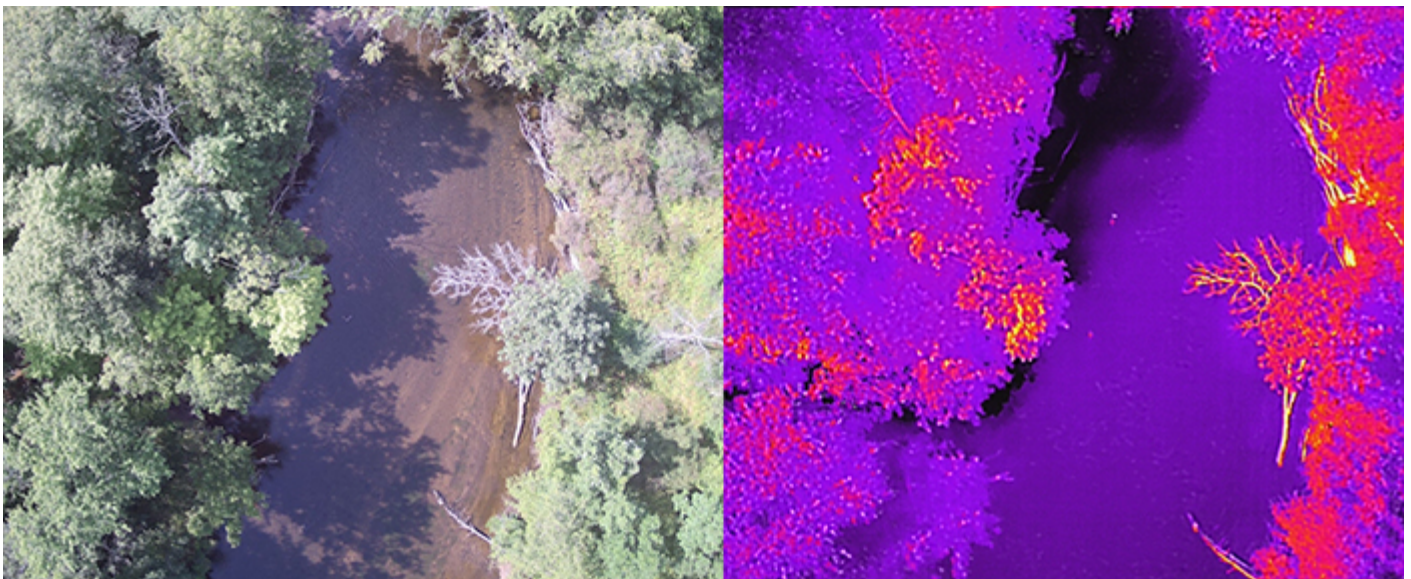
U.S. Forest Service staff teaching TU interns how to PIT tag brook trout at Barney Spring in Oconto County in summer 2021.

TU is eager to continue these new monitoring programs over the coming field seasons and is exploring the potential to expand the RFID monitoring program to other project sites in Northeastern Wisconsin.

We continue to support TU chapters, watershed associations and other partners around the state to enhance their water monitoring activities using the [EnviroDIY Sensor Station](#), a low-cost real-time stream monitoring technology. Supply chain issues slowed the program, but have been resolved for the time being, and we are set to add to the 25 stations already deployed around the state. The success of this program has led to similar efforts around the country, including New York and Oregon. In 2022, we'll continue to deploy additional stations and will be developing a new field manual for groups using these stations.



TU tested RFID antennas by taping a PIT tag to a frisbee and throwing the frisbee through the culvert.



Infrared before and after.

TU conducted our first flights mapping stream temperatures using drone-mounted thermal cameras. This enables us to map stream temperature in fine scale to identify seeps, springs and tributaries providing thermal refugia to coldwater species, improving our ability to factor climate resiliency into our project prioritization. In 2022, we'll be working the [USFS Geospatial Technology Assistance Center](#) to dial in the tools and methods for these surveys.

Also, in 2022, we'll be using new methods for evaluating groundwater influence using paired air and water temperature sensors. These methods allow for differentiating shallow vs. deep groundwater sources, further aiding our understanding of climate resiliency in the streams and rivers where we work.

If you would like to learn more about TU's science efforts in the Great Lakes region, including volunteer opportunities, please contact Jake Lemon



at Jacob.lemon@tu.org.



Great Lakes Advocacy

Invasive carp remain one of the most serious threats to the Great Lakes region. Their introduction into the Great Lakes would significantly disrupt the region's ecosystem as well as devastate a multi-billion dollar recreational and commercial fishing economy.



The U.S. Army Corps of Engineers has a plan to stop their movement with the [Brandon Road Lock and Dam project](#) located

in Illinois, but the project needs funding to begin construction. Partial federal funding was provided in the Infrastructure Investment and Jobs Act, but additional federal funding is still required.

Because the timely success of this project is of national importance, the federal government should act now and provide 100% project funding. Through TU's Take Action center, we have [made it easy to contact your legislators today](#) to urge them to support this funding and protect the health of the Great Lakes for future generations.



Meet our new staffers

TU's Great Lakes team welcomed two full-time staff members in 2021.

Danielle Nelson joined the TU Great Lakes team in May 2021 as the Northern Wisconsin Project Coordinator and is based in Green Bay.

Sarah Topp resides in Michigan's Upper Peninsula, where she is the Upper Peninsula Stream Restoration Manager.

Danielle is a native of Green Bay, and is excited to be working to improve her home state's coldwater resources.

Danielle previously worked with the University of Illinois at the Illinois Coastal Management Program in Chicago, where she focused on wetland mapping and research and water quality management in the Lake Michigan watershed.

Danielle will be working to improve stream connectivity and habitat quality in northern Wisconsin's Lake Michigan basin. As Project Coordinator, she is working with local and regional partners and agencies such as the US Forest

Service and US Fish and Wildlife Service to ensure projects are successfully completed. During the field season, Danielle will be building on her busy 2021 season by coordinating with partners, TU interns, and seasonal technicians to complete road-stream crossing surveys, monitor brook trout populations, and improve riparian and in-stream habitat throughout northern Wisconsin.

Danielle has a Master of Science degree in Environmental Science from the University of West Florida and a Bachelor of Science in Biology from Northern Michigan University. She is an avid outdoorswoman and loves hiking, camping, biking, and taking every opportunity to enjoy the outdoors. In the summer months she can be found at her family's lakeside cottage in Northern Wisconsin or kayaking one of our many scenic rivers. In the winter months, Danielle enjoys snowshoeing nearby trails and skiing and snowboarding in Michigan's Upper Peninsula and on annual trips to Colorado.



Danielle Nelson

Sarah will work on various cold-water conservation projects enhancing trout streams across the UP region. She comes to TU with a background in engaging volunteers in [Michigan United Conservation Club's](#) statewide [On the Ground](#) wildlife habitat improvement program on public lands, and developing leaders in conservation through [Huron Pines AmeriCorps](#) program.

Sarah also volunteers her time as Chair of the Michigan Chapter of [Backcountry Hunters & Anglers](#) and is a regional Leader with [Artemis Sportswomen](#). These avenues allow her to share her passion for hunting upland birds, waterfowl, and angling with other women.



Sarah Topp and Timber

Sarah is an avid hunter, angler and forager who can often be found pursuing grouse, woodcock, pheasant and waterfowl with her 4-year-old German shorthaired pointer, Timber. She also enjoys fly-fishing for brook trout and trolling for walleye in the UP's many streams and rivers.



For year-round updates from Great Lakes staff, follow us at facebook.com/GreatLakesTU and on Instagram at [@troutunlimitedgreatlakes](https://troutunlimitedgreatlakes)

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