

MN AFS Committee updates, compiled – for Feb 2026 Duluth business meeting

Arrangements – Kristen Patterson  
Awards – Kamden Glade & Keith Reeves  
Communications – Andrew Hafs  
Continuing Ed – Amanda Craft  
DEI – shifting to FishCAST – vacant  
Fisheries Roundtable – Mark Hove  
Fundraising – Ryan Carrow  
Historian – Brian Borkholder  
Issues – (past president) Eric Altena  
Long Range Planning – Jacquelyn Bacigalupi  
Lota Fisk Gazette newsletter – Craig Kelling  
Membership – Joel Hoffman, Calub Shavlik  
Nominations – (past president) Eric Altena  
Resolutions – Brian Nerbonne  
Scholarships – Jay Hatch, Mark Hove, Sue Colvin  
Science Fair – Matt Ward  
Students – Eddie Carlson (new student liaison)  
Students – subunit leaders, if present  
Wildlife Society – Heather Baird

**NCD:**

Centrarchid – Ryan Carrow  
Esocid – Kamden Glade  
Ictalurid – Tony Sindt  
Rivers and Streams – Amanda Craft  
Salmonid – Nick Peterson  
SECPAC – Kamden Glade, Levi Suchla  
Urban Fishing – Rebecca Bullers  
Walleye – vacant

**Awards Committee** – Kamden Glade, chair

We continued to refine the process to award the Dennis H. Schupp Award of Excellence over the past year, including minor revisions to award criteria and assembling a review team that includes representatives from the three primary sectors (DNR, federal, academia). Our biggest challenge continues to be a relative lack of nominations for awards, particularly the Schupp Award. If you know or work with someone who's made substantial contributions to fisheries science in Minnesota (including yourself!), let us know.

**Communications** – Andrew Hafs

I continue follow the Presidents orders as they relate to the website and the google email list. I keep those up to date, run chapter meeting registration, abstract submissions, and all required elections.

## **NCD Committees**

### **Esocid Technical Committee – Kamden Glade, representative**

The Esocid Technical Committee (ETC) once again awarded a travel scholarship to the Midwest Fish and Wildlife Conference. Applicants have been limited for the last several meetings, so any students working on research related to esocids are strongly encouraged to apply. Due to travel restrictions for many state representatives, the ETC will hold their winter business meeting virtually on February 19. More information is available at <https://ncd.fisheries.org/esocid/>.

### **Student and Early Career Professional Affairs Committee – VACANT**

If anyone is interested or has questions about this committee, feel free to contact Kamden Glade, past co-chair. More information is available at <https://ncd.fisheries.org/student-and-early-career-professionals/>.

### **Minnesota AFS Salmonid Technical Committee Update (2026): Northern Minnesota**

Nick Peterson, NR Fisheries Specialist Intermediate, Lake Superior Area, Minnesota  
DNR

Below is an update of recent or ongoing salmonid projects and habitat work in Northern Minnesota for the Minnesota American Fisheries Society's Salmonid Technical Committee (STC). Doug Dieterman and I co-chair the committee—I cover northern Minnesota, and Doug covers southeast Minnesota. This summary can be added to and shared with the North Central Division's STC at the next Midwest Fish and Wildlife Conference.

#### **Executive Summary**

This update summarizes recent and ongoing salmonid research, monitoring, and habitat work in northern Minnesota led by the Minnesota Department of Natural Resources and many partners. In total, the document describes more than 20 projects and studies that have been completed recently or are now underway across Northern Minnesota. This work includes stream and floodplain restoration projects, numerous culvert and bridge replacements to improve fish passage, riparian forest restoration, and routine stream surveys and temperature monitoring. Staff and partners are also

carrying out several applied research efforts including shore wide genetic studies of brook trout, PIT-tag and telemetry studies of salmonid movement, and focused studies of coaster Brook Trout ecology and shoreline spawning. This work has been supported by a mix of state, federal, and partner funding, including the Great Lakes Restoration Initiative (GLRI), Minnesota Outdoor Heritage Fund (OHF), Minnesota Legacy and Clean Water/Conservation Partners Legacy programs, EPA Section 319, National Fish Passage Program, and contributions from partners such as Minnesota Trout Unlimited, Lake Superior Steelhead Association, counties, and local governments. More detail on individual projects and studies is provided in the sections that follow.

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# MN DNR: Duluth Area Fisheries

Dan Wilfond, Duluth Area Fisheries Supervisor, Minnesota DNR

## Kingsbury Creek Remeander

**Waterbody:** Kingsbury Creek (St. Louis River)

**Project Partners:** South St. Louis Soil & Water Conservation District and the Minnesota Department of Natural Resources

**Funding Mechanisms:** Grant and cost-share support typical of SWCD-DNR partnerships (e.g., state and local conservation funds and potential Clean Water/Legacy grant programs).

The Kingsbury Creek Remeander project near Proctor, Minnesota is a planned stream restoration effort scheduled to begin in 2026 that will remeander a previously ditched and channelized section of Kingsbury Creek to restore natural channel form and function. The project, led by the South St. Louis Soil & Water Conservation District in partnership with the Minnesota Department of Natural Resources, will focus on reconstructing a more natural stream alignment, improving in-stream habitat complexity, stabilizing banks, and enhancing floodplain connectivity. These actions are intended to improve fish passage, increase habitat quality for coldwater species, and enhance overall stream resilience and geomorphic stability in this Lake Superior watershed tributary.

## Buckingham Creek Restoration

**Waterbody:** Buckingham Creek (Lake Superior South)

**Project Partners:** Minnesota Department of Natural Resources, the City of Duluth, the South St. Louis Soil & Water Conservation District, and the Minnesota Pollution Control Agency.

**Funding Mechanisms:** U.S. Environmental Protection Agency's Great Lakes Restoration Initiative, Minnesota Legacy Amendment programs (including the Clean Water Legacy/Conservation Partners Legacy grants), and local cost-share or direct financial support from the City of Duluth.

The Buckingham Creek Restoration project in Duluth, Minnesota was a collaborative effort completed in 2025 to restore cold-water stream habitat through the Enger Park Golf Course, where historical alterations had degraded trout habitat. Partners including the Minnesota DNR, City of Duluth, South St. Louis Soil & Water Conservation District, and the Minnesota Pollution Control Agency re-meandered and restored over 3,000 feet of Buckingham Creek, replaced migration-blocking culverts with bridges, and enhanced in-stream features to improve fish passage and ecological function. Native brook trout were protected during construction, and the project was funded through sources such as the EPA's Great Lakes Restoration Initiative and Minnesota conservation grant programs, resulting in a more resilient trout stream and improved recreational and ecological outcomes.

## Duluth Area Trout Management Updates

The Duluth Area is contributing to the statewide initiative to update trout stream/lake designations in 2026. In Duluth, 28 new miles of trout stream designation are proposed, while 16 miles (and one lake) are being proposed to be removed from trout designation. Work also continues with partners to upgrade culvert structures to improve fish passage and stream stability, while also working to address on-going threats to trout local resources associated with chloramine contamination.

## MN DNR: Finland Area Fisheries

Matt Weberg, Finland Area Fisheries Supervisor, Minnesota DNR

### Mattson Road Culvert Replacement

**Waterbody:** Unnamed Tributary to the Baptism River (LS-North)

**Project Partners:** Trout Unlimited, Crystal Bay Township, Finland Fisheries

**Funding Mechanisms:** Outdoor Heritage Funds allocated through Minnesota Trout Unlimited

This stream crossing prioritized for replacement due to the cold water it supports throughout the summer and its connection the lower Baptism River, a priority stream and watershed for climate resilience projects. During a June 2024 flood event experienced by the area Mattson Rd was partially washed out at the crossing, cutting off access to multiple properties including a trout pond visited weekly by residents of the Veteran's home in Silver Bay. Construction of the new open-bottom aluminum arch culvert was completed in July 2025.

### Hockamin Creek Watershed Culvert Replacements

**Waterbody:** Unnamed Tributary to Hockamin Creek (LS-North)

**Project Partners:** Finland Fisheries, MN DNR Two Harbors Forestry, MN DNR Two Harbors Parks and Trails

**Funding Mechanisms:** EPA Great Lakes Restoration Initiative, Outdoor Heritage Fund

The Hockamin Creek sub-watershed (tributary to Baptism River) has been prioritized for culvert replacement efforts. Connectivity within the stream network was fragmented by seven culverts acting as barriers prior to the start connectivity work in the watershed. Over 20 miles of the stream network have been reconnected through fish passage projects completed up to 2025. Two barrier culvert replacements will be completed in 2026 on a tributary to Hockamin Creek which will essentially open the entire sub-watershed to fish and aquatic organism passage.

### Restoring and Enhancing Riparian Forest Resilience

**Waterbody:** Numerous watersheds/streams within LS-North

**Project Partners:** The Nature Conservancy, Finland Fisheries

**Funding Mechanisms:** EPA Great Lakes Restoration Initiative

Restoration or enhancement of riparian forests through creation of riparian gaps (75-100ft diameter) in areas devoid of canopy cover to allow for planting and establishment of long-lived conifer or other climate resilient species (10-20 trees planted per gap). This project will result in the restoration/enhancement of 200 acres of riparian forest within priority trout stream watersheds. This is a small project under the umbrella of a shore-wide initiative to restore riparian habitat along lakes and streams to enhance climate resilience of our forests and wildlife (fish included).

## Stewart River Habitat Restoration Repair Project

**Waterbody:** Stewart River (LS-South)

**Project Partners:** DNR Region 2 Clean Water Staff, Trout Unlimited, Wildland Hydrology, Finland Fisheries

**Funding Mechanisms:** OHF funding allocated through Minnesota Trout Unlimited

Repair work on the restoration reach upstream of Big Rock Road was completed after several recent flood events destabilized and over widened portions of the reach. Repair work was completed in Fall 2025.

# MN DNR: Grand Marais Area Fisheries

E.J. Isaac, Grand Marais Area Fisheries Supervisor

Eddie Carlson, Grand Marais Area Assistant Area Fisheries Supervisor

## Stream Surveys & Temperature Monitoring

In 2025, Grand Marais area fisheries staff completed 15 stream electrofishing surveys on 10 streams, including both above and below barrier reaches, in Cook County, Minnesota. Some highlights from the past year of sampling:

- Electrofishing at mile 0.1 (below barrier) of the Onion River produced one of the highest catches of age-1+ steelhead (133.8 fish/1000 ft) observed since 1981.
- All three above barrier stations on the Cascade River produced catches of age-1+ brook trout that exceeded the management goal of 14.1 fish/1000 ft and brook trout up to 11 inches were observed.

A total of 22 temperature loggers were deployed adjacent to electrofishing stations to monitor stream water temperatures. Two major flooding events during the summer of 2025 resulted in the loss of two loggers. For most streams, temperatures remained within ranges considered suitable during the monitoring period. Water temperature information is still lacking for roughly 800 miles of streams in the Grand Marais area. To address this gap, we are expanding monitoring by deploying additional temperature loggers across watersheds to better understand cold-water inputs and thermal refuges, particularly for Brook Trout.

Degraded stream habitat sites were inventoried and prioritized to guide future projects at Devil Track, Cascade, and Poplar rivers.

Future work within the Grand Marais Area includes an evaluation of stream sampling and monitoring efforts and Grand Marais staff are discussing how we prioritize stream electrofishing surveys. Currently, Grand Marais completes electrofishing surveys at roughly 15 stations across Cook County (above and below barrier) during the month of August.

## Culvert & Bridge Replacements

**Partners:** Minnesota DNR, Minnesota Trout Unlimited, Minnesota Department of Transportation, Minnesota Pollution Control Agency, Cook County, and U.S. Forest Service

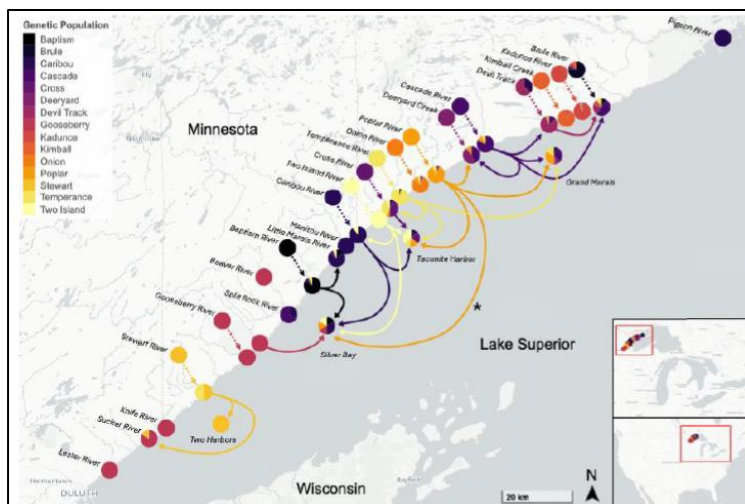
Approximately 10 culvert replacements and two bridge installations were completed, improving stream connectivity and aquatic organism passage. Culverts/bridges were replaced at Carlson Creek, Farquar River, Myhr Creek, Assinika Creek, Spruce Creek, Murmur Creek.

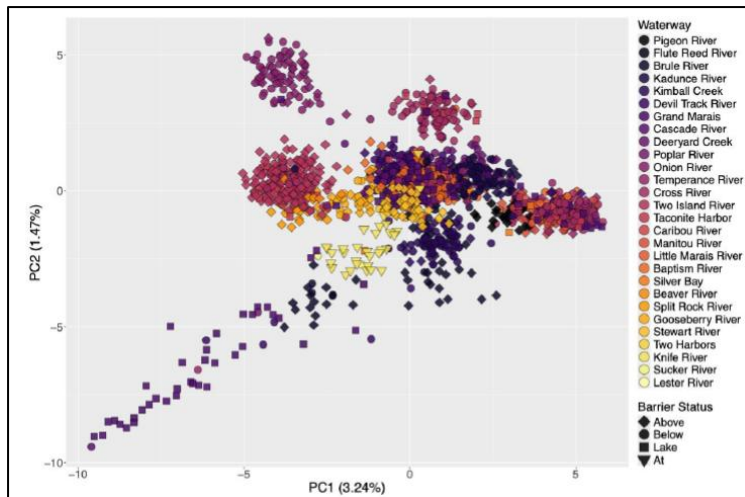
# MN DNR: Lake Superior Area Fisheries

## Genomic variation of brook trout along the Minnesota shoreline of Lake Superior: Implications for source-sink dynamics and coaster life history

Ben Kline, Nadya Mamoozadeh, Mariah Meek - Michigan State University  
Nick Peterson, Loren Miller, Cory Goldsworthy – Lake Superior Area Fisheries  
(In Review: Journal of Great Lakes Research)

The Minnesota DNR and partners completed a coast-wide genomic assessment of brook trout along the Minnesota shoreline of Lake Superior using thousands of SNP markers from >1,500 fish sampled in 24 rivers and four lake locations. The study shows that most above-barrier tributaries support genetically distinct resident populations shaped by natural barriers, while multiple rivers act as sources for coaster brook trout in Lake Superior, indicating a distributed, multi-source system rather than reliance on a few “core” rivers. Genetic assignments revealed extensive movement among below-barrier reaches and lake habitats, consistent with a broad management definition of coasters, but found little evidence that hatchery strains contribute meaningfully to wild reproduction. Estimates of effective population size suggest many source populations remain viable, providing a baseline for long-term genetic monitoring. Overall, the results emphasize the importance of conserving tributary source populations and connectivity to maintain life-history diversity and support resilient coaster brook trout populations under future environmental change.





## Salmonid Movement and Habitat Use in Minnesota Tributaries to Lake Superior

Dylan Undlin, Dr. Justin VanDeHey, Dr. Joshua Raabe - University of Wisconsin - Stevens Point

Nick Peterson, Cory Goldsworthy – Lake Superior Area Fisheries, Minnesota DNR  
(M.S. Project, UWSP, expected completion May 2026)

Minnesota tributaries to Lake Superior are relatively groundwater limited, and climate change is forecasted to reduce cold-water habitats in these tributaries. Native Brook Trout *Salvelinus fontinalis* and non-native Steelhead *Oncorhynchus mykiss* depend on cold, fluvial habitat for at least a portion of their life, but knowledge is limited regarding the habitat these Salmonids use especially during periods of stressful water temperatures and extreme flows. Therefore, our research aimed to 1) identify critical habitat (i.e. thermal refugia) for Salmonids, and 2) determine if movements of Salmonids were related to water temperature and flow. Salmonid movement was investigated in the Knife and Stewart River watersheds using 16 PIT arrays and radio telemetry. Between 2024 and 2025 we PIT tagged 1,010 Brook trout and 3,060 Steelhead and implanted radio transmitters in 42 adult Brook Trout and 18 Steelhead. Water temperature and flow data were collected by loggers stratified among sub watersheds. Summertime water temperatures in the lower Knife River periodically surpassed the lethal threshold for Brook Trout, indicating an ephemeral thermal barrier between headwaters and Lake Superior. Brook Trout movement was minimal for most of the study period, increasing only during the fall spawning period. However, some adult Brook Trout used more productive lower river habitat in the spring and early summer but used cooler headwater tributaries in late summer when water temperature peaked and flows decreased. Juvenile Steelhead generally used all habitats in the Knife River regardless of water temperature and flow. By identifying critical habitat and understanding habitat limitations for Salmonids in these watersheds we will help inform habitat conservation and restoration in the face of climate change.

# Food Web and Brook Trout Assessment of Lake Superior: Identification of Coaster Brook Trout Collected in Shoreline and Stream Surveys by Microchemical Analysis (Laser Ablation)

Troy Zorn – Michigan Department of Natural Resources

Kevin Pangle - Central Michigan University

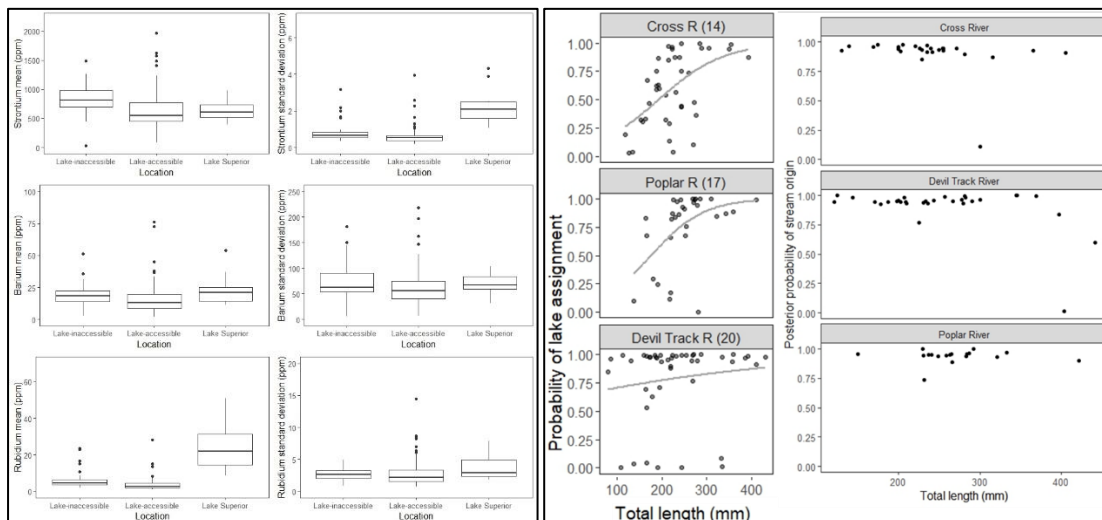
Brandon Gerig - Northern Michigan University

Nick Peterson - Lake Superior Area Fisheries, Minnesota DNR

H. Quinlan – US Fish & Wildlife Service

(final report submitted to funding source)

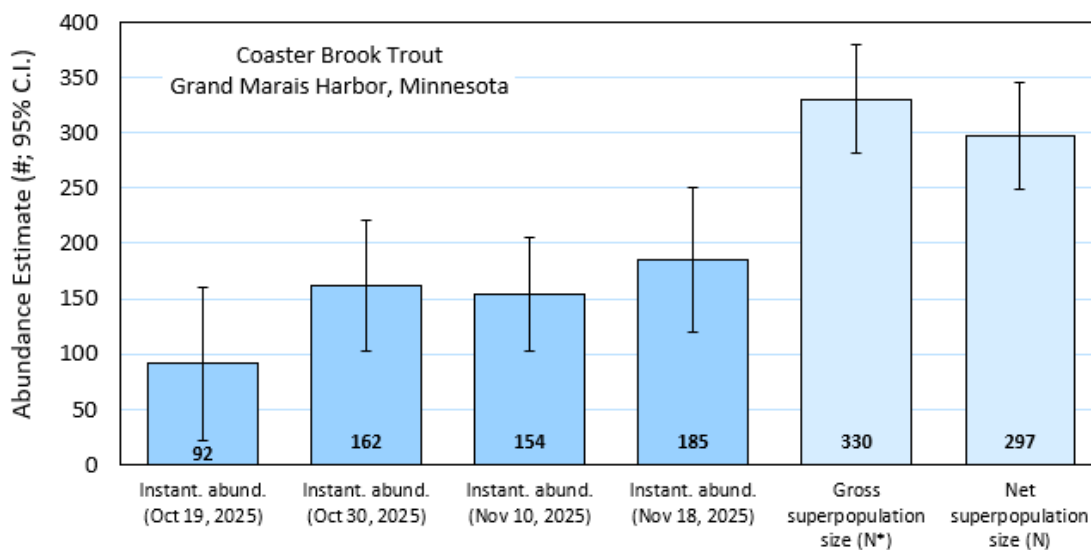
This GLRI project evaluated non-lethal methods for identifying adfluvial (coaster) brook trout in Lake Superior and its tributaries using stable isotope analysis of fin clips and microchemical analysis of maxilla bones. Across basin-wide samples, carbon stable isotopes ( $\delta^{13}\text{C}$ ) clearly distinguished lake versus stream foraging, allowing development of a discriminant model that classified fish to habitat with >97% accuracy and indicated that brook trout in lake-accessible streams often show intermediate signatures consistent with lake use or lake-derived energy subsidies. In contrast, laser-ablation microchemistry of maxillae (Sr, Rb, Ba) successfully differentiated lake versus stream fish at capture but did not reliably retain a historical signal of past lake residency, likely due to bone turnover, and therefore showed limited utility for reconstructing migratory history. Overall, the study concludes that stable isotopes are a promising, scalable tool for detecting coaster life histories in tributary surveys, whereas maxilla microchemistry requires further validation or alternative methods; the authors recommend integrating isotopes with emerging genomic approaches to better identify source populations and guide coaster brook trout restoration across Lake Superior.



# Ecology and Abundance of a Recently Documented Shoreline-Spawning Coaster Brook Trout Population in Grand Marais Harbor, Lake Superior

Nick Peterson - Lake Superior Area Fisheries, Minnesota DNR  
(Minnesota DNR Report, *in review*)

Boat electrofishing surveys conducted during fall 2024 and 2025 in Grand Marais Harbor, Minnesota, documented a previously unrecognized shoreline-spawning population of Coaster Brook Trout (*Salvelinus fontinalis*). Targeted nighttime surveys revealed consistently high catch rates during fall (14.3–31.7 fish/km), substantially exceeding those observed during summer shoreline sampling and indicating strong seasonal aggregation of adults associated with spawning activity. Spawning adults represented a broad range of sizes and spawning was not restricted to the largest fish in the population. Repeated surveys across the fall spawning period in 2025 showed that adult abundance within the harbor increased through time, while spawning readiness was concentrated within a narrower temporal window from late October through early November, coinciding with water temperatures of approximately 45–50°F. Open-population mark–recapture modeling using PIT-tag encounter histories estimated that approximately 330 adult Brook Trout used Grand Marais Harbor at some point during fall 2025, highlighting the importance of accounting for immigration and emigration when evaluating shoreline-spawning Brook Trout. In addition, direct counts of active redds revealed spatial clustering within discrete shallow nearshore segments, indicating non-uniform use of harbor shoreline habitat. Collectively, these findings demonstrate that Grand Marais Harbor supports a reproductively active shoreline-spawning Coaster Brook Trout population of management significance. This study provides the first quantitative baseline for adult abundance, spawning timing, size structure, and spatial habitat use within the harbor, and establishes a foundation for future monitoring, habitat protection, and conservation planning for shoreline-spawning Brook Trout in Lake Superior.



# MN DNR: Stream Habitat Program

Brady Swanson, Stream Habitat Specialist, MN DNR

## LSSA Reach 15 Habitat Project

**Waterbody:** Knife River (Lake Superior South)

**Project Partners:** Lake Superior Steelhead Association, Duluth Fisheries, R2 CW

**Funding Mechanisms:** OHF funding allocated to Lake Superior Steelhead Association

Knife River Reach 15 project proposes large scale dimension, pattern, and profile changes to the public water. Incorporation of spawning substrate, grade control structures, toewood sod mats, and floodplain grading are also part of the initial proposal.

## MNTU/SSL Keene Creek Remeander

**Waterbody:** Keene Creek (St. Louis River)

**Project Partners:** Hermantown, TU, SSL SWCD, TSA III, R2 CW

**Funding Mechanisms:** OHF funding allocated to Minnesota Trout Unlimited

The goal of this project is to remeander a portion of channelized stream in the headwaters of Keene Creek. The parcel the stream flows through is a property owned by Hermantown.

## Amity Creek Channel Restoration

**Waterbody:** East Branch Amity Creek (Lake Superior South)

**Project Partners:** South St. Louis County SWCD, Minnesota Trout Unlimited, TSA 3, R2 Clean Water, Duluth Area Fisheries

**Funding Mechanisms:** OHF funding allocated through Minnesota Trout Unlimited, EPA Section 319 Grant

This project is a large-scale channel restoration on several thousand feet of the East Branch of Amity Creek. The goals of the project are to lift the stream in areas and reconnect it to its floodplain. Connection to the stream's floodplain, as well as other design characteristics, will restore natural fluvial processes throughout this reach. These processes will enhance stream habitat and water quality and better provide for Amity Creek's native Brook Trout assemblage.

## Brandborg Creek

**Waterbody:** Brandborg Creek (Ottertail River)

**Project Partners:** Henning Township, East Ottertail County SWCD, AH, REU, LEU, and Floodplain Unit

**Funding Mechanisms:** Gemorphic Approach funding and possible CPL Grant

This project will be to replace an undersized, perched, and failing culvert on Brandborg Creek. Brandborg Creek is a designated trout stream (2A water) in the Ottertail River Watershed and is a direct tributary to East Battle Lake. The project will utilize the Geomorphic Approach concept championed by the REU and Floodplain Unit to provide

fish passage through the crossing. The Geomorphic Approach utilizes the MESBOAC approach with the addition of floodplain culverts in effort to reduce floodflow confinement.

## Little Rock Creek

**Waterbody:** Little Rock Creek (Miss River Sartell)

**Project Partners:** Minnesota Trout Unlimited, Little Falls Area Fisheries

**Funding Mechanisms:** OHF funding allocated to Minnesota Trout Unlimited

This project will work to address sloughing stream banks contributing to excess sediment as well as narrow portions of the channel to allow for proper sediment transport. Additionally, Mid Minnesota Chapter of TU will work to create and place brush mats and bundles throughout as much as 2,000 feet of stream.

## Stoney Brook

**Waterbody:** Stoney Brook (Crow Wing)

**Project Partners:** Minnesota Trout Unlimited, Brainerd Area Fisheries

**Funding Mechanisms:** OHF funding allocated to Minnesota Trout Unlimited

Habitat improvements done in the 1950s to 1980s need repair, modification, or replacement. Habitat enhancement work will be concentrated in ten or so areas within a mile or more of stream. New habitat features will be added, increasing habitat for adult brook and brown trout. Work will primarily use hand labor provided by Conservation Corps crews under the direction of MNDNR Fisheries staff.

## Sucker Brook

**Waterbody:** Sucker Brook (Miss Headwaters)

**Project Partners:** Minnesota Trout Unlimited, Bemidji Area Fisheries

**Funding Mechanisms:** OHF funding allocated to Minnesota Trout Unlimited

Portions of Sucker Brook have become overly wide and thus unable to naturally transport the excess sand entering the stream. Natural reproduction and overall productivity have suffered. We will work closely to design and implement a project which will narrow the channel, return woody habitat, and maintain exposed gravel vital for food production and spawning success.

## Elim Creek/Soo Line Culvert

**Waterbody:** Elim Creek (Nemadji)

**Project Partners:** Carlton County, MPCA, R2 CW, and Area 2d PAT

**Funding Mechanisms:** MPCA 319 funds, CPL Grant, also possible: Federal Recreational Trail Program, Carlton County SWCD funds, Lake Superior Lakewide Action and Management Plan

This project will address an AOP barrier that exists at the intersection of the Soo Line Trail and Elim Creek in the Nemadji Watershed. Elim Creek is a trout stream and the current culvert blocks fish passage at all flows and is failing, putting the recreational use of the trail in jeopardy as well. Work with Carlton County, MPCA, EWR CW, and PAT staff

will pursue funding through multiple sources to implement this project. Project aligns with multiple plans and outlines priorities in this watershed.

## Lax Lake Road Culvert

**Waterbody:** Lindstrom Creek (Lake Superior North)

**Project Partners:** Lake County Highway Dept., Lake County SWCD, TSAIII, MPCA, Finland Fisheries

**Funding Mechanisms:** National Fish Passage Grant, Lake Superior North 1W1P, OHF funding

Lake County is planning to replace an undersized culvert under the Lax Lake Road on Lindstrom Creek. Concrete arch pipe on top of concrete footings. County road on northern boundary of Tettegouche State Park. We will work collaboratively with the county to ensure the design plans align with MESBOAC and AOP at this location.

## **Minnesota AFS Rivers and Streams Technical Committee Update (2026)**

Matthew Kvam, River Ecologist, Little Falls, Minnesota DNR

### **Executive Summary**

This update summarizes recent and ongoing river research, monitoring, and habitat work in Minnesota. In total, the document describes more than 30 projects and studies that have been completed recently or are now underway across Northern Minnesota. This work includes stream and floodplain restoration projects, numerous culvert and bridge replacements to improve fish passage, riparian forest restoration, and routine stream surveys and temperature monitoring.

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## MN DNR: River Ecology Unit

Matt Kvam, River Ecologist, Minnesota DNR

### RESTORATION

Project Name	Project Type	Reconnected (mi)	Restored (mi)
Stony Creek	Channel Restoration		4.7
Seven Mile	Dam Modified with Rock Arch Rapids	19.7	
Whiskey Creek Phase 2	Channel Restoration		4.3
Hoyt Ave Culvert	Culvert		
Lake Sarah	Dam Modified with Rock Arch Rapids	4 (reconnected Lake Sarah and Lake Shetek)	
Upper Pomme de Terre Lake	Dam Modified with Rock Arch Rapids	12	
Perkins Dam	Dam Modified with Rock Arch Rapids	31	

### CULVERT INVENTORY

Crow Wing River culvert inventory and barrier report completed (contact me for a copy). Over 900 culvert and bridge assessment surveys completed throughout Minnesota. Completed stream crossing surveys in the Zumbro, La Crescent, and Pomme de Terre Watersheds. Conducted various geomorphic monitoring surveys of restoration projects on the Buffalo River, as well as the Pelican River above Pelican Rapids. In 2026 barrier reports for the Zumbro, La Crescent, and Pomme de Terre Watersheds will be completed, and barrier surveys will be conducted within the Chippewa watershed.

### STREAM FISH HABITAT

The Stream Fish Habitat crew continued their surveys to produce habitat suitability models as well as monitoring fish assemblages prior to and after the completion of river restorations. 37 habitat suitability and 15 pre/post restoration sites were sampled (including their ongoing effort to monitor the changes after Rapidan Dam's failure). Additionally, they began working with the state endangered slender madtom, 11 sites were sampled to understand the current distribution of this species. They will continue working with this species next year. In late October they collected data on a unique stream spawning population of lake whitefish in northern Minnesota. They also collaborated with MNDNR fisheries research to collect burbot in the Platte River for population studies. Bowfin were also collected in collaboration with GarLab at University of Minnesota Twin Cities. Lastly, an in-stream flow study was conducted on the North Branch of Pipestone Creek, and a report will be available soon.

### Watershed Health Assessment Framework

The WHAF website content was reorganized for improved consistency and ease of navigation. The migration of the WHAF Suite of Applications and their databases to cloud hosted IT infrastructure progressed with assistance from MNIT staff. Health scores and data layers in WHAF: Explorer were updated to deliver the latest land cover data. WHAF research staff coordinated with MPCA to deliver the annual update to the Stream Protection Priorities. Assessed, Impaired, and Delisted Waters data layers were updated with 2024 data and symbology was improved. WHAF: Lakes updated the date range of water clarity data delivered and coordinated with the DNR Lake Ecology Unit to prepare analysis updates.

The updated Climate Normals and Climate Departure data calculated by WHAF staff was delivered in the WHAF: Explorer and made publicly available from the Minnesota Geospatial Commons. Data layers for stream restoration actions were added to the WHAF: Explorer. A total of 10 new data layers were added on the request of partner agencies and organizations.

Priority Watershed Health Scores were updated with best available data and best science approach. Calculation processes were scripted for improved repeatability. Online documentation for health scores was updated to align with new analyses. New interactive options were investigated to deliver updates and revisions to our suite of WHAF Major Watershed Reports.

The WHAF team published a chapter in the science book series, 'Smart Technology for Water Resources' to document the WHAF approach and share technical details with partners and other audiences. Seven training events and presentations were provided for several agency audiences. Outreach materials were expanded to build support for the use of the WHAF Suite of Applications. Our newsletter provided updates on advancements in the Watershed Health Assessment Framework to 6300 subscribers.

## MN DNR: Region 1 Clean Water

Jason Vinje, Clean Water Legacy Watershed Specialist, Minnesota DNR

### Monitoring and Assessment

- Watershed Restoration & Protection Strategies (WRAPS) Work
  - Coordinate with MPCA Stressor ID staff and LGUs to assess impaired reaches/sites and other areas of interest
    - Kayak and windshield reconnaissance to identify additional areas for assessment
  - Rosgen Level II surveys at both new sites and repeat sites from Cycle 1
  - Grand Marais Creek, Red Lake River, and Lake of the Woods watersheds completed in 2025
  - Mississippi River-Headwaters, Snake River, Tamarac River and Two Rivers beginning in the 2026 field season
- MPCA 319 Small Watershed Monitoring: Blackduck River (5 sites) and Whiskey Creek (4 sites) plans are drafted, and Necktie River coming in the future.
  - Coordination with MPCA planning monitoring around completed or to be completed projects. DNR will be completing geomorphology surveys on multiple project sites along with a control site in each watershed. This data will be paired with LiDAR flights, biological surveys, and water chemistry sampling. Data will be used to show if projects are meeting the designed or expected results.
    - Initial and repeat surveys every other year will be conducted to obtain baseline data and track any changes to dimension, pattern, and profile over time.
    - Rosgen Level II surveys, plus Pfankuch stability assessments.
- Long-term Biological Monitoring (LTBM) Sites
  - State-wide effort for DNR Clean Water staff to conduct geomorphology surveys to tie into MPCA's biological monitoring efforts
    - Initial and repeat surveys will be conducted to obtain baseline data and track any changes to dimension, pattern, and profile over time
    - Rosgen Level II surveys, plus Pfankuch stability assessments, BANCS, and Large Woody Debris Index
  - DNR Region 1 has 19 LTBM sites, with plans to survey approximately 3-5 sites per field season
    - Red Lake River and Kabekona River sites surveyed in 2025

### Implementation

- Bender Creek Culverts – Survey and design recommendation for the Hubbard County SWCD on two crossings expected to be replaced in 2026.
- Campbell Creek project
  - Bed and bank stabilization project to reduce sediment and nutrient inputs to Floyd Lake
    - Improving fish passage is included as a goal of the project
  - Project components include grade control riffles, rock arch rapids, bank grading, conifer revetments, and culvert replacement
  - Project is at 90% design phase, with the project being broken into two separate phases of construction. Phase 1 will be the culvert replacement and near-road channel work. Phase 2 will be the channel work, both upstream and downstream of the road. Funding is currently EPA 319 small watershed funds and local match.

- Clearwater River headcut – Assisting the Red Lake River Watershed District and their engineering consultant on project design and permitting.
- Crissy Lake Dam Project (dam modification and stream restoration) on Pomme de Terre River in Morris is funded and going through the design and EAW process (Get out More Funded)
- Grant Creek crossing at Wilton Trail – Surveyed and provided basic recommendation to potential partners.
- Hewitt Dam removal/modification project on Wing River; design supposed to start this spring (Get Out More Funded)
- MESBOAC trainings held across Region 1 for DNR, DOT, LGU, and Engineering staff to educate them on and culvert design recommendations.
  - March 4<sup>th</sup> in-office training held in Detroit Lakes
  - September 30<sup>th</sup> in-field training held in Lake George on Birch Creek
  - October 7<sup>th</sup> in-field training held in Miliona on Spruce Creek
- Necktie River re-meandering project received LSOHC funding through the stream restoration priority list and working with the Hubbard County SWCD to move this project to the design stage.
- Partridge River dam removal/modification project; initial survey completed with DNR's River Ecology Unit
- Little Wolf Lake dam removal/modification; initial survey completed; working with survey data for design recommendation for partners.
- Miscellaneous culvert replacement projects for stream stability and fish passage throughout the region.

## MN DNR: Region 3 Clean Water

Nick Proulx, Clean Water Legacy Watershed Specialist, Minnesota DNR

### Assessment

- West Indian watershed sediment source study (WARSSS) – second year of geomorphic data collection
- Stream bank erosion rate curve development (15 sites across the Region)
- SOP development and statistical analysis
- Beaver Creek watershed geomorphic assessment to support restoration method comparison study (6 sites)

### Monitoring

- Cascade Creek restoration – 9 years post restoration geomorphic survey
  - Results are trickling in
- Trout Brook (Afton State Park) – 2-year post-restoration geomorphic survey
- Sand Creek – 5 year post-restoration geomorphic survey

### Restoration

- Cascade Creek – upstream segment from the existing restoration. Pre-restoration data collection
- Little Cannon River – AMA and easements. Pre-restoration data collection
- Root River – Brightsdale Dam location. Moved the channel to the historical channel. Reconnection of the new channel occurred Feb 2026.

## MN DNR: Region 4 Clean Water

Jon Lore, Clean Water Legacy Watershed Specialist, Minnesota DNR

### Seven Mile Creek

In October 2024, the culmination of 8 years of planning led to the removal of the low-head dam on Seven Mile Creek in Nicollet County. This barrier was initially installed in the 1950s to prevent common carp passage into Swan Lake, in a separate watershed. Modern hydrologic trends have led to the avulsion of several structures like the Seven Mile Creek dam, resulting in significant private property loss. Meanwhile, it's been shown several times that common carp thrive upstream of barriers while native species are generally absent. This led to the proactive removal of the Seven Mile Creek dam and replaced with a rock-arch rapids that allows for fish passage and sediment transport. This project has been widely recognized for the collaboration between local partners (Nicollet SWCD), DNR, and private landowners and led to a panel discussion on fish barriers and collaboration at the DNR Round Table in January 2026.



## MN DNR: Fisheries Research, Lake City

Devon Oliver, Fisheries Research, Minnesota DNR

### **Evaluation of Paddlefish *Polydon spathula*, River Redhorse *Moxostoma carinatum*, and Longnose *Lepisosteus osseus* and Shortnose Gar *Lepisosteus platostomus* management and conservation status in the Upper Mississippi River**

This study is attempting to bridge some of the current knowledge gaps and evaluate the status of four Minnesota native fishes in the Upper Mississippi River: Paddlefish, River Redhorse, Shortnose Gar, and Longnose Gar. Specifically, this project will assess vital rates and stock structure for gar and paddlefish; additionally, it attempts to identify non-lethal metrics for positively ID'ing River Redhorse relative to Shorthead and Greater Redhorse. Current knowledge gaps are limiting the ability of biologists and fisheries managers' ability to formally assess these species' status within the Mississippi River drainage in Minnesota. We aged hard structures (e.g., otoliths, dentary bones, fin rays) from 28 Paddlefish, 62 Shorthead Redhorse (early growth may be like the rarer River Redhorse), 102 Longnose Gar, and 25 Shortnose Gars. Additional Gar, Paddlefish, and Shorthead Redhorse are currently being aged. Additionally, techniques for processing and aging are being refined (an information gap identified during this study), and have led to a larger project to develop techniques for these species and additional native roughfish species across the Upper Mississippi, Minnesota, and Red River basins within the MNDNR (separate from this project). Beyond field collection and aging of these three species, currently available data was coalesced from multiple state and federal sources.

We have also collected 450 River/Shorthead/greater Redhorse from the Upper Mississippi, St. Croix, Apple and Minnesota Rivers for morphometric and genetic analysis. To date, we have collected 5,850 morphometric measurements and have genetically confirmed the ID of 450 of the current redhorse samples via Microsatellites and Mitochondrial DNA analysis; all samples have been prepared for SNPs genetics analysis. Preliminary results of the morphometric analysis to differentiate River Redhorse from Greater and Shorthead have been estimated based on 450 of the Redhorse samples; results are currently in process of being updated.

### **A Comparison of Gear Efficacy for Fishes Occupying Near-Shore, Off-Channel Riverine Habitats**

This study compares the efficacy of multiple standardized sampling gears for assessing fish assemblages in near-shore, off-channel riverine habitats of the Upper Mississippi River. We evaluated four standardized gear types and how effectively each gear detects species presence. Despite the ecological importance of near-shore, off-channel habitats, evaluations of gear performance in these systems remain limited. Improved understanding of gear efficiency allows us to increase detection probability, reduce sampling bias, and strengthen long-term monitoring protocols for these habitats.

Our goal was to determine which gear or combination of gears provides the most reliable and efficient detection across near-shore, off-channel habitats.

In 2024, we selected representative backwaters, semi-submerged islands, and side channels across Pools 3, 5, 6, during late August – early September. Conducted qualitative habitat assessments (vegetation density, substrate, wave intensity). Sampled using modified fyke, nets (trap nets), cylinder minnow traps, shoreline seining, and near-shore backpack electrofishing. Estimated detection probability and occurrence. Evaluated sampling effort needed to reach 95% detection.

In 2025, selected representative backwaters, semi-submerged islands, and side channels across Pools 4, 5a, and 7 during late August – early September. Conducted qualitative habitat assessments (vegetation density, substrate, wave intensity). Sampled using modified fyke, nets (trap nets), shoreline seining, and near-shore backpack electrofishing. Discontinued the use of minnow traps and replaced them with anchored trap nets with cod ends secured to shore and lead lines set downstream. We're still analyzing those results to determine how the gear change affected our monitoring outcomes.

In 2026, we will select representative backwaters, semi-submerged islands, and side channels across Pools 3, and 5. Evaluate seasonal variation, habitat characteristics, gear performance across Pools 3 and 5. Conduct qualitative habitat assessments (vegetation density, substrate, wave intensity). Sample using modified fyke, nets (trap nets) and shoreline seining.

Overall, this project strengthens our understanding of how gear selection influences detection and assessment of fish assemblages in near-shore, off-channel habitats. By refining sampling approaches and integrating occupancy modeling, we can improve monitoring efficiency, reduce bias, and better inform fisheries management on the Upper Mississippi River.

## MN DNR: Fisheries Research, Lake City

Doug Dieterman, Fisheries Research, Minnesota DNR

### **New stream habitat projects in southeastern Minnesota**

Design and implementation of new stream habitat projects in conjunction with various conservation partners, such as Minnesota Trout Unlimited, is ongoing. At least six new projects encompassing more than 3.7 miles on both coldwater trout streams and warmwater rivers were constructed in 2025. Minnesota DNR

### **Evaluating stream restorations in southeastern Minnesota**

This is a research project designed to assess three aspects of stream habitat projects: (1) how long projects last before needing maintenance, (2) how long the benefits of those projects last and (3) a more intensive assessment of two contemporary habitat designs using a BACI approach. Data compilation to address aspect 1 has been completed and final analyses begun. Field data to address aspect 2 is ongoing with 14 additional sites sampled in 2025. Pre-habitat-project data collection has begun for aspect 3 and includes geomorphic, fish habitat, and fish population assessments. To quantify growth, survival, immigration and emigration processes, over 1300 Brown Trout have been PIT tagged. Movements among habitat-project and control reaches are being assessed with stationary PIT-tag antenna arrays. An overview of this project was presented to a legislative and citizens council and is available at: <https://www.youtube.com/watch?v=cw0Pj0-xyw8>. The specific presentation for this project begins at about the 2:59 mark.

### **Thermal regime trends in southeastern Minnesota streams-**

Regional climate changes have included a warmer but wetter Driftless Area. Increasing air temperatures might be expected to warm stream temperatures whereas increasing precipitation may result in more groundwater and higher baseflows leading to colder stream temperatures. Are Driftless Area streams getting warmer or colder? This project is examining 25-year trends in selected water temperature metrics from 15 cold-water trout streams in southeastern Minnesota to answer this question.

### **Sculpin reintroduction project**

To help inform reintroduction efforts, this project seeks to better understand the distribution, genetic structure and ecological role of sculpin in southeastern Minnesota. Work continued assessing presence, absence and genetic structure of Slimy Sculpin and Mottled Sculpin populations through routine fisheries surveys at over 40 sites in 2025. An update of the broader project was provided as part of the Minnesota DNR's Outdoor Skills and Stewardship Series (MOSSS), a weekly webinar, and is available at: [https://www.youtube.com/watch?v=knE6Um\\_pkF4](https://www.youtube.com/watch?v=knE6Um_pkF4).

### **Trout stream designation project**

Increased capacity to assess new streams for the potential to support coldwater trout fisheries has been ongoing for the past 10-15 years. The most recent addition to the designated trout stream list in southeast Minnesota was undertaken in 2016 and designated new sections of trout water to about 15 streams. The current effort includes about 70 new proposals that were developed based on water temperature and/or trout population (P/A) assessments. The new proposals could add over 100 miles of new designated trout water in southeast Minnesota. Landowners have been contacted and many comments have been received. Lots of great questions from landowners including about trespassing, cattle pasturing, tillage changes, regulation burden, etc. The final list of proposed streams is still under development.

## MN DNR: Fisheries Research, Bemidji

Kristen Patterson, Fisheries Research, Minnesota DNR

### New Study: STRUCTURE AND DIVERSITY OF MINNESOTA'S BURBOT POPULATIONS

Burbot (*Lota lota*) are the only freshwater species in the cod family (Gadidae) and the only midwinter-spawning game fish in Minnesota. There is currently a limited understanding of Burbot populations across the state, and this has been identified as a priority information need for the MNDNR Section of Fisheries. Burbot have been recorded in 217 lakes largely in the Northern Forests ecoregion in northeastern Minnesota, but interestingly, in addition to their presence in cold-water lakes, Burbot are commonly sampled in large and small streams across the northern two-thirds of the state, in cold, cool, and warm water habitats. Little is known about these lotic dwellers, but preliminary evidence shows stream Burbot having much smaller size at sexual maturity and reduced maximum size, as well as the potential for multiple habitat utilization strategies e.g. lake only, lake/stream transient, stream only. DNR staff will be collaborating with MPCA and other organizations over the next three years to take a watershed approach to sampling Burbot. We will be investigating genetic lineages in Burbot populations across streams and lakes across Minnesota to increase understanding of Burbot diversity and spatial population structure, as well as evaluating age, growth and maturity in a subset of Burbot populations from both streams and lakes. Results from this project will provide tools for monitoring populations and guidance for management actions to support population persistence.

## Upper Sioux Community Environmental Program

Jerry BigEagle, Environmental Program Director, Upper Sioux Community

### New Study: STRUCTURE AND DIVERSITY OF MINNESOTA'S BURBOT POPULATIONS

We will be adding several studies to the water quality annual survey including ArcGIS-Q, a macroinvertebrate study, and a fisheries percent stock density study in Firefly Creek. We've had amazing success in our buckthorn removal project; the before and after results are amazing. (Not AFS) is the bison reintroduction project. It's going to be a premier system and well planned out.

The Minnesota River riverine habitat corridor improvement includes our oak savanna habitat restoration, new continuous forestry inventory work, stream connectivity management for the Yellow Medicine River, and many acres of invasive plant species treatments. I think last was 41 acres of habitat restoration with 7500 native plants planted, while this year (FY25-26) will be 82 (32 acres restored fall 2025) acres still planned along Firefly Creek.

Upper Sioux office of the Environment has offered a new MOU to MPCA to help co-manage our surrounding upland wildland Usual & Accustomed (U&A) Lands to improve herbicide and pesticide treatment buffering, share information in the spirit of responsible co-management of the Minnesota River, share projects, share findings of data where nutrient loads are affecting downstream negative affects the gulf hypoxia nutrient loads. We have also joined several gas rule WGs, fish passage WGs, and State agencies on fish and wildlife mgmt. topics.

Both scientists at Upper Sioux now have master's degree level education in science, engineering/science, and ecology/statistics so we are capable and taking on big challenges.

## MN DNR: Minnesota Large Rivers

Hannah Anema, Minnesota River Specialist, Minnesota DNR

### Minnesota River

Much of our annual fieldwork was postponed to the following year due to highwater conditions. July through September had abnormally high flows compared to average. Hydrographs spiked in July and Mid-August when our Catfish Hoop Netting and IBI Surveys take place (Fig 1).

Field work we were able to complete consisted of installing new receivers, tagging fish, collecting channel catfish for disease testing, collecting fish for aging, paddlefish netting, Blue Earth River Sampling, and outreach events.

High water levels made it possible to drive a boat up the Blue Earth River and put a receiver on the second bridge upstream of the mouth. We also installed receivers on the Watonwan, Le Sueur, and Cottonwood Rivers for the first time. The Watonwan Receiver and one of the Blue Earth Receivers are above Rapidan Dam. We look forward to what they may show for fish movement in the future.

We were also able to add to our database tagged fish in the Minnesota River Watershed. For the first time, we tagged fish in the Blue Earth River (Table 1).

During May, we were able to get out and hoop net channel catfish for the pathology lab for annual disease testing. The path lab crew was able to come meet us at Granite Falls complete samples on site.

Bigmouth Buffalo were collected for a Statewide aging study on BIB. Fish have been collected from the Red River of the North, the Mississippi, and the Minnesota. This year we collected 50 BIB to add to the 50 we had collected from last year. 100 fish have been collected from each watershed to compare BIB ages and recruitment in our large rivers throughout Minnesota.

We also collected Freshwater Drum otoliths for a study comparing the current MNR FRD population to the population of FRD 10 years ago (thank you Jason Harris for the previously collected data!).

We completed quite a bit of paddlefish netting in early fall like most years. We tagged 1 new fish at St. Peter and 7 new fish at Granite Falls (Table 2). Along with this field work, we had NPR, Kare 11, a DNR Information officer, and a Gustavus student come out to observe our paddlefish netting (Figure 2).

We helped with five outreach events that taught the public about the Minnesota River: Minneopa Field Days in Mankato, Fish-nic in St. Peter, North Hennepin Field Day in Shakopee, 10,000 Ice Angler Fundraiser in Robbinsdale, and Squid Fest in Granite Falls.

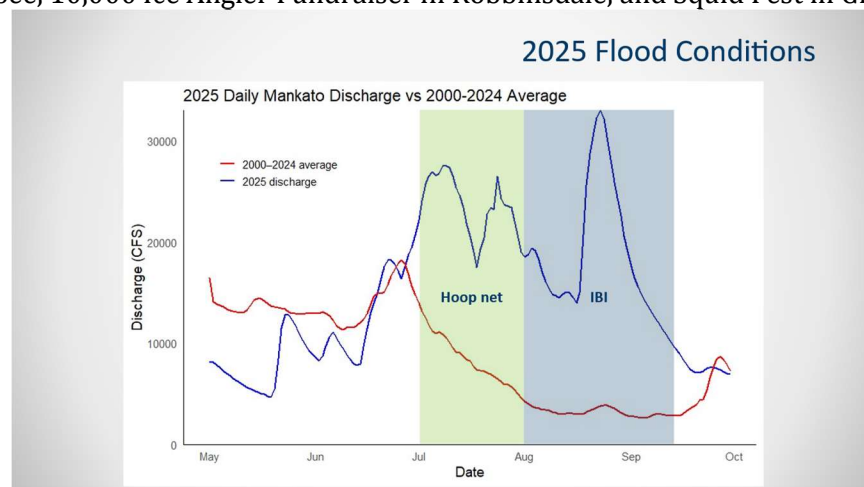


Fig 1. 2025 Monthly Discharge.



Fig 2. Granite Falls Paddlefish

Table 1. Species Tagged.

Species	Tagged	Blue Earth	Active
Shovelnose Sturgeon	38	2	2
Paddlefish	29	0	20
Flathead Catfish	41	3	31
Walleye	27	1	22
Blue Sucker	11	0	11
Bigmouth Buffalo	18	6	18
Channel Catfish	21	2	19
Freshwater Drum	13	1	13
Shorthead Redhorse	6	0	6
Sauger	7	2	7
Smallmouth Buffalo	7	1	7
Common Carp	3	3	3
Shortnose Gar	6	0	6
Longnose Gar	1	0	1

Table 2. Paddlefish netted in 2025.

Location	Caught	Recaps	Tagged	Transmitter
St. Peter	1	0	1	1
New Ulm	0	0	0	0
Granite Falls	5	4	1	0
Granite Falls	7	1	6	0

## MN DNR: Minnesota Large Rivers

Joel Stiras, Metro Area River Specialist, Minnesota DNR

### Metro Area Rivers

My telemetry project is ongoing in the major metro rivers (Mississippi Pools 1-3 and the lower St. Croix). We have implanted 13 species since 2013. There is a bridge over the St. Croix at Osceola that is being replaced next year. MN and WI DNR have been working with the DOT agencies as their plan is to install a causeway for removal and construction that will take two years. The causeway may cause a velocity barrier to fish migration and DOT is funding a telemetry study so we can observe the conditions at the bridge and determine if fish are able to pass. We were successful in convincing them to increase the width of the opening in the causeway as well as install two 10-foot culverts through them and add some boulders to break the current for migrating fish. Additionally, I have been working with silver and bighead carp including telemetry work tracking their movements. We had a regulation change go into effect on the lower St. Croix River. Creel limits were reduced on multiple species and for the most part match the connecting waters of the Mississippi River border waters now. Wisconsin matched the regulations and went into effect a year before ours.

## MN DNR: Invasive Species

Kayla Zankle, Invasive Carp Field Lead, Minnesota DNR

### Invasive Carp

We participated in a fish tagging event for the Lock and Dam 5 Deterrent project in spring and fall tagging over 175 invasive and native fish. Rain in July resulted in flashy tributaries and there were silver carp jumping on the Root River by La Crescent. Overall, we had normal to low water levels in 2025 and this likely resulted in concentrated invasive carp in lower pools. Over the year, we captured 54 invasive carp with 26 of those tagged and released (2 in the St. Croix, 1 in Pool 5 MSR, 23 in Pool 8 MSR).

## MN Pollution Control Agency: Biological Monitoring

Andrew Ching, Environmental Specialist, Minnesota PCA

### Biological Monitoring Unit

- **Biological Monitoring Partner Program**
  - A training and certification program for evaluating aquatic life in Minnesota's rivers and streams is kicking off in the summer of 2026. More information can be found here <https://www.pca.state.mn.us/air-water-land-climate/biological-monitoring-partner-program>
- Biological assessments are being completed in the South Unit for the Watonwan River, Minnesota River – Mankato, and Rum River Watersheds
- Biological assessments are being completed in the North Unit for the Lake Superior – North, Mississippi River – Headwaters, Snake River, Red River of the North – Tamarac River, and Two Rivers Watersheds
- The Mississippi River from the headwaters to the Iowa border is being assessed for AQL and AQR. There will also be related PFAS in fish tissue and other contaminant assessments
- 2025 watershed sampling for the South Unit was focused in the Des Moines River and Lower Minnesota River Watersheds
- 2025 watershed sampling for the North Unit was focused in the Red River of the North – Marsh River, Wild Rice River, Upper/Lower Red Lake, Clearwater River, and Rainy River – Headwaters Watersheds.
- Environmental Monitoring and Assessment Program (EMAP) sampling started in 2025 and will continue in 2026
  - Randomized federal survey that occurs every 5 years, federal funding makes the work possible
  - This is time four of this probabilistic trend development work intended to census biological conditions at a small group of locations to tell a story about trends in WQ condition over time for a larger population of waters in MN
- Watershed Assessment and Trends Updates were published for the Cannon River and Missouri River Watersheds – South Unit
- Watershed Assessment and Trends Updates were published for the Lake Superior – South, Nemadji River, Redeye River, Red River of the North – Sandhill River, and Thief River Watersheds – North Unit
- Watershed Assessment and Trends Updates for the Leech Lake River, Pine River, South Fork Crow River, Zumbro River, Red Lake River, Red River – Grand Marais Creek, and Lake of the Woods Watersheds are coming soon
- We are planning on monitoring the Minnesota River from headwaters to confluence and the Red River within Minnesota this summer.
- The South Unit is planning on monitoring the Mississippi River – Reno, Upper Iowa River, Minnesota River – Headwaters, and Laq Qui Parle River Watersheds this summer
- The North Unit is planning on monitoring the Cloquet River, Mississippi River – Grand Rapids, Roseau River, and Vermilion River Watersheds this summer
- Hiring of seasonal staff is underway for 2026
- We are ~12 years into Long Term Biological Monitoring (LTBM) of streams and rivers in Minnesota – this includes long term fish and macroinvertebrate community monitoring
  - We are beginning to reflect on the data up to this point, considering key things already coming to light, and adapting to needs moving forward
  - This dataset is available to the public, as is all MPCA biological data. It can be used in future research efforts beyond what MPCA is already doing with this data
  - More information can be found here <https://www.pca.state.mn.us/air-water-land-climate/long-term-biological-monitoring-of-rivers-and-streams>

## MN DNR: DULUTH AREA FISHERIES

Dan Wilfond, Duluth Area Fisheries Supervisor, Minnesota DNR

### KINGSBURY CREEK REMEANDER

**Waterbody:** Kingsbury Creek (St. Louis River)

**Project Partners:** South St. Louis Soil & Water Conservation District and the Minnesota Department of Natural Resources

**Funding Mechanisms:** Grant and cost-share support typical of SWCD-DNR partnerships (e.g., state and local conservation funds and potential Clean Water/Legacy grant programs).

The Kingsbury Creek Remeander project near Proctor, Minnesota is a planned stream restoration effort scheduled to begin in 2026 that will remeander a previously ditched and channelized section of Kingsbury Creek to restore natural channel form and function. The project, led by the South St. Louis Soil & Water Conservation District in partnership with the Minnesota Department of Natural Resources, will focus on reconstructing a more natural stream alignment, improving in-stream habitat complexity, stabilizing banks, and enhancing floodplain connectivity. These actions are intended to improve fish passage, increase habitat quality for coldwater species, and enhance overall stream resilience and geomorphic stability in this Lake Superior watershed tributary.

### BUCKINGHAM CREEK RESTORATION

**Waterbody:** Buckingham Creek (Lake Superior South)

**Project Partners:** Minnesota Department of Natural Resources, the City of Duluth, the South St. Louis Soil & Water Conservation District, and the Minnesota Pollution Control Agency.

**Funding Mechanisms:** U.S. Environmental Protection Agency's Great Lakes Restoration Initiative, Minnesota Legacy Amendment programs (including the Clean Water Legacy/Conservation Partners Legacy grants), and local cost-share or direct financial support from the City of Duluth.

The Buckingham Creek Restoration project in Duluth, Minnesota was a collaborative effort completed in 2025 to restore cold-water stream habitat through the Enger Park Golf Course, where historical alterations had degraded trout habitat. Partners including the Minnesota DNR, City of Duluth, South St. Louis Soil & Water Conservation District, and the Minnesota Pollution Control Agency re-meandered and restored over 3,000 feet of Buckingham Creek, replaced migration-blocking culverts with bridges, and enhanced in-stream features to improve fish passage and ecological function. Native brook trout were protected during construction, and the project was funded through sources such as the EPA's Great Lakes Restoration Initiative and Minnesota conservation grant programs, resulting in a more resilient trout stream and improved recreational and ecological outcomes.

## MN DNR: FINLAND AREA FISHERIES

Matt Weberg, Finland Area Fisheries Supervisor, Minnesota DNR

### MATTSON ROAD CULVERT REPLACEMENT

**Waterbody:** Unnamed Tributary to the Baptism River (LS-North)

**Project Partners:** Trout Unlimited, Crystal Bay Township, Finland Fisheries

**Funding Mechanisms:** Outdoor Heritage Funds allocated through Minnesota Trout Unlimited

This stream crossing prioritized for replacement due to the cold water it supports throughout the summer and its connection the lower Baptism River, a priority stream and watershed for climate resilience projects. During a June 2024 flood event experienced by the area Mattson Rd was partially washed out at the crossing, cutting off access to multiple properties including a trout pond visited weekly by residents of the Veteran's home in Silver Bay. Construction of the new open-bottom aluminum arch culvert was completed in July 2025.

### HOCKAMIN CREEK WATERSHED CULVERT REPLACEMENTS

**Waterbody:** Unnamed Tributary to Hockamin Creek (LS-North)

**Project Partners:** Finland Fisheries, MN DNR Two Harbors Forestry, MN DNR Two Harbors Parks and Trails

**Funding Mechanisms:** EPA Great Lakes Restoration Initiative, Outdoor Heritage Fund

The Hockamin Creek sub-watershed (tributary to Baptism River) has been prioritized for culvert replacement efforts. Connectivity within the stream network was fragmented by seven culverts acting as barriers prior to the start connectivity work in the watershed. Over 20 miles of the stream network have been reconnected through fish passage projects completed up to 2025. Two barrier culvert replacements will be completed in 2026 on a tributary to Hockamin Creek which will essentially open the entire sub-watershed to fish and aquatic organism passage.

### RESTORING AND ENHANCING RIPARIAN FOREST RESILIENCE

**Waterbody:** Numerous watersheds/streams within LS-North

**Project Partners:** The Nature Conservancy, Finland Fisheries

**Funding Mechanisms:** EPA Great Lakes Restoration Initiative

Restoration or enhancement of riparian forests through creation of riparian gaps (75-100ft diameter) in areas devoid of canopy cover to allow for planting and establishment of long-lived conifer or other climate resilient species (10-20 trees planted per gap). This project will result in the restoration/enhancement of 200 acres of riparian forest within priority trout stream watersheds. This is a small project under the umbrella of a shore-wide initiative to restore riparian habitat along lakes and streams to enhance climate resilience of our forests and wildlife (fish included).

### STEWART RIVER HABITAT RESTORATION REPAIR PROJECT

**Waterbody:** Stewart River (LS-South)

**Project Partners:** DNR Region 2 Clean Water Staff, Trout Unlimited, Wildland Hydrology, Finland Fisheries

**Funding Mechanisms:** OHF funding allocated through Minnesota Trout Unlimited

Repair work on the restoration reach upstream of Big Rock Road was completed after several recent flood events destabilized and over widened portions of the reach. Repair work was completed in Fall 2025.

## MN DNR: GRAND MARAIS AREA FISHERIES

E.J. Isaac, Grand Marais Area Fisheries Supervisor  
Eddie Carlson, Grand Marais Area Assistant Area Fisheries Supervisor

### STREAM SURVEYS & TEMPERATURE MONITORING

In 2025, Grand Marais area fisheries staff completed 15 stream electrofishing surveys on 10 streams, including both above and below barrier reaches, in Cook County, Minnesota. Some highlights from the past year of sampling:

- Electrofishing at mile 0.1 (below barrier) of the Onion River produced one of the highest catches of age-1+ steelhead (133.8 fish/1000 ft) observed since 1981.
- All three above barrier stations on the Cascade River produced catches of age-1+ brook trout that exceeded the management goal of 14.1 fish/1000 ft and brook trout up to 11 inches were observed.

A total of 22 temperature loggers were deployed adjacent to electrofishing stations to monitor stream water temperatures. Two major flooding events during the summer of 2025 resulted in the loss of two loggers. For most streams, temperatures remained within ranges considered suitable during the monitoring period. Water temperature information is still lacking for roughly 800 miles of streams in the Grand Marais area. To address this gap, we are expanding monitoring by deploying additional temperature loggers across watersheds to better understand cold-water inputs and thermal refuges, particularly for Brook Trout.

Degraded stream habitat sites were inventoried and prioritized to guide future projects at Devil Track, Cascade, and Poplar rivers.

Future work within the Grand Marais Area includes an evaluation of stream sampling and monitoring efforts and Grand Marais staff are discussing how we prioritize stream electrofishing surveys. Currently, Grand Marais completes electrofishing surveys at roughly 15 stations across Cook County (above and below barrier) during the month of August.

### CULVERT & BRIDGE REPLACEMENTS

**Partners:** Minnesota DNR, Minnesota Trout Unlimited, Minnesota Department of Transportation, Minnesota Pollution Control Agency, Cook County, and U.S. Forest Service

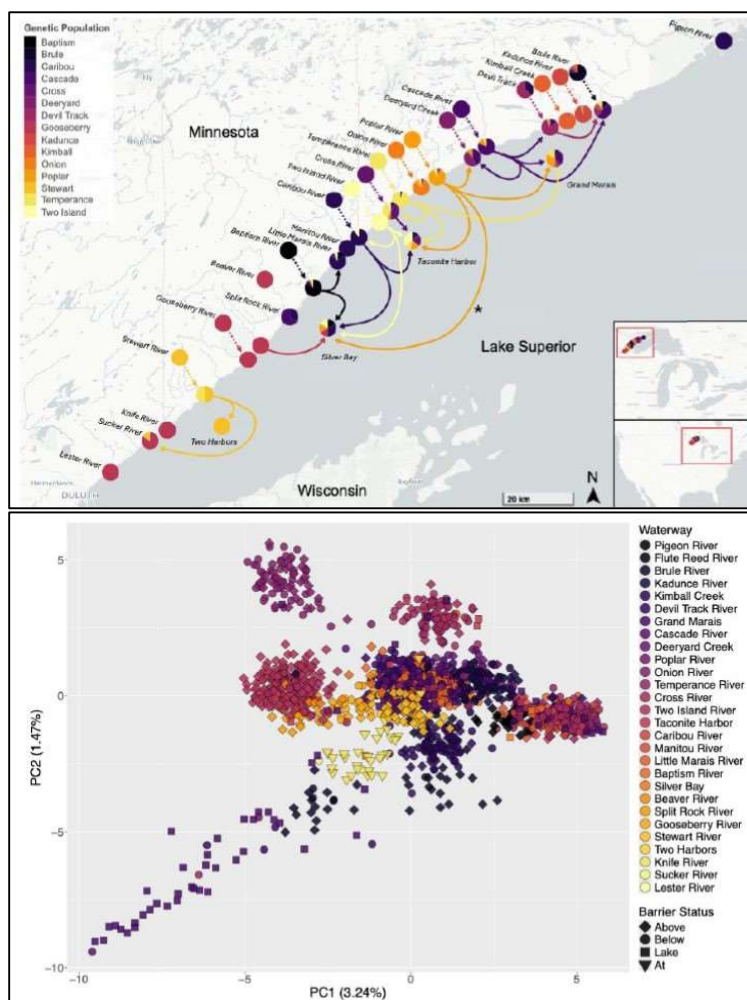
Approximately 10 culvert replacements and two bridge installations were completed, improving stream connectivity and aquatic organism passage. Culverts/bridges were replaced at Carlson Creek, Farquar River, Myhr Creek, Assinika Creek, Spruce Creek, Murmur Creek.

## MN DNR: LAKE SUPERIOR AREA FISHERIES

### GENOMIC VARIATION OF BROOK TROUT ALONG THE MINNESOTA SHORELINE OF LAKE SUPERIOR: IMPLICATIONS FOR SOURCE-SINK DYNAMICS AND COASTER LIFE HISTORY

Ben Kline, Nadya Mamoozadeh, Mariah Meek - Michigan State University  
 Nick Peterson, Loren Miller, Cory Goldsworthy – Lake Superior Area Fisheries  
 (In Review: Journal of Great Lakes Research)

The Minnesota DNR and partners completed a coast-wide genomic assessment of brook trout along the Minnesota shoreline of Lake Superior using thousands of SNP markers from >1,500 fish sampled in 24 rivers and four lake locations. The study shows that most above-barrier tributaries support genetically distinct resident populations shaped by natural barriers, while multiple rivers act as sources for coaster brook trout in Lake Superior, indicating a distributed, multi-source system rather than reliance on a few “core” rivers. Genetic assignments revealed extensive movement among below-barrier reaches and lake habitats, consistent with a broad management definition of coasters, but found little evidence that hatchery strains contribute meaningfully to wild reproduction. Estimates of effective population size suggest many source populations remain viable, providing a baseline for long-term genetic monitoring. Overall, the results emphasize the importance of conserving tributary source populations and connectivity to maintain life-history diversity and support resilient coaster brook trout populations under future environmental change.



## SALMONID MOVEMENT AND HABITAT USE IN MINNESOTA TRIBUTARIES TO LAKE SUPERIOR

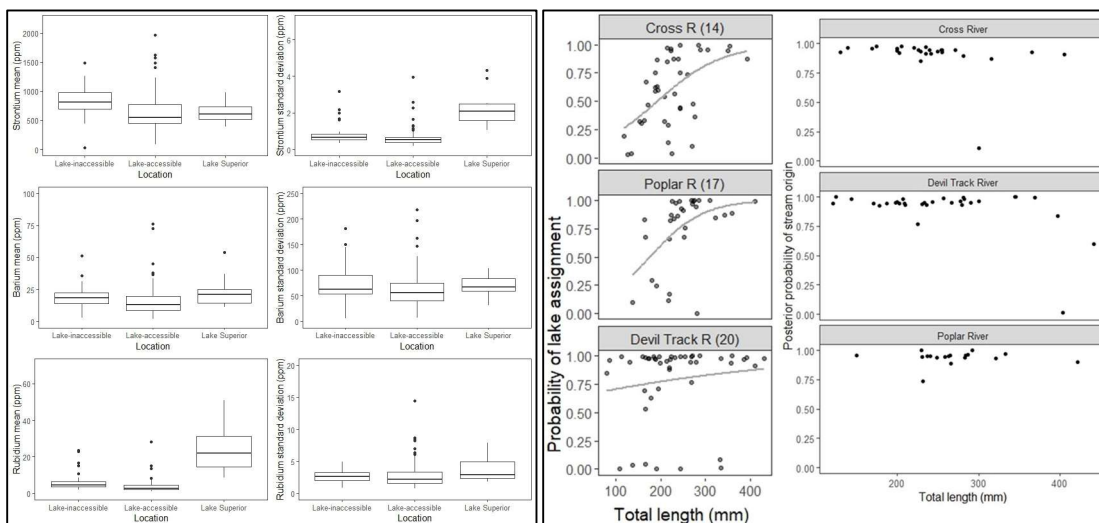
Dylan Undlin, Dr. Justin VanDeHey, Dr. Joshua Raabe - University of Wisconsin - Stevens Point  
Nick Peterson, Cory Goldsworthy – Lake Superior Area Fisheries, Minnesota DNR  
(M.S. Project, UWSP, expected completion May 2026)

Minnesota tributaries to Lake Superior are relatively groundwater limited, and climate change is forecasted to reduce cold-water habitats in these tributaries. Native Brook Trout *Salvelinus fontinalis* and non-native Steelhead *Oncorhynchus mykiss* depend on cold, fluvial habitat for at least a portion of their life, but knowledge is limited regarding the habitat these Salmonids use especially during periods of stressful water temperatures and extreme flows. Therefore, our research aimed to 1) identify critical habitat (i.e. thermal refugia) for Salmonids, and 2) determine if movements of Salmonids were related to water temperature and flow. Salmonid movement was investigated in the Knife and Stewart River watersheds using 16 PIT arrays and radio telemetry. Between 2024 and 2025 we PIT tagged 1,010 Brook trout and 3,060 Steelhead and implanted radio transmitters in 42 adult Brook Trout and 18 Steelhead. Water temperature and flow data were collected by loggers stratified among sub watersheds. Summertime water temperatures in the lower Knife River periodically surpassed the lethal threshold for Brook Trout, indicating an ephemeral thermal barrier between headwaters and Lake Superior. Brook Trout movement was minimal for most of the study period, increasing only during the fall spawning period. However, some adult Brook Trout used more productive lower river habitat in the spring and early summer but used cooler headwater tributaries in late summer when water temperature peaked and flows decreased. Juvenile Steelhead generally used all habitats in the Knife River regardless of water temperature and flow. By identifying critical habitat and understanding habitat limitations for Salmonids in these watersheds we will help inform habitat conservation and restoration in the face of climate change.

## FOOD WEB AND BROOK TROUT ASSESSMENT OF LAKE SUPERIOR: IDENTIFICATION OF COASTER BROOK TROUT COLLECTED IN SHORELINE AND STREAM SURVEYS BY MICROCHEMICAL ANALYSIS (LASER ABLATION)

Troy Zorn – Michigan Department of Natural Resources  
 Kevin Pangle - Central Michigan University  
 Brandon Gerig - Northern Michigan University  
 Nick Peterson - Lake Superior Area Fisheries, Minnesota DNR  
 H. Quinlan – US Fish & Wildlife Service  
 (final report submitted to funding source)

This GLRI project evaluated non-lethal methods for identifying adfluvial (coaster) brook trout in Lake Superior and its tributaries using stable isotope analysis of fin clips and microchemical analysis of maxilla bones. Across basin-wide samples, carbon stable isotopes ( $\delta^{13}\text{C}$ ) clearly distinguished lake versus stream foraging, allowing development of a discriminant model that classified fish to habitat with >97% accuracy and indicated that brook trout in lake-accessible streams often show intermediate signatures consistent with lake use or lake-derived energy subsidies. In contrast, laser-ablation microchemistry of maxillae (Sr, Rb, Ba) successfully differentiated lake versus stream fish at capture but did not reliably retain a historical signal of past lake residency, likely due to bone turnover, and therefore showed limited utility for reconstructing migratory history. Overall, the study concludes that stable isotopes are a promising, scalable tool for detecting coaster life histories in tributary surveys, whereas maxilla microchemistry requires further validation or alternative methods; the authors recommend integrating isotopes with emerging genomic approaches to better identify source populations and guide coaster brook trout restoration across Lake Superior.



## MN DNR: STREAM HABITAT PROGRAM

Brady Swanson, Stream Habitat Specialist, MN DNR

### LSSA REACH 15 HABITAT PROJECT

**Waterbody:** Knife River (Lake Superior South)  
**Project Partners:** Lake Superior Steelhead Association, Duluth Fisheries, R2 CW  
**Funding Mechanisms:** OHF funding allocated to Lake Superior Steelhead Association

Knife River Reach 15 project proposes large scale dimension, pattern, and profile changes to the public water. Incorporation of spawning substrate, grade control structures, toewood sod mats, and floodplain grading are also part of the initial proposal.

### MNTU/SSL KEENE CREEK REMEANDER

**Waterbody:** Keene Creek (St. Louis River)  
**Project Partners:** Hermantown, TU, SSL SWCD, TSA III, R2 CW  
**Funding Mechanisms:** OHF funding allocated to Minnesota Trout Unlimited

The goal of this project is to remeander a portion of channelized stream in the headwaters of Keene Creek. The parcel the stream flows through is a property owned by Hermantown.

### AMITY CREEK CHANNEL RESTORATION

**Waterbody:** East Branch Amity Creek (Lake Superior South)  
**Project Partners:** South St. Louis County SWCD, Minnesota Trout Unlimited, TSA 3, R2 Clean Water, Duluth Area Fisheries  
**Funding Mechanisms:** OHF funding allocated through Minnesota Trout Unlimited, EPA Section 319 Grant

This project is a large-scale channel restoration on several thousand feet of the East Branch of Amity Creek. The goals of the project are to lift the stream in areas and reconnect it to its floodplain. Connection to the stream's floodplain, as well as other design characteristics, will restore natural fluvial processes throughout this reach. These processes will enhance stream habitat and water quality and better provide for Amity Creek's native Brook Trout assemblage.

### BRANDBORG CREEK

**Waterbody:** Brandborg Creek (Ottertail River)  
**Project Partners:** Henning Township, East Ottertail County SWCD, AH, REU, LEU, and Floodplain Unit  
**Funding Mechanisms:** Gemorphic Approach funding and possible CPL Grant

This project will be to replace an undersized, perched, and failing culvert on Brandborg Creek. Brandborg Creek is a designated trout stream (2A water) in the Ottertail River Watershed and is a direct tributary to East Battle Lake. The project will utilize the Geomorphic Approach concept championed by the REU and Floodplain Unit to provide fish passage through the crossing. The Geomorphic Approach utilizes the MESBOAC approach with the addition of floodplain culverts in effort to reduce floodflow confinement.

### LITTLE ROCK CREEK

**Waterbody:** Little Rock Creek (Miss River Sartell)  
**Project Partners:** Minnesota Trout Unlimited, Little Falls Area Fisheries  
**Funding Mechanisms:** OHF funding allocated to Minnesota Trout Unlimited

This project will work to address sloughing stream banks contributing to excess sediment as well as narrow portions of the channel to allow for proper sediment transport. Additionally, Mid Minnesota Chapter of TU will work to create and place brush mats and bundles throughout as much as 2,000 feet of stream.

#### STONEY BROOK

**Waterbody:** Stoney Brook (Crow Wing)

**Project Partners:** Minnesota Trout Unlimited, Brainerd Area Fisheries

**Funding Mechanisms:** OHF funding allocated to Minnesota Trout Unlimited

Habitat improvements done in the 1950s to 1980s need repair, modification, or replacement. Habitat enhancement work will be concentrated in ten or so areas within a mile or more of stream. New habitat features will be added, increasing habitat for adult brook and brown trout. Work will primarily use hand labor provided by Conservation Corps crews under the direction of MNDNR Fisheries staff.

#### SUCKER BROOK

**Waterbody:** Sucker Brook (Miss Headwaters)

**Project Partners:** Minnesota Trout Unlimited, Bemidji Area Fisheries

**Funding Mechanisms:** OHF funding allocated to Minnesota Trout Unlimited

Portions of Sucker Brook have become overly wide and thus unable to naturally transport the excess sand entering the stream. Natural reproduction and overall productivity have suffered. We will work closely to design and implement a project which will narrow the channel, return woody habitat, and maintain exposed gravel vital for food production and spawning success.

#### ELIM CREEK/SOO LINE CULVERT

**Waterbody:** Elim Creek (Nemadji)

**Project Partners:** Carlton County, MPCA, R2 CW, and Area 2d PAT

**Funding Mechanisms:** MPCA 319 funds, CPL Grant, also possible: Federal Recreational Trail Program, Carlton County SWCD funds, Lake Superior Lakewide Action and Management Plan

This project will address an AOP barrier that exists at the intersection of the Soo Line Trail and Elim Creek in the Nemadji Watershed. Elim Creek is a trout stream and the current culvert blocks fish passage at all flows and is failing, putting the recreational use of the trail in jeopardy as well. Work with Carlton County, MPCA, EWR CW, and PAT staff will pursue funding through multiple sources to implement this project. Project aligns with multiple plans and outlines priorities in this watershed.

#### LAX LAKE ROAD CULVERT

**Waterbody:** Lindstrom Creek (Lake Superior North)

**Project Partners:** Lake County Highway Dept., Lake County SWCD, TSAIII, MPCA, Finland Fisheries

**Funding Mechanisms:** National Fish Passage Grant, Lake Superior North 1W1P, OHF funding

Lake County is planning to replace an undersized culvert under the Lax Lake Road on Lindstrom Creek. Concrete arch pipe on top of concrete footings. County road on northern boundary of Tettegouche State Park. We will work collaboratively with the county to ensure the design plans align with MESBOAC and AOP at this location.