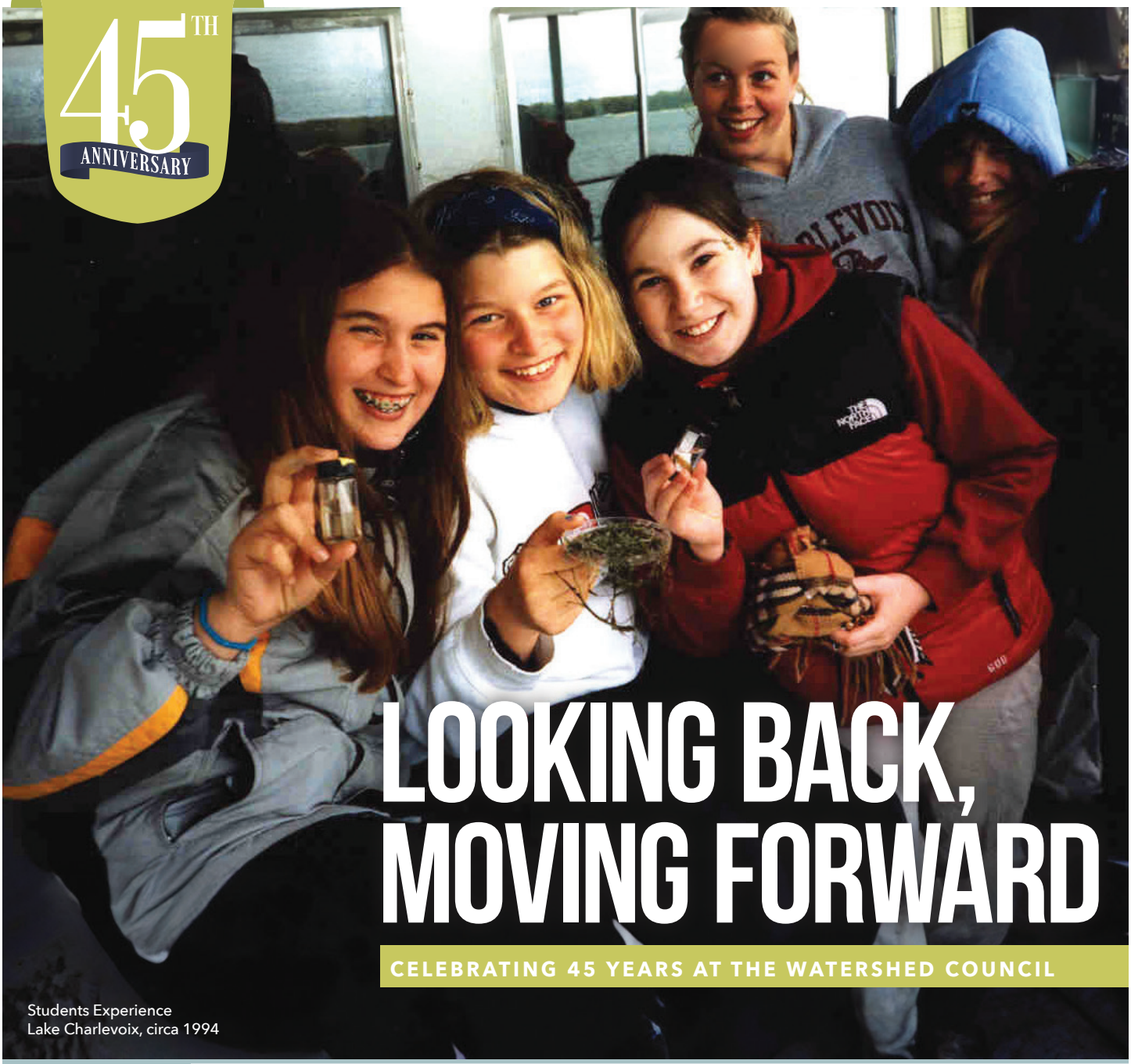
Tip of the Mitt Watershed Council

SUMMER 2024

# Current Reflections

A publication to inform and educate about the importance of protecting our lakes, streams, wetlands, and groundwater.

45TH ANNIVERSARY



# LOOKING BACK, MOVING FORWARD

CELEBRATING 45 YEARS AT THE WATERSHED COUNCIL

Students Experience Lake Charlevoix, circa 1994

IN THIS ISSUE

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# Looking Back, Moving Forward

Embarking on a new chapter can be daunting, yet exciting. I'm thrilled to be here, leading this team and learning alongside them about the best ways to make our region's water and natural resources the best they can be. The future of the Watershed Council is bright; our board and staff bring a wealth of experience and passion to guide us forward in beautiful northern Michigan.

As I reflect on my journey and what brought me here, I see the path paved by many great leaders, colleagues, and friends. They have helped me recognize how to channel my passion and encouraged me to take risks and embrace new adventures. While passion, education, and dedication get us started in careers that protect the natural wonders of the world, we all need people in our lives and places to explore to build confidence, skills, and inspiration.

As a child, my backyards consisted of expansive woods, oceans, inland lakes, and even some suburban yards. Even in those suburban yards, we found our way to the puddles, creeks, and small woodland pockets. As my father says, "I come by this honestly." I believe in our mission and that our work protects the opportunity for everyone to discover their own place to build confidence, skills, and find inspiration.

Me (18 mos.) with my dad exploring driftwood in Winchester Bay, OR on the Pacific coast.

Tip of the Mitt Watershed Council is an organization primed and ready to meet future challenges and create opportunities to strengthen and grow this region's environmental stewardship, policy, education, and habitat restoration. We are the only organization capable of leading in this way, and have been doing so for 45 years. I am honored to continue this legacy of community impact, and I know that together we will achieve great things.

Let's continue the important work of protecting and celebrating the unique ecosystems of the Tip of the Mitt region.

I'm ready for this new chapter!

*Heather Huffstutler*

**Heather Huffstutler**
*Executive Director*

### DIVE INTO THE FASCINATING WORLD OF WATERSHEDS WITH OUR "WATERSHEDS AT WORK" PODCAST!

Join host Kory Alaniz as he dives into the intricate workings of watersheds, shedding light on crucial environmental issues through thought-provoking discussions, and tackling subjects that matter–like watershed management, water quality, wildlife preservation, and many more.

**Listen on Spotify or find them on our website!**

MEMBERS OF: MICHIGAN ENVIRONMENTAL COUNCIL · EarthShare · Healing Our Waters® Great Lakes Coalition

# BEBOT & PIXIE DRONE TEAM UP TO CLEAN UP PLASTIC WASTE

When introduced to the world in 1862, plastic was hailed as a marvel of human innovation—a lightweight substitute for ivory, showcased at the Great International Exhibition in London. More than 150 years later, plastics touch virtually every facet of our world, including the delicate ecosystem of our Great Lakes.

Today, Northern Michigan grapples with a discouraging reality: more than 22 million pounds of plastic infiltrate the Great Lakes each year.

In Michigan, an astonishing eighty percent of shoreline litter is plastic waste. Microplastics in the surface waters of the Great Lakes outnumber those found in the vast ocean garbage patches. The impact extends beyond surface water, affecting drinking water and aquatic life. It's estimated the average human ingests five grams of plastic each week, equivalent to the weight of a credit card.

This summer and fall, Northern Michigan beaches are getting a little help from two surprising sources—the BeBot and PixieDrone, cutting-edge robots leading the battle against plastic pollution.

The BeBot, a 100% electric beach-cleaning robot, sifts sand to efficiently remove plastic waste and other debris without causing harm to the environment. Meanwhile, the PixieDrone, a floating, remote-controlled mobile waste collector, targets floating waste in all forms, including plastic, glass, metal, and rubber. These innovative devices, made available through a partnership with the Great Lakes Plastic Cleanup (GLPC), are generously funded and supported by North American energy company TC Energy and Midwest retailer Meijer. They will be deployed with assistance from the Petoskey High School Robotics Team, the Petoskey Paladins, as well as other local robotics teams.

Litter collected by the BeBot and PixieDrone will undergo comprehensive analysis, providing invaluable data to help decision-makers institute policies that safeguard the Great Lakes for current and future generations.

The BeBot and PixieDrone will be deployed at various locations throughout the Watershed Council's service area until October 2024. Stay informed about the dates and locations of the BeBot and PixieDrone deployments and discover how you can contribute to reducing plastic pollution in our waters at watershedcouncil.org.


PixieDrone collects plastics and other litter from the surface of the water.

Volunteers sort and analyze plastic litter collected by BeBot.


Student's from Petoskey High School Robotics team The Paladins open the BeBot storage trailer for the first time

MADE POSSIBLE BY:

PETOSKEY PALADINS 3618

meijer

PROUD SUPPORTER GREAT LAKES PLASTIC CLEANUP

TC Energy

## VOLUNTEERS GET CRAFTY

After years of chasing slippery macroinvertebrates around a sorting tray, volunteers had to get creative. That's when the late Dr. David Wilson, a water monitoring volunteer and retired chemistry professor from Vanderbilt University, developed a homemade device for collecting aquatic insects. He passed on his "invention" to other volunteers who now craft their own. The solution was simple—a humble plastic spoon with a hole cut in the back and secured with screen netting, allowing the water to flow through while capturing the tiny macroinvertebrates that help us determine water quality.

Today, volunteers John Gannon and Darlene and Herm Boatin continue the tradition of crafting their own filtering spoons. "It doesn't have to be fancy," quips Darlene, "it just has to work."

Herm and Darlene Boatin collect macroinvertebrates for the VSM program.

# DATA DEEP DIVE:

### UNDERSTANDING WATER QUALITY MONITORING

### A STREAM OF DATA

Imagine tracing your finger along a map of Northern Michigan, following the winding paths of more than 2,500 miles of rivers and streams. These waterways all fall under the protective care of the Watershed Council. But how do we ensure the health of vast miles of streams? The answer lies in the dedicated efforts of volunteers, carefully trained through our Volunteer Stream Monitoring program.

The Volunteer Stream Monitoring (VSM) program is part of a larger network across Michigan, known as the Michigan Clean Water Corps (MiCorps). Since 2005, nearly 1,500 volunteers and students have collected data on more than 25 streams throughout Northern Michigan.

You may have seen them on your favorite stretch of stream, equipped with the tools of the trade—waders, nets, sorting trays, tweezers, specimen bottles, and even a few hand-made tools invented by volunteers after years of experience. What are they looking for? Bugs. More specifically, macroinvertebrates.

Found hidden beneath the surface of our freshwaters, the tiny world of macroinvertebrates teems with life. These insects, crustaceans, and worms play a crucial role in maintaining the health and balance of our rivers and streams. But it's their sensitivity to environmental changes that makes them excellent indicators of water quality—an aquatic "canary in the coal mine." As volunteers catalog their findings, the presence or absence of sensitive species of mayflies, caddisflies, and stoneflies can provide insight into the health of a stream. The Watershed Council uses this data to assign a stream health grade. Grades can then be used to track trends, evaluate project outcomes, and identify pollutants.

Curious about how our streams fared in 2023? Let's dive in…

VSM Volunteer Emily Hengstebeck collects macroinvertebrate samples with her dog Marzen.

# Streams

*Data is collected at 38 sites on 25 streams through the Volunteer Stream Monitoring Program and the Watershed Academy.*

GRADE **A**

- Berry Creek
- Bissell Creek
- Black River
- Boyne River
- Deer Creek
- Horton Creek
- Maple River
- Mill Creek
- Milligan Creek
- Pigeon River
- Springbrook Creek
- Sturgeon River
- Rainy River
- Wilkinson Creek

GRADE **B**

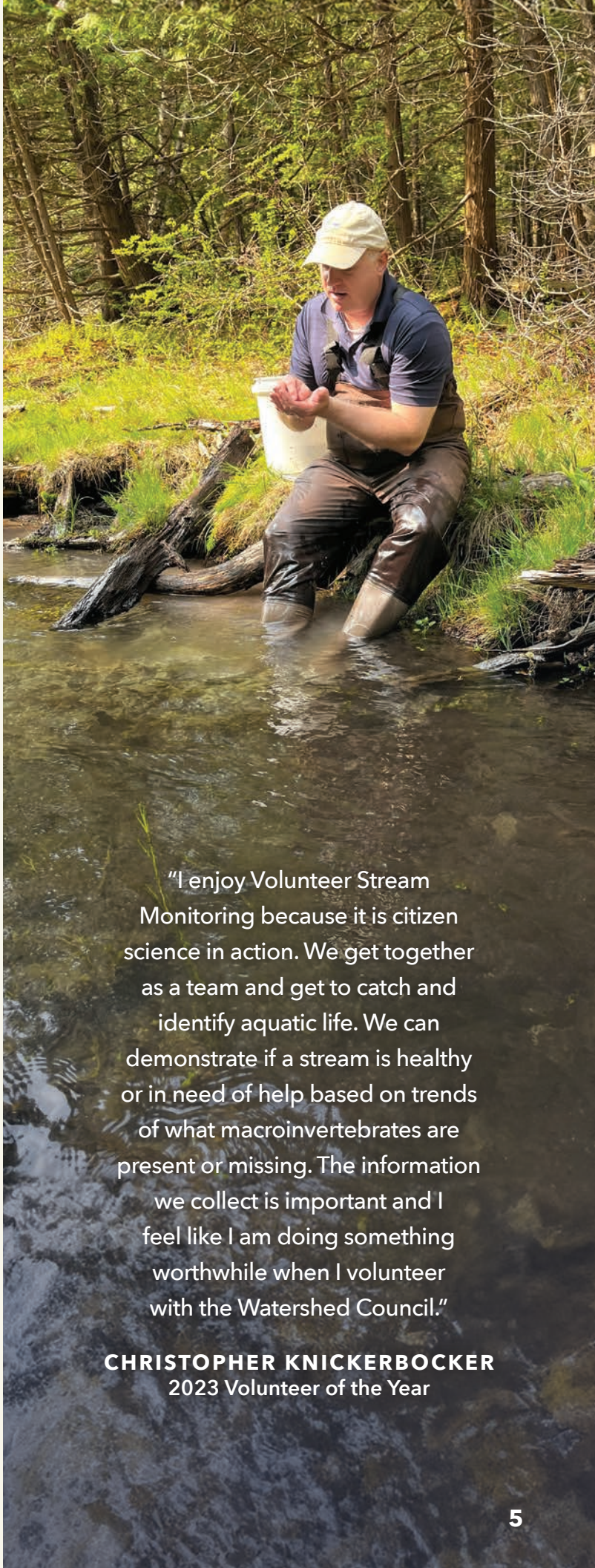
- Five Mile Creek
- Minnehaha Creek
- Stoney Creek

GRADE **C**

- Bear River
- Bessey Creek
- Cable's Creek
- Mullett Creek
- Oden Creek
- Stover Creek
- Russian Creek
- Schoof's Creek

GRADE **D**

- None



"I enjoy Volunteer Stream Monitoring because it is citizen science in action. We get together as a team and get to catch and identify aquatic life. We can demonstrate if a stream is healthy or in need of help based on trends of what macroinvertebrates are present or missing. The information we collect is important and I feel like I am doing something worthwhile when I volunteer with the Watershed Council."

**CHRISTOPHER KNICKERBOCKER**
2023 Volunteer of the Year

## A DEPTH OF KNOWLEDGE

Leaning cautiously over the side of a boat, a volunteer lowers a Secchi disk into the lake, watching intently as the black and white markings slowly disappear beneath the surface. With each measurement, recorded diligently on a clipboard splashed with drops of lake water, these citizen scientists contribute vital data to the Watershed Council's Volunteer Lake Monitoring (VLM) program each summer.

The Watershed Council uses the **Trophic State Index** (TSI) to classify lakes based on Secchi disk readings, chlorophyll-a levels, and total phosphorus measurements taken by volunteers at 36 sites on 28 Northern Michigan lakes.

TSI values range from 0 to 100, where higher values indicate greater nutrient levels and biological activity, and lower values suggest lower nutrient levels and reduced biological activity.

Different trophic states reflect varying levels of nutrient enrichment and biological productivity, influencing their ecological dynamics and management requirements. Data collected through the VLM program is crucial for informing lake associations, riparians, and policymakers about watershed health and guiding conservation efforts.

**Oligotrophic Lakes (TSI 0-37):** Oligotrophic lakes are deep and clear with low nutrient levels. They support limited plant growth and have excellent water clarity, making them ideal habitats for cold-water fish species.

**Mesotrophic Lakes (TSI 38-48):** Mesotrophic lakes have moderate nutrient levels, supporting a balanced mix of plant and animal life. They typically exhibit good water clarity and can sustain a variety of fish species and aquatic vegetation.

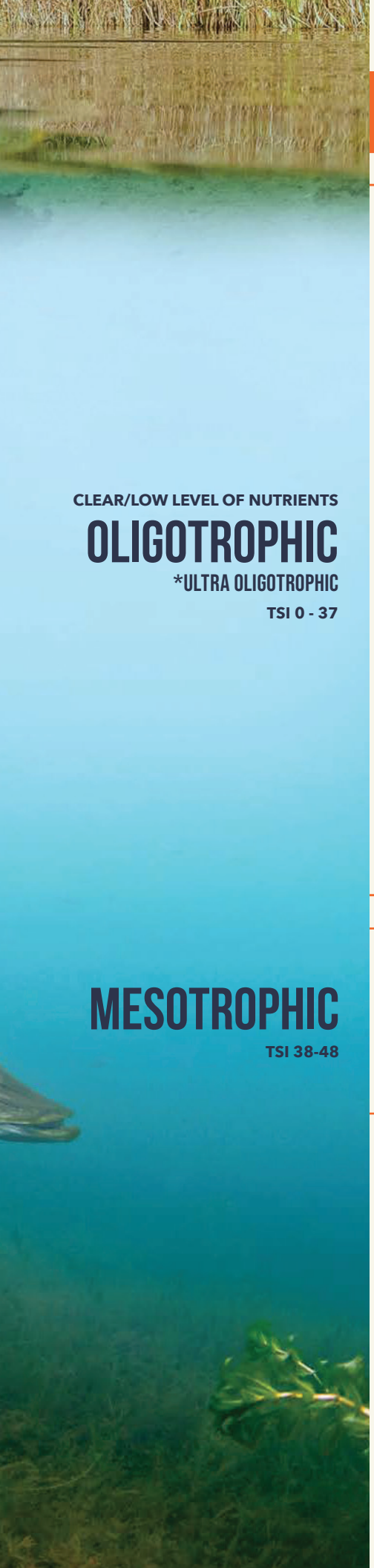
**Eutrophic Lakes (TSI 49-61):** Eutrophic lakes are characterized by high nutrient levels, promoting dense plant growth and algae blooms. They often have poor water clarity due to algae and sediment, and support a diverse community of fish and other organisms adapted to warmer waters.

**Hypertrophic Lakes (TSI 62-100):** Hypertrophic lakes have very high nutrient levels, leading to excessive plant growth and frequent algal blooms. They suffer from poor water clarity and oxygen depletion, which can harm aquatic life and disrupt recreational use.

VLM Volunteer records Sechi disk depth

In 2023, the majority of lakes monitored by the Watershed Council program were oligotrophic, which means they were clear and low in nutrient levels compared to eutrophic lakes with high productivity. Oligotrophic lakes are typically associated with glacial formations and indicate some success in managing nutrient inputs from sources such as fertilizers and septic systems. A few lakes were mesotrophic, maintaining good water quality while offering habitat for a variety of fish species.

*TSI scores are averaged across the season using data from Secchi disk readings, chlorophyll-a measurements, and total phosphorus levels.*



CLEAR/LOW LEVEL OF NUTRIENTS

## OLIGOTROPHIC

*ULTRA OLIGOTROPHIC

TSI 0 - 37

## MESOTROPHIC

TSI 38-48

# Lakes

- Bellaire Lake
- Birch Lake
- Black Lake
- Burt Lake
- Lake Charlevoix *
- Clam Lake
- Crooked Lake
- Douglas Lake - Cheboygan
- Douglas Lake - Otsego
- Elk Lake
- Intermediate Lake
- Long Lake
- Mullett Lake
- Paradise Lake
- Pickerel Lake
- Lake Skegemog
- St. Clair Lake
- Thumb Lake
- Torch Lake*
- Twin Lake
- Walloon Lake
- Wheeler Lake

- Bass Lake
- Deer Lake
- Larks Lake
- Six Mile Lake
- Susan Lake
- Thayer Lake

## WHAT WE DO WITH THE DATA AND WHERE YOU CAN FIND IT.

Data is more than just numbers; it's essential to our mission. The Watershed Council meticulously gathers and houses VSM and VLM data on our website, making it a valuable resource for collaborative agencies. But how does data turn into deliverables?

While the Watershed Council uses this data to shape many of our implementation projects, numerous environmental agencies tap into this resource to make decisions on priorities and policies. The Michigan Department of Natural Resources utilizes our lake monitoring data to assess fish populations and refine management strategies. Meanwhile, the Michigan Department of Environment, Great Lakes, and Energy (EGLE) cross-references our lake and stream data with algal bloom sites.

Thanks to our partnership with The Downstream Project and Chesapeake Commons, this data is now publicly available on our website. We are continuously updating findings and creating profiles on each river, stream, and lake we monitor. You can explore more than 30 years of research in water conductivity, temperature, pH levels, phosphorus, nitrogen, and chloride levels, macroinvertebrate populations, and known aquatic invasive species.

Next, we will be inviting our volunteers and the public to test electronic data entry to share their observations within this online community. Stay tuned for opportunities to be a part of this exciting initiative. Your involvement could be the next ripple in the ongoing effort to protect and preserve our water quality.

**Interested in volunteering? Contact Anna Watson, Monitoring Coordinator, at awatson@watershedcouncil.org.**

*This project was funded in part or in whole by the state of Michigan and the Department of Environment, Great Lakes, and Energy.*

Volunteers sort macroinvertebrates that will be used to determine water quality.

# A WATERSHED YEAR FOR THE WATERSHED ACADEMY

## EDUCATING IN AN AUTHENTIC, MEANINGFUL, AND IMMERSIVE ENVIRONMENT

Emboldened by her curiosity, a sixth-grader steps up to a table readied with vials of macroinvertebrates and stares into an illuminated microscope. What she discovers six inches from her nose is a world her sixth-grade science textbook can only hint at.

A menagerie of macroinvertebrates springs into focus, hundreds of times larger than life, and, she suggests, hundreds of times more interesting than what she has tried to imagine while seated in class.

"If science class was like this every day," she exclaims over the animated "ewws" of classmantes engrossed in the world unveiling itself under magnification, "I think I could make more sense out of what's in my books."

That observation reflects what the Watershed Council understands about how people, especially children, best learn science. Despite living in a world where more is known about science than ever before, people need to literally get hands-on to truly become comfortable with it.

For students, science is usually taught by memorizing the names of plants and animals, the principles of the water cycle, and so forth. Generally, learning about our natural world takes place behind four walls. "One of the primary objectives of our Watershed Academy is to encourage kids of all ages to get outside and experience these STEM concepts with their own hands, using real-world equipment and methods we use in our fieldwork," says Education Manager Eli Baker. Part of his efforts have been to encourage closer relationships between students and their natural environment.

That's the goal of the Watershed Academy, where traditional school supplies are replaced with rubber waders and aquatic collection nets. Our education programs extend beyond fifth-and-sixth-graders. Opportunities for life-long learning are offered at the Watershed Council, from immersive middle and high school programs to college internships and beyond. And now, thanks to the new Watershed Discovery Center, our educational programming is open to residents and visitors of all ages year-round.

### STUDENTS EXPERIENCE LAKE CHARLEVOIX

Every year in partnership with the Lake Charlevoix Association, nearly 300 sixth-graders from the Char-Em ISD board the Beaver Island Ferry for a day of learning and exploration. Once on board, students progress through several stations where they lower Secchi disks to determine water quality, dredge the bottom of the lake to search for macroinvertebrates, sprinkle "pollution" onto a watershed model to simulate stormwater runoff, identify native fish species, and more. This annual two-day event fosters a deeper understanding of the lake and how their actions impact their watershed.

« Watch the launch of Students Explore Lake Charlevoix 2024

### SUMMER CAMPS

Partnerships with area organizations including Crooked Tree Arts Center, the Cheboygan-Otsego-Presque Isle ESD and NOAA's B-Wet initiative, promote local, place-based experiential learning for K-12 school students through meaningful watershed educational experiences.

Elementary students look for macroinvertebrates in the "Make a Splash" Summer Camp.

### AFTER SCHOOL PROGRAM

Added in 2024, our programming in the Pellston school district offers students fun and creative ways to learn about the natural world around them during their after-school child care program.

### HIGH SCHOOL STREAM MONITORING

The high school stream monitoring program engages high school science students and provides them an opportunity to become experts in their local watershed. The program has grown to 15 high schools in the following cities: Alanson, Beaver Island, Bellaire, Boyne City, Boyne Falls, Charlevoix, East Jordan, Elk Rapids, Harbor Springs, Inland Lakes, Mackinaw City, Onaway, Pellston, Petoskey, and Wolverine.

### FIELD TRIPS & CLASSROOM VISITS

Our education staff bring the aquatic world into classrooms with activities to enhance curriculum and lesson plans for middle and high school students. This fall and winter, the Watershed Council will begin to offer free school tours for K-12 students at the new Watershed Discovery Center.

### COLLEGE INTERNSHIPS: GROWING STEWARDS OF TOMORROW

Every summer, a fresh wave of interns breathes new life into our mission, bringing with them innovative ideas and a passion for protecting our region's lakes, rivers, and streams.

Imagine starting your morning surveying a serene shoreline, the sun casting a golden glow on the still water. By afternoon, you're knee-deep in a stream, collecting samples of macroinvertebrates for later identification while swatting away black flies. After hours, you're attending a local government meeting, advocating for policies that protect the environment. This is the life of an intern at the Watershed Council.

"Our interns are involved in everything," says Monitoring Coordinator Anna Watson. "From reviewing permit applications to invasive species control, they're gaining hands-on experience and preparing for a career in water conservation."

Watershed Council internships are more than just seasonal commitments; they are transformative experiences. Our interns dive headfirst into the practical aspects of watershed management, moving beyond observation into active participation. They survey shorelines, monitor streams, assist with local policy initiatives, and help control aquatic invasive species. Additionally, they play crucial roles in organizing community events and supporting our educational programs. This hands-on, multifaceted approach ensures that each intern gains a comprehensive understanding of environmental science.

Our paid interns are provided room and board at the University of Michigan Biological Station, with opportunities to take classes there. With help from generous contributions to the Maura Brandi MSU Internship Fund at the Charlevoix County Community Foundation and the William Weiss Internship Fund, our program aims to be one of the best college-level summer learning experiences in the Midwest.

## THE MAURA BRANDI INTERNSHIP FUND

The success of our internship program is deeply rooted in the generous support of the Maura Brandi Internship Fund. This fund was established to honor the memory of Maura Brandi, a Michigan State University student who had a deep passion for landscape architecture and environmental science. Maura's parents, Maureen Radke and Rick Brandi, created this endowment to celebrate their daughter's vibrant spirit and dedication to the environment. Maureen shares, "By supporting the fund, you're not only helping students pursue their educational goals but also keeping Maura's passion and spirit alive."

## THE WILLIAM WEISS INTERNSHIP FUND

Another cornerstone of the internship program is the William (Bill) Weiss Internship Fund. A founding member of the Grand Traverse Regional Land Conservancy, his annual contributions are vital to the continuity of our internship program, nurturing the growth of future environmental leaders. Bill's love for the land and water began during idyllic summers on Torch Lake and continued through his career in coastal and estuarine oceanography. His dedication is further evidenced by his extensive volunteer work. Bill notes, "We hope these students, with their fresh ideas and innovative thinking, will choose to stay in Northern Michigan and apply their knowledge here."

**You can help fund our interns by visiting www.watershedcouncil.org/donate. Alternatively, you can send a check to the Watershed Council at 426 Bay Street, Petoskey, MI, 49770. Please write "internship fund" on the memo line. Thank you for supporting the incredible students who join us each summer!**


Intern Anna Davies records incidents of invasive rusty crayfish found at Tannery Creek

Intern Olivea Nicholson surveys the shoreline on Crooked Lake.

# NMÉ CELEBRATION

### SATURDAY, SEPTEMBER 14
### LUMBERMAN'S VILLAGE PARK
### WOLVERINE, MI

Join the Watershed Council and the Little Traverse Bay Bands of Odawa Indians (LTBB) Fisheries Enhancement Facility for the annual Nmé (Sturgeon) Celebration on Saturday, September 14, from noon to 2 p.m.

Be there as we release "Gimiwan," the Watershed Discovery Center's resident sturgeon, into the Sturgeon River alongside hundreds of other juvenile sturgeon raised at LTBB's Fisheries Enhancement Facility. Learn about ongoing conservation efforts, get hands-on with a sturgeon touch tank, and help release juvenile sturgeon into the river—wishing them luck as they begin their long journey. The release is followed by a community BBQ.

This event is a vital part of the repopulation efforts led by LTBB in the Burt Lake Watershed. Since 2013, LTTB has released more than 7,000 juvenile sturgeon. These juvenile sturgeon will call the river home for the next 2-3 years before migrating to Burt Lake. Sturgeon are known for their remarkable longevity, often living over 100 years. Due to their extended lifecycle, these fish won't reach maturity until they are 15-20 years old. The fish being released this year are expected to return to the river between 2039 and 2044.

This event is free and open to the public.

# THE RUTH "TUCKER" AYERS HARRIS WATERSHED DISCOVERY CENTER

Opened in June, the Watershed Discovery Center offers an immersive exploration of water conservation, covering themes like plastic pollution, shoreline erosion, septic system safety, and aquatic invasive species. Visitors can engage with two 150-gallon tanks featuring native fish, a macroinvertebrate stream tank, and an iSandBOX that uses augmented reality to demonstrate watershed functions. In collaboration with the Little Traverse Bay Bands of Odawa Indians Fish Hatchery, the center will also raise and release a juvenile sturgeon annually, highlighting efforts to restore native species and emphasizing the importance of local conservation.

Special thanks to the Burt Lake Preservation Association for supporting ongoing operating costs of the Watershed Discovery Center.

**Visit the Watershed Discovery Center**
**Monday - Friday, 10 a.m. - 3 p.m.**
**and select Saturdays**

# PURPLE LOOSESTRIFE BEETLE

With its tall blooms and vibrant flowers, one might mistake Purple Loosestrife for a benign beauty of shorelines and wetlands. But beneath its decorative charm, this invasive plant is taking root and bringing serious problems to Northern Michigan.

Originally introduced to the United States as an ornamental plant, Purple Loosestrife has spread across our watersheds, outcompeting native vegetation, disrupting local plant communities, and destroying wildlife habitats.

Fast-spreading and difficult to remove, this invasive plant may seem unstoppable. But as is often the case when things seem dire, an unlikely hero has arisen—the *Galerucella* beetle.

This tiny and unassuming biocontrol agent has one mission: eat.

*Galerucella* beetles lay their eggs on the stems and leaves of Purple Loosestrife. When larval offspring hatch, they feed on flower buds, leaves, and stems while they make their way down to the soil, where they overwinter and develop into their adult form. Because the beetles overwinter at the base of the loosestrife plants, if you see signs of beetles, avoid disturbing the plant roots. Signs of beetles include holes in the leaves, active beetles, and eggs on leaves and stems. Once colonies are established, they can return year after year.

Since 2006, the Watershed Council has coordinated the distribution of *Galerucella* beetles to lake associations in and around our service area in an effort to help control Purple loosestrife. Nearly twenty years later, the program continues to grow. This summer, a record high of 25,000 beetles from a beetle-rearing laboratory in Kalamazoo, Michigan will be released as part of the Watershed Council's ongoing efforts to prevent the spread of aquatic invasive species.

*What to look for: Ranging from 3 to 5 millimeters in length, Galerucella beetles are light brown in color and are distinguished by their elongated bodies and intricate wing patterns. As larvae, they appear as small, yellow grubs. Eggs are initially translucent and can be found in clusters on the undersides of leaves.*


TIP OF THE MITT Watershed Council

426 Bay Street
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# Don't Pollute!

# Scoop the Poop!

- There are approximately 28,800 dogs in the Watershed Council's service area.
- On average, a dog excretes between 0.5 and 0.75 pounds of waste per day.
- That equals approximately 21,500 pounds of pet waste in one day!
- Pet waste can take one year to decompose.

Only about 60% of dog owners consistently pick up their pet waste.

**Dog poop is the #3 cause of water pollution**

- Pet waste contains nutrients that cause excessive algae and vegetation growth.
- Pet waste can contain parasites and fecal coliform bacteria, which can spread diseases like Giardia, E. coli, and Salmonella, causing serious illness in humans.
- Pet waste decays, using up dissolved oxygen and releasing compounds that are harmful to fish and other animals that rely on water.

The best solution to keeping water safe from pet waste pollution is simple: Scoop it! Bag it! Trash it!

- **Scoop It.** Always carry a bag when you walk your dog.
- **Bag It**. Use the baggie like a glove, scoop the poop, invert and seal the bag.
- **Trash It**. It belongs in the trash. Don't leave dog waste on the trail or in the water.

Pick up a free pet waste bag dispenser at the Watershed Council while supplies last!

Scoop it! Bag It! Trash it!

Funding for this project provided by the Marana Webber Tost Charitable Fund at the Petoskey-Harbor Springs Area Community Foundation.