MAISRC NEWSLETTER

MINNESOTA AQUATIC INVASIVE SPECIES RESEARCH CENTER

READ ONLINE

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JUNE 2026

MYSTERY SNAILS AND MINNESOTA WATERS

At first glance, mystery snails may seem harmless. These large freshwater snails, commonly found in lakes, ponds, and slow-moving rivers, spend much of their lives **grazing along muddy bottoms**. But behind their unassuming appearance lies a complex story that continues to challenge scientists and natural resource managers.

Mystery snails are native to Asia but have been established in North America for more than a century. First sold in food markets and later spread through waterways and human activities, they are now found in **many lakes and rivers in Minnesota.**

Research has shown that **high densities of mystery snails can alter the feeding behavior of native snails** and reduce populations of some native species. Their large populations can also produce substantial shell accumulations when die-offs occur, creating a **build up of shell deposits on shorelines** and affecting recreation.

The presence of mystery snails in a lake also raises questions about **parasites and human health**. They can host a variety of parasites, including one called **cercariae** that could pass on to humans as **swimmer's itch**. They are also known hosts of the native parasite *Aspidogaster conchicola*, which can spread to native freshwater mussels. While the presence of these parasites does not necessarily mean disease outbreaks will occur, it highlights the importance of understanding **how introduced species interact with native ecosystems**.

MAISRC researchers are tackling the complex life of the **mystery snail with four distinct research projects**, working together to build a comprehensive understanding of how these invasive snails affect Minnesota lakes and how they can be managed.

Mystery snails; photo by MAISRC

One project examines **where mystery snails occur, their habitat preferences, and whether they threaten culturally and ecologically important wild rice beds**, while also evaluating hand-removal efforts as a management tool. A second project investigates the **role mystery snails may play in the transmission of swimmer's itch parasites**, helping researchers understand potential connections between aquatic invasive species and human health. A third project focuses on **broader ecosystem impacts, studying how mystery snails alter food webs**, compete with native species, and influence nutrient cycling and water quality in invaded lakes.

Continued..

Finally, a technology-focused project is developing **new tools that combine robotics, image analysis, and predictive modeling to improve detection and monitoring of mystery snail populations**. Together, these projects span the full spectrum of mystery snail research. MAISRC research is looking at early detection and population monitoring, ecological impacts, public health concerns, habitat protection, and management strategies. The knowledge from these projects will **provide the science needed to guide future decision-making** in Minnesota waters.

The story of mystery snails reminds us that **solutions to aquatic invasive species are rarely simple**. Understanding their biology, ecology, and impacts is essential for making informed decisions about managing our lakes and protecting native aquatic ecosystems. **Visit the project links to the right** to learn more.

Together, these projects span the full spectrum of mystery snail research—from early detection and population monitoring to ecological impacts, public health concerns, habitat protection, and management strategies.

MAISRC MYSTERY SNAIL PROJECTS:

Understanding the influence of AIS on swimmer's itch
Mystery snail habitat preferences - threats to wild rice?
The impact of mystery snails on food webs
Investigating the case of invasive mystery snails

Clockwise from top left: Kurt Andreas, Cory Ryan, Maajii-akii-gikenjigewin Field Crew, and MAISRC.

MAISRC ART EXHIBITION

Inaugural MAISRC Art Exhibition Celebrates Creativity in AIS Research and Outreach

This spring, MAISRC hosted its **first-ever Art Exhibition**, bringing together science, communication, and creativity to explore one of Minnesota's most pressing environmental challenges, aquatic invasive species.

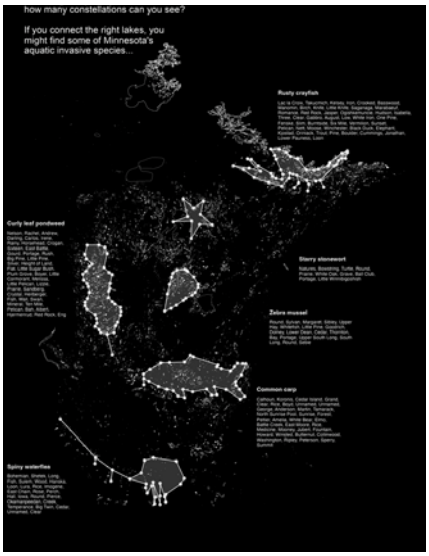
The exhibition was created to acknowledge the beauty that can emerge from an ugly problem. Through artistic interpretations of AIS, participants showcased **the diversity of AIS in Minnesota, highlighted innovations in research and management, celebrated the creativity** of MAISRC Research Fellows, Staff, and Graduate Scholars, and explored new ways of communicating science through art.

This year's exhibition featured 11 submissions representing a wide range of artistic styles and scientific perspectives. Award winners included:

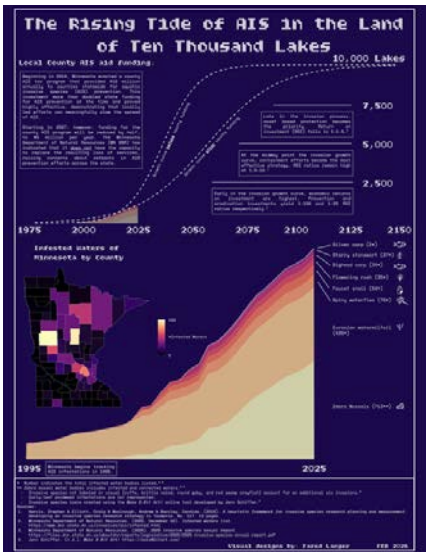
- **Overall Best in Show – First Place: *At the Center of it All* by Amanda Schuermann**
- **Overall Best in Show – Second Place: *Constellations of Lakes* by Grant Vagle**
- **Overall Best in Show – Third Place: *The Rising Tide of AIS in Minnesota* by Jared Langer**

Additional awards recognized excellence in research communication, science communication, data visualization, and representation of Minnesota's AIS diversity.

At the Center of it All
Acrylic paint on air dry clay
Amanda Schuermann



Constellations of Lakes
Digital media
Grant Vagle



The Rising Tide of AIS in Minnesota
Digital media
Jared Langer

The winning artwork and selected exhibition pieces will be displayed on the **second floor of Skok Hall**. We encourage everyone to stop by and experience the many creative ways AIS research, management, and outreach were brought to life through art.

WEBINARS

Date	Topic	
Wednesday July 8, 1:00pm CST	**Genomic surveillance of zebra mussel populations using genotyping by sequencing** Presented by: Daryl Gohl	Register
Wednesday September 9, 1:00pm CST	**Restoring our underwater forests: Can native revegetation enhance invasion resistance in lakes?** Presented by: Abha Panda	Register
Tuesday, November 10, 1:00pm CST	**Trends in watercraft traffic on Minnesota lakes** Presented by Jaren Langer	Register

PLANT IDENTIFICATION WORKSHOP

Did you know that **Minnesota is home to six native watermilfoil species** along with one invasive watermilfoil? Or that we have eight species of carnivorous bladderworts? This workshop is a great opportunity to gain in-depth knowledge of our underwater forests. Through a partnership with the Minnesota Department of Natural Resources and the University of Minnesota Extension, register for this **fun, hands-on workshop** today!

- **Location:** Plant Growth Facility West, 1552 Gortner Ave, St Paul, MN 55108
- **When:** July 16, 2026 from 8 a.m. to 4 p.m.
- **Cost:** $90; includes lunch.

Join us in a room **filled with aquatic plants** gathered from across the state with experts guiding you through how to identify all of them. This workshop is geared toward all levels, **from beginners to experts**, and you don't have to be an AIS Detector.

Consultants that provide aquatic plant surveys for hire have the opportunity to complete this workshop and pass an accompanying test to be recognized on the list of surveyors of aquatic plants in lakes on the Minnesota DNR's website.

LAB TO LAKES UPDATES

LAB TO LAKES Project Manager: Sarah Unruh, labtolakes@umn.edu

On June 1, we launched the Lab to Lakes eDNA testing lab, an exciting new program that puts MAISRC research into action. The program builds on findings that water samples collected by trained volunteers can be just as accurate as those collected by University scientists. By expanding genetic monitoring through community participation, **we could detect aquatic invasive species earlier**. Early detection means we can stop the spread of AIS before they become costly to manage.

We are encouraged by the response! In just two weeks, **more than 100 people submitted applications to participate** in the eDNA testing lab. This summer, volunteers will collect **samples from up to 70 lakes** and other water bodies, which will be tested for zebra mussel DNA.

The resulting data will provide **actionable information to natural resource managers** across the state while helping MAISRC evaluate how this approach can be scaled to support broader monitoring efforts.

Unfortunately, we could not include everyone interested in participating during this pilot year. If you expressed interest or missed the opportunity to apply, **stay tuned**! We look forward to sharing what we learn this season and offering additional opportunities to get involved in 2027.

We are excited to see **MAISRC research move from the laboratory into real-world application**, bringing us one step closer to earlier detection and more effective management of aquatic invasive species.

Learn more: z.umn.edu/edna-lab

WELCOME TUHINUR ARJU!

Please join MAISRC in welcoming Tuhinur Arju, MS, to the team! Tuhinur will be the lab technician for the Lab to Lakes eDNA lab!

Tuhinur's role at MAISRC will involve generating **high-quality laboratory research data** for the MAISRC **Lab to Lakes** project using polymerase chain reaction (PCR) in the eDNA lab. She received her MS in Zoology (Parasitology) from the University of Dhaka, Bangladesh. She is also passionate about gardening!

Tuhinur Arju, MS

OUTREACH NEWS

This spring marked the beginning of another busy outreach season for MAISRC. A few key events included the **Otter Tail Lakes Stewardship Symposium**, where MAISRC Director Nick Phelps and Outreach Specialist Maddie Hayden presented to lake advocates, residents, and professionals dedicated to protecting and preserving Minnesota's lakes. The symposium provided an **opportunity to discuss current aquatic invasive species research** and management challenges facing Minnesota waters.

The first weekend of June brought another successful regional event: the **10th Annual AIS Roundtable in Crosslake**. Hosted by the Whitefish Area Property Owners Association (WAPOA) and the Crow Wing County Lakes and Rivers Alliance (LARA), the event featured four MAISRC researchers sharing updates on ongoing and upcoming research projects. Now in its tenth year, the Roundtable continues to **strengthen connections between researchers, lake associations, and community members** while fostering conversations about emerging AIS issues and research needs.

MAISRC researchers: Ingrid Schneider, Nick Phelps, Maddie Hayden, Amanda Schuermann, and Liv Nyffeler after presenting to WAPOA.

Beyond community presentations, MAISRC staff have also participated in youth education programs, including the 2026 **Project WET's Fish School at Garlough Magnet** *(see photo above)*. This summer, staff are looking forward to engaging with students through the **Bell Museum's Climate Science in Action program** and **Duck Duck Loon** events, helping connect the next generation of Minnesotans with aquatic science and stewardship.

Outreach efforts continue across the state throughout the summer. MAISRC staff will be **traveling to lake association meetings, fishing organizations, watershed groups, and other community events** to share the latest research findings and discuss aquatic invasive species prevention and management. While the summer speaking schedule is nearly full, organizations interested in hosting a MAISRC speaker can request one here.

PUBLICATION

P.I. Charter: A Shiny Application for Collecting, Cleaning, Compiling, and Communicating Point-Intercept Aquatic Plant Data

Click here to read the full article!

Bringing Minnesota's Lake Plant Data Together

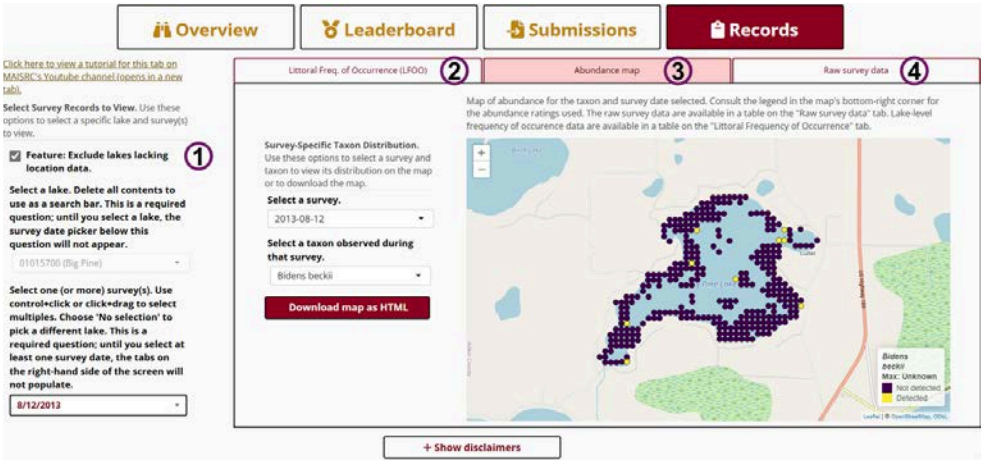
We love our lakes! Fishing, swimming, boating, or just enjoying the scenery. Protecting these waters depends on good information, but valuable data are often scattered across agencies, consultants, researchers, and local organizations. A new publication led by MAISRC researchers highlights an interesting solution: **P.I. Charter, a web-based tool that brings decades of aquatic plant survey data together in one accessible place.**

Published in **Ecology and Evolution,** the paper describes how P.I. Charter lets users submit, standardize, visualize, and share aquatic plant survey data collected across Minnesota. Since launching in 2023, the platform has **compiled more than half a million plant observations from over 300 lakes,** representing the work of dozens of organizations and thousands of hours spent monitoring Minnesota waters.

Why survey aquatic plants, though? Why does this matter? Aquatic plants are the foundation of healthy lake ecosystems, but **some invasive plant species can alter habitat or displace native plant species**. By making historical and current survey data easier to find and compare, **P.I. Charter helps researchers and lake managers detect emerging threats, evaluate whether management efforts are working, and better understand how plant communities change over time**. All in one place!

P.I. Charter demonstrates the **power of collaboration**. By combining information that once existed in separate files and computers, MAISRC is creating a clearer picture of the health of its waterways.

Check out **P.I. Charter**: z.umn.edu/picharter



"Records" tab of P.I. Charter. The sidebar panel allows users to select lakes and surveys (1). The right panel includes three subtabs (2–4). (2) First (not shown) displays littoral frequency of occurrence (LFOO) data for all taxa for all selected surveys. (3) Second (shown) presents a map of taxon-specific abundance data for the selected survey. (4) Third (not shown) displays raw data from the selected survey(s) in a tabular, downloadable format.

Bajcz, A. W., Larkin, D. J., Verhoeven, M. R., Newman, R. M., Walsh, J. R., Panda, A., & Phelps, N. B. D. (2026). P.I. Charter: A Shiny Application for Collecting, Cleaning, Compiling, and Communicating Point-Intercept Aquatic Plant Data. Ecology and Evolution, 16(6), e73779. https://doi.org/10.1002/ece3.73779

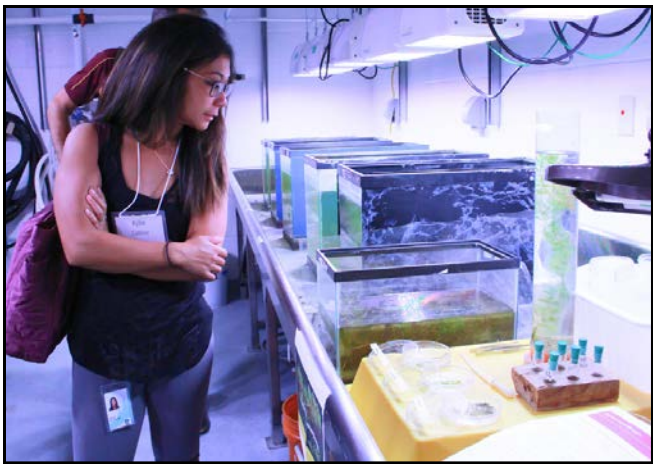
UPCOMING EVENTS

MAISRC LAB TOURS

Get up close and personal with aquatic invasive species with a **free tour of the MAISRC Containment lab!** You'll get an inside look at our **state-of-the-art facility** and discover the innovative research underway.

REGISTER

The tours are free, but space is limited and registration required.



- **July 8, 2026**: AIS Detectors webinar: Genomic surveillance of zebra mussel populations using genotyping by sequencing, presented by Daryl Gohl
- **September 9, 2026:** AIS Detectors webinar: Restoring our underwater forests: Can native revegetation enhance invasion resistance in lakes? Presented by Abha Panda
- **October 28, 2026**: Save the Date: AIS Research and Management Showcase
- **November 10, 2026:** AIS Detectors webinar: Trends in watercraft traffic on Minnesota lakes, presented by Jared Langer

IN THE NEWS:

- Healthy lakes to support people and fish, Gretchen Hansen interviewed, (CFANS news)
- New coatings, genomic surveillance among ways to prevent zebra mussels, Maddie Hayden and Ingrid Bey interviewed, (Park Rapids Enterprise)
- Minnesota scientists are unraveling the mystery behind the state's walleye strains, Laurel Sacco interviewed, (Star Tribune)
- Year-long carp study on Spring Lake aimed at producing better water quality, Externship program, (Prior Lake News Compass)
- AIS Detectors on Prairie Sportsman, (Pioneer PBS)
- Aquatic Invasive Species detector class planned for June, AIS Detectors' program mentioned, (Brainerd Dispatch)
- New Genomic Study Reveals Hidden Pathways Driving Minnesota's Zebra Mussel Spread, Daryl Gohl and Michael McCartney interviewed, (UMN News)

MAISRC'S MISSION

MINNESOTA AQUATIC INVASIVE SPECIES RESEARCH CENTER
UNIVERSITY OF MINNESOTA

Created in 2012 through funds from the Minnesota legislature, the Minnesota Aquatic Invasive Species Research Center's mission is to **develop research-based solutions** that can reduce the impacts of aquatic invasive species in Minnesota by **preventing spread, controlling populations, and managing ecosystems**; and to **advance knowledge** to inspire action by others.

ENVIRONMENT AND NATURAL RESOURCES TRUST FUND
MINNESOTA

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