MAISRC NEWSLETTER

MINNESOTA AQUATIC INVASIVE SPECIES RESEARCH CENTER

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ITCHIN' TO SWIM: THE SCRATCHY SIDE OF MINNESOTA'S LAKES

by Maddie Hayden, Research Outreach Specialist, and Amanda Schuermann, MAISRC Graduate Scholar

Swimmer's itch, officially called *cercarial dermatitis* (and sometimes "clam digger's itch") is an itchy skin rash caused by tiny parasites that burrow into your skin while you're swimming or wading in lakes.

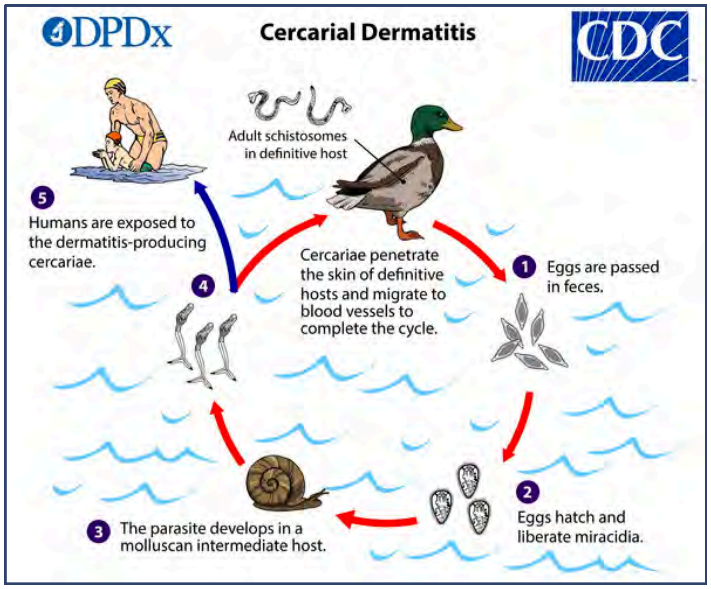

Figure created by Centers for Disease Control and Prevention (CDC)

What is it?

Swimmer's itch is caused by a type of flatworm called a *trematode* (or fluke). These parasites can't survive without living inside hosts. In fact, their life cycle is a bit of a **relay race:** they need at least two different animals to complete it. First, they infect certain species of snails, where they grow into a free-swimming stage called a ***cercaria***. Then, they seek out waterfowl or mammals (like muskrats) to mature and reproduce. Swimmer's itch happens when these parasites mistake people for their intended hosts and try (unsuccessfully) to move in.

In North America, most cases of swimmer's itch are caused by **avian schistosomes**; flatworms that use waterfowl such as ducks, geese, and swans as their final hosts. These parasites are spread mainly by two types of snails (*physid* and *lymnaeid*), though some snail hosts are still unknown. While there are also mammalian schistosomes, they are less commonly linked to swimmer's itch.

Photo by Naomi Blinick

AIS, Snails, and Waterfowl

Zebra mussels, a notorious aquatic invasive species, are powerful filter feeders. By removing particles from the water, **they make lakes clearer**, allowing more sunlight to reach deeper areas. This boosts the growth of algae and aquatic plants, rippling through the ecosystem. Algae on lake bottoms feed snails, while extra plants support ducks, geese, and swans, sometimes even shifting their migration patterns.

Because snails and waterfowl are key hosts for the swimmer's itch parasite, we hypothesize that **zebra mussels may promote its lifecycle**. More snails provide habitat for the larval stage, and more waterfowl create opportunities for the adult stage. By reshaping ecosystems, AIS like zebra mussels **may create conditions** that favor swimmer's itch.

Continued..

What is MAISRC doing?

Researchers at MAISRC are working to better understand the life cycle of the parasites that cause swimmer's itch, with a special focus on **how aquatic invasive species like zebra mussels and mystery snails affect their development and spread**. In addition, the team will study how common swimmer's itch is in Minnesota by looking at its prevalence, frequency, and severity in lakes both invaded and uninvaded lakes. This work will combine field surveys, public health reports, and community outreach to **build a clearer picture of the problem**.

As a final objective, this project will track where and when swimmer's itch is most likely to occur, helping to **identify potential hotspots** for future monitoring and management. The results will lay the groundwork for more targeted studies and, ultimately, **practical strategies** to reduce the problem.

For more project information visit: z.umn.edu/itch

SWIMMER'S ITCH

What's your swimmer's itch story?

Have you, or someone you know, experienced swimmer's itch on a Minnesota lake in recent years? We want to hear from you! **Your reports will help guide future field sampling** and help us to explore potential environmental covariates that may be correlated with swimmer's itch exposure. Click the image above or visit: **z.umn.edu/itch-survey**

Photo of banded mystery snail by Kurt Andreas

MAISRC STAFF UPDATE

THALYA REYES: MAISRC'S NEW TEAM MEMBER

Please join MAISRC in welcoming **Thalya Reyes, MPP/MCRP** to the team! Thalya is stepping into MAISRC's new staff role: **Administrative & Communications Assistant**. In this role, she supports organizational operations and administrative processes, collaborates on communications initiatives, and assists with program delivery.

Thalya holds a degree in Environmental Studies with minors in Geography and Geographic Information Science from Rowan University. After serving two AmeriCorps terms, Thalya went on to earn a dual Master's in Public Policy and City & Regional Planning (MPP/MCRP) from the Bloustein School at Rutgers University- New Brunswick.

Thalya's experience includes time working in environmental monitoring and education, policy and planning research, community GIS/mapping, Spanish translation and interpretation, and marketing and communications.

CORI MATTKE: RESEARCH TECHNICAL STAFF AWARD WINNER

Congratulations to MAISRC Associate Director Cori Mattke, recipient of the UMN 2025 Research Technical Staff Award!

We're proud to celebrate Cori for her outstanding leadership and contributions; her thoughtful, solutions-oriented approach is vital to MAISRC's success. From managing a complex portfolio of projects and budgets to supporting researchers and fostering collaboration across Minnesota - Cori keeps the Center moving.

AIS DETECTOR UPDATES

AIS DETECTORS
UNIVERSITY OF MINNESOTA
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WEBINARS

Date	Topic	
Wednesday January 28, 1:00pm CST	**The FAQs of eDNA** Presented by: UMN eDNA panel	Register
Wednesday May 6, 1:00pm CST	**Genetic options for controlling invasive carp species** Presented by: Michael Smanski	Register
Wednesday July 8, 1:00pm CST	**Genomic surveillance of zebra mussel populations using genotyping by sequencing** Presented by: Daryl Gohl	Register

SPINY SURVEILLANCE: 2025 RECAP

This MAISRC program uses a **participatory science approach to improve early detection and surveillance of spiny water flea** in Minnesota lakes. Recognizing that traditional monitoring is limited and that this small, unfamiliar species is unlikely to be reliably reported by anglers or residents, MAISRC developed a simple, standardized protocol that guides when and how to survey for spiny water flea using appropriate equipment and timing. **Participants follow a DNR-approved process to report both positive and negative findings**, helping build a clearer statewide picture of invasion status.

In 2025, the program demonstrated strong participation and meaningful coverage across the state. **Fifteen trained volunteers surveyed 40 lakes, completing 55 targeted surveillance efforts.** Importantly, no new spiny water flea infestations were detected during this work. While the absence of new detections is encouraging, **these results also highlight the value of proactive, well-timed surveillance** to confirm lake status and reduce uncertainty about where spiny water flea has and has not spread. Together, these efforts show how **coordinated participatory science can expand monitoring capacity** and provide critical information to managers working to slow the spread of aquatic invasive species in Minnesota.

Learn more: z.umn.edu/spinysurveil

DOCKSIDE EVENT RECAP: INVASIVE CATTAILS

In August, **MAISRC and Minnesota Sea Grant** hosted a field visit to a hybrid cattail research site at Coon Lake in Anoka County. Participants gathered at the park pavilion for invasive cattail education before heading out on pontoons and personal watercraft to see the research in action.

Hybrid cattail is a highly invasive plant that can **take over nearshore areas, displace native plants, and disrupt fish habitat**. Researchers **Amy Schrank and Claire Rude** shared their work testing whether removing cattails can help restore native vegetation and improve conditions for fish and wildlife.

Attendees learned about the methods being used to manage cattails, the **ecological impacts of dense cattail stands**, and how small-scale removal projects may support long-term lake restoration goals.

This hands-on event brought together **community members, researchers, and partners** to discuss the challenges and opportunities of managing hybrid cattails in Minnesota's lakes.

To learn more about this project, visit: z.umn.edu/cattails

MAISRC SCHOLAR HIGHLIGHT: ABHA PANDA

Congratulations to MAISRC graduate scholar Abha Panda, who won a poster award at the **International Symposium of Aquatic Plants in Lisbon, Portugal** (Sept. 15–19). Abha, a Ph.D. student in Dr. Dan Larkin's lab, presented her research *"To revegetate or not: a meta-analysis of aquatic plant community outcomes with and without active revegetation."*

Her work explores how **restoring native plant communities after invasive species management** can help build more resilient, invader-resistant ecosystems. We're proud to see Abha's innovative research recognized on the international stage!

LEARN MORE

Photo of Abha Panda, by Rebecca Slater

Abha working on seed management; photo by Naomi Blinick

OUTREACH NEWS

AIS RESEARCH AND MANAGEMENT SHOWCASE

MAISRC hosted its annual **AIS Research and Management Showcase on October 9, 2025**, at the University of Minnesota's St. Paul campus. The full-day event brought together researchers, resource managers, lake users, and other stakeholders to share and explore the latest tools, research, and technologies for preventing and managing aquatic invasive species.

The showcase featured sessions on topics including **genetic approaches to carp control, invasive plant management, big data methods for predicting AIS spread**, and impacts on ecosystems and human health. Attendees also participated in lightning-round presentations on new and emerging projects, toured MAISRC's containment lab, and engaged with interactive demonstration stations offering hands-on learning about AIS prevention and management.

View more photos: z.umn.edu/AIS-25-photos

All photos by Rebecca Slater

PUBLICATION

Coproducing a Technology Readiness Level framework for non-persistent genetic biocontrol of aquatic invasive species

Badger, J., et al (2025). Coproducing a Technology Readiness Level framework for non-persistent genetic biocontrol of aquatic invasive species. *Journal of Environmental Management*, 391.

Click here to read the full article!

Potential control method for common carp

MAISRC researchers are developing a synthetic incompatibility method that could control populations of pest or invasive species and prevent genetically modified aquatic organisms from spreading transgenes to wild populations.

This technique involves genetically altering males of the invasive species and releasing them into the wild, resulting in sterile offspring and eventual population control.

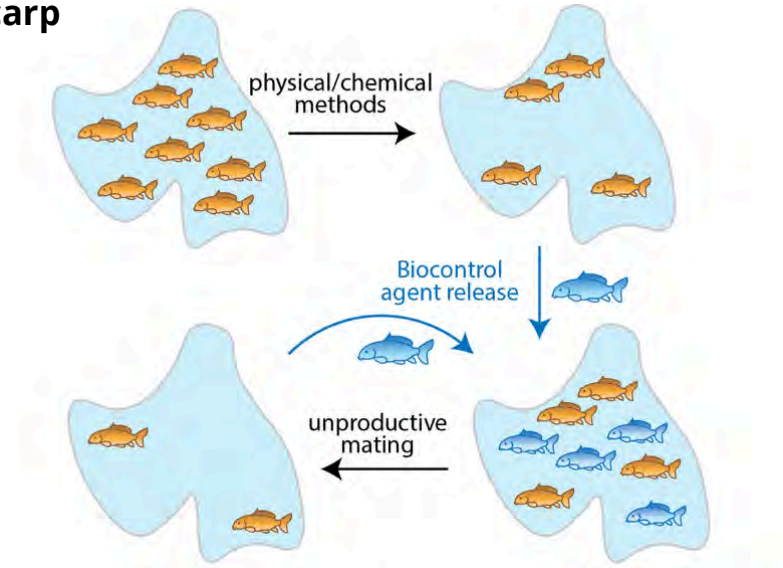
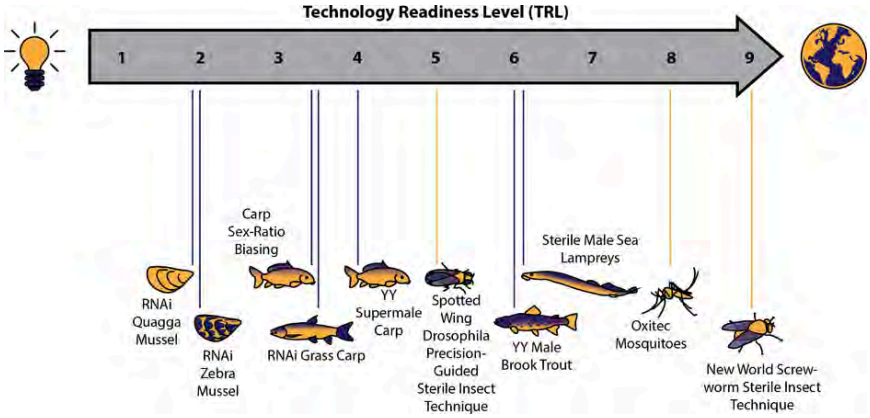


Figure by Julie Badger

Responsible technology

To ensure such groundbreaking technologies are developed responsibly, MAISRC researchers and a diverse group of stakeholders including Tribal representatives, regulators, watershed managers, and environmental organizations adapted NASA's "Technology Readiness Level" system. The result is a **step-by-step roadmap** that defines technical, regulatory, social, and financial milestones for moving genetic biocontrol from the laboratory to potential field trials.

In this publication, MAISRC researchers highlight the need for **clear communication** among developers, regulators, funders, and adopters when advancing novel pest control technologies.



Collaborating on success

This shared Technology Readiness Level framework provides a **common language for scientists, policymakers, and communities** helping to identify risks early, improve communication, and build trust. While still in early stages, the work offers important structure for responsibly exploring new genetic tools to protect Minnesota's lakes and rivers from invasive carp.

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.

- **January 28, 2026:** AIS Detectors webinar: The FAQs of eDNA, presented by UMN eDNA panel
- **February 17–19, 2026:** Invasive Species Forum, hosted by the Invasive Species Centre
- **March 4, 2026:** MAISRC Containment Lab free guided group tour: Register
- **May 6, 2026:** AIS Detectors webinar: Genetic options for controlling invasive carp species, presented by: Michael Smanski
- **July 8, 2026:** AIS Detectors webinar: Genomic surveillance of zebra mussel populations using genotyping by sequencing, presented by Daryl Gohl

IN THE NEWS:

- New Genomic Study Reveals Hidden Pathways Driving Minnesota's Zebra Mussel Spread, Daryl Gohl and Michael McCartney interviewed, *(UMN News)*
- Frog patrol: How scientists, students, and community members are guarding Minnesota's wetlands from disease, Amy Kinsley interviewed, *(UMN Vet Med)*
- University of Minnesota survey finds Minnesotans concerned about health of lakes, rivers, Nick Phelps and Gretchen Hansen interviewed, (MPR News)
- Invasive rusty crayfish trapping offers lake benefits, and a tasty meal, Valerie Brady interviewed, (Outdoor News)
- Minnesotans' water worries run deep, see science as a solution, Nick Phelps and Gretchen Hansen interviewed, (UMN News)
- Tag, bait, scoop: Researchers explore new ways to rid Minnesota lakes of pesky common carp, Sarah Unruh, Solomon David, Przemek Bajer interviewed, (MPR 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.

Funding for MAISRC is provided by the Minnesota Environment and Natural Resources Trust Fund (ENRTF) as recommended by the Legislative-Citizen Commission on Minnesota Resources (LCCMR); the State of Minnesota, and public donations.

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