



2015 Minnesota Aquatic Invasive Species Research and Management Showcase

Wednesday, September 16 • 9:30 a.m. – 4:00 p.m. • Continuing Education and Conference Center, St. Paul

Session key:



Invasive fish



Aquatic plants



Harmful microbes



Invertebrates

On-campus talks



My lake might have zebra mussels – what can I do?

Speakers: Mike McCartney, Keegan Lund (Minnesota DNR), and Kelly Pennington (Minnesota DNR)

MAISRC and the DNR have jointly developed a program to study the effectiveness of pesticide treatments to control early infestations of zebra mussels. This talk will explain the Zebra Mussel Lake Treatment and Research Pilot Program and its goals, the role of each organization, the criteria for a lake group to participate in the project, how to apply for a treatment permit, and likely benefits to our research on this new approach to management of zebra mussels.



Fish disease: micro invaders with macro consequences

Speakers: Nick Phelps and Megan Tomamichel

This session will focus on emerging fish diseases in Minnesota, including heterosporosis and viral hemorrhagic septicemia (VHS). We will discuss how these diseases spread, what organisms are involved, and how they affect fish on an individual and population level.



I think I have a carp problem

Speakers: Przemek Bajer and Justine Koch

Learn about the step-by-step approach MAISRC uses to identify, assess, and control common carp infestations in a lake or watershed. Learn about what goes into identifying whether or not there is a carp problem, characterizing the problem, exploring the root causes of the infestation, and identifying possible solutions. This session will include an introductory talk, interactive demonstrations, and plenty of time for questions!



Keeping the flying carp grounded at Mississippi River locks and dams

Speakers: Peter Sorensen and Dan Zielinski

This session will provide an overview and update of MAISRC's project aimed at blocking silver and bighead carp passage through the lock and dam systems of the Upper Mississippi River Basin by modifying gate operations and developing acoustic deterrents. This project combines computational modeling of water flow, experimental swimming tests of Asian carp, and installation of an acoustic deterrent system at Lock and Dam #8 (Genoa, WI) to identify how we might inhibit passage of Asian carp while having minimal impacts on native fishes.



WANTED: AIS Detectors and Trackers

Speakers: Eleanor Burkett and Susan Galatowitsch



Come learn about the new AIS Extension programs that are currently being developed, and how you will be able to participate in the future. You may want to be a part of the **Detector** program and learn about how to reliably identify AIS and speed up the response to new AIS infestations across the state. If your lake is already infested, you may want to join the **Tracker** program to learn how to survey your lake for AIS and use the data to guide management decisions.



Illuminating the microbes associated with AIS in the search for their Achilles heel

Speakers: Chanlan Chun



Aquatic invasive species – particularly quagga mussels, zebra mussels, and Eurasian watermilfoil – are closely associated with microbes, including pathogens. In this session, we will describe our research to identify and characterize the distribution of microbes associated with AIS and how this information will be used to develop biological control agents for management.



Advancing Asian carp management using risk analysis: Findings from year one

Speaker: Adam Kokotovitch

This project is using risk analysis to help prioritize and improve Asian carp management in Minnesota. In this session, I'll summarize the findings from in-depth interviews that were conducted with agency officials and stakeholders to better understand and address the conflicts and tensions surrounding Asian carp management. I'll then outline the potential adverse effects from Asian carp as identified in focus groups with managers and stakeholders, and describe how this information will inform a risk assessment in the coming year.



Modeling: it's not just for the runway anymore. Predicting the spread of AIS and disease

Speaker: Nick Phelps

Understanding how invasive species and disease have spread in the past can inform how they may move in the future. Using an epidemiological modeling approach of multiple pathways (i.e. water connectivity, boater movement, etc.), researchers at MAISRC and the University of Minnesota College of Veterinary Medicine are developing tools to predict future invasions of zebra mussels and viral hemorrhagic septicemia virus.



Fish perfume: pheromone attractants as an approach to control and measure fishes

Speaker: Ratna Ghosal

Pheromones, chemical cues that animals release and use to identify and find each other, have special promise as attractants for invasive fishes. This is especially true for invasive carps, which live in poorly lit waters for which very few sampling and control mechanisms exist. In this session, participants will be shown how researchers implant pheromone capsules in a fish that could be potentially be released in the wild to attract conspecific individuals. We'll also explain how pheromones are being developed for invasive fish monitoring and possible control.

Note: This session includes a short walk from the Continuing Education and Conference Center (less than ten minutes).



CSI meets AIS: Advancing DNA surveillance methods for invasive carps

Speaker: Jessica Eichmiller

This session provides an overview of our work to improve DNA surveillance for invasive common and Asian carps. We'll explain how we sample for DNA, what we're learning it means when we detect carp DNA in lake or river samples, and how this tool may be used for eventual control of these invaders.

Field sessions

Field sessions will happen rain or shine, so dress appropriately!

All sessions will require participants to sign a liability waiver the day of the event.



The Sonic Chamber: Using sound to block Asian carp (field session 1)

Speakers: Clark Dennis, Dan Zielinski, and Peter Sorensen

Join MAISRC researchers at Lock & Dam #1 (Ford Dam) to learn about how acoustic deterrents might be used to block the passage of Asian Carp through Mississippi River lock chambers. On this field session, we will showcase our experimental flume set-up in the auxiliary lock chamber and demonstrate how we perform field tests of the acoustic deterrent system using common carp as a surrogate species for Asian carp.

Note: This session will take participants via bus to Lock and Dam #1 in Minneapolis.



What's in the water? Plant mysteries revealed! (field session 2)

Speakers: Sue Galatowitsch and Eleanor Burkett

Wade into the shallows of Lake Phalen, prospecting for wild celery and a dizzying array of pondweeds and bulrushes – not to mention a few of Minnesota's most notorious AIS! We'll investigate what gives plants their "competitive edge" in water and, with a little luck, see the world's smallest flowering plant. Learn to identify aquatic plants at one of the nicest lakes in the metro area.

Note: This session will take participants by bus to the lake. Participants will need to wear shoes that they don't mind getting wet.



I do have a carp problem – Carp management in action (field session 3)

Speakers: Przemek Bajer, Justine Koch, Joey Lechelt, Nathan Banet, Reid Swanson, Josh Poole

In this session you will travel to the Phalen Chain of Lakes to join the MAISRC field crew at a former study site. Here you will get hands-on experience with some of the equipment and techniques researchers use to study and manage common carp. Come try your hand at boat electrofishing, radio-telemetry, and trap-netting!

Note: This session will take participants via bus to the lake. Participants will need to wear close-toed shoes.



Exploring the zebra mussel genome: why it's important and how we're doing it (field session 4)

Speakers: Mike McCartney and Kenny Beckman

Learning more about the genetic makeup of an invasive species has the potential to shed valuable light on what makes it such a successful invader. In this session, enjoy a tour of the University of Minnesota Genomics Center and hear from Kenneth Beckman and Aaron Becker who are working in partnership with MAISRC to study the zebra mussel genome. Learn about the potential outcomes and future benefits of this work, as well as about how it will improve our understanding of zebra mussel spread around Minnesota.

Note: This field trip will take attendees to the University of Minnesota Genomics Center on the East Bank of the Minneapolis campus via the Campus Connector bus.

(Field session 5, CSI meets AIS: Advancing DNA surveillance methods for invasive carps, has been changed to an on-campus session.)



Managing submersed aquatic plants: promoting natives while controlling invasives (field session 6)

Speakers: Adam Kautza and Melaney Dunne

Jump on board a pontoon boat and float around beautiful Lake Phalen to learn how to sustain a healthy aquatic plant community on your lake. Hear from experts about the response of native and invasive plants to invasive species management, including the removal of common carp and the use of herbicides on invasive plants such as Eurasian watermilfoil and curlyleaf pondweed. Also hear about research into enhanced biological control of these invaders with milfoil weevils and see demonstration of our field sampling methods. **Note:** Session will take participants by bus to the lake.



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Research conducted at the Minnesota Aquatic Invasive Species Research Center is possible through the support of the Clean Water Fund, the Environment and Natural Resources Trust Fund, Minnehaha Creek Watershed District, National Science Foundation, Riley-Purgatory Bluff Creek Watershed District, the U.S. Geological Survey, and private donations.