



# 2021 Research and Management Showcase

## Session Descriptions

### Frozen: Can invasive freshwater golden clams withstand Minnesota's winters? - Megan Weber

10:15 am

*Corbicula fluminea* (freshwater golden clam) is a little known aquatic invasive species in Minnesota. The entire state has generally been thought to lack a suitable climate match for the species to persist outside of isolated river populations where warm water discharges keep water temperatures warmer throughout our cold winters. Now, a discovery by a young Starry Trek participant might be changing that thinking. Learn from UMN Extension Educator and MAISRC researcher, Megan Weber about this aquatic invasive species, how discoveries made by everyday Minnesotans are important parts to AIS management, and how her MAISRC rapid response project is helping us better understand the survival of this species in an inland Minnesota lake.

3:15 pm

### Genetic Biocontrol - Attitudes and Perceptions - David Fulton & Kiley Davan

10:15 am

Genetic biocontrol – what does the term mean to you? Join researchers Dr. David Fulton and Kiley Davan as they delve into the complexities of public perceptions, attitudes, levels of support when it comes to using genetic techniques for controlling aquatic invasive species in Minnesota. Their project also specifically looks to hear from, work with, and understand the concerns of Minnesota's Tribal Nations as pertaining to using genetic techniques for invasive species control.

1:15 pm

### Improving the Efficiency of Watercraft Inspections Through Coordination and Cooperation - Amy Kinsley & Robert Haight

11:15 am

Watercraft inspections are an important activity used to prevent the spread of aquatic invasive species in Minnesota. Currently, inspection locations are determined at the state and county level based on each responsible sector's management goals and resources. Amy Kinsley and Robert Haight discuss preliminary results of their work to increase the efficiency and efficacy of watercraft inspection efforts by quantifying the benefits of state-level coordination and between-county cooperation.

2:15 pm

### Optimizing eDNA Monitoring for Multiple AIS - Josh Dumke & Chris Rounds

9:15 am

Knowing where aquatic invasive species (AIS) are present is the first step of managing their spread. Environmental DNA (eDNA) has potential to be a cost-effective method to monitor lakes for multiple aquatic invasive species (AIS), but it is a relatively new tool for AIS detection and we are still learning how to best use it. Hear from NRRI researcher, Josh Dumke, and UM-Twin Cities graduate student, Chris Rounds, on the progress made in the first field season of this project, and prospective application of findings.

1:15 pm

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### Identifying Genes for Zebra Mussel Biocontrol - Daryl Gohl & Scott Ballantyne

- 11:15 am Using information from the recently completed zebra mussel genome, we are working to identify genetic targets that impair zebra mussel survival or attachment to surfaces. We are employing a technique called RNA interference, which has been successfully used in a wide variety of other organisms to knock-down gene expression in a targeted manner and are developing phenotypic assays to study the effects of these genetic manipulations in the lab.
- 3:15 pm

### Low-Dose Copper for Suppression of Zebra Mussels in Minnesota Lakes - Diane Waller & Angelique Dahlberg

- 11:15 am Low-dose copper has potential for controlling zebra mussel populations by suppressing veliger production and settlement. Hear from USGS researcher, Diane Waller, and MAISRC Grad Fellow, Angelique Dahlberg, on the results of a bay-wide treatment with low dose-copper on Lake Minnetonka, why that prompted predicting and testing different copper concentrations in a lake-side trial on Pelican Lake, and how the results will guide next steps.
- 2:15 pm

### Multibeam Sonar for Zebra Mussel Detection - Jessica Kozarek

- 10:15 am Zebra mussels pose a serious threat to Minnesota lake and river ecosystems. Current survey and detection methods for this invasive species are time, labor, and cost-intensive. Using new technology, such as multibeam sonar, to detect zebra mussels would likely be far more efficient, effective, and could be used for early detection in rivers, lakes and reservoirs and to track changes in zebra mussel density. Join Research Fellow, Dr. Jessica Kozarek to learn about her current project and in-lake trials this year detecting the presence and abundance of invasive and native mussels.
- 1:15 pm

### Outreach Campaign to Prevent the Spread of Spiny Water Fleas - Valerie Brady

- 10:15 am Spiny water fleas are an invasive zooplankton that alters the food web and reduces food available for native fishes. Researchers Dr. Valerie Brady and Dr. Donn Branstrator determined what angling equipment has the highest risk of spreading spiny water fleas and worked with MAISRC staff to create a nearly statewide outreach campaign to enlist anglers and boaters to join lake management groups to stop the spread of spiny water fleas. Hear how they built that campaign and they hope to keep it going.
- 3:15 pm

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# 2021 Research and Management Showcase

## Session Descriptions

### Enhancing Habitat and Diversity in Cattail-Dominated Shorelines - Amy Schrank

- 9:15 am Nearshore aquatic plants are an important source of biodiversity in lakes and are critical to fish communities, including important game species (walleye, bass, pike, sunfish, etc.) and forage fishes (minnows, darters, etc.). In Minnesota, hybrid/narrowleaf cattails have expanded in nearshore lake communities, altering environmental conditions and displacing native plant species. Hear from Minnesota Sea Grant researcher, Dr. Amy Schrank about a project to determine if mechanical cattail removal can improve nearshore lake habitat for native plants and fishes.
- 11:15 am

### Eurasian Watermilfoil Ecology and Impacts - Gretchen Hansen

- 9:15 am We know that aquatic invasive species can have a devastating impact on a lake's natural ecosystem. In this project, we focus on three major questions: 1. What determines the infestation and abundance of invasive Eurasian watermilfoil? 2. How can we expect Eurasian watermilfoil abundance in Minnesota to change as the climate warms? And 3. What are the impacts of Eurasian watermilfoil infestation on lakeshore property values? Join Dr. Gretchen Hansen to find out!
- 2:15 pm

### Invasive *Phragmites* Control Efforts in Minnesota - Dan Larkin & Julia Bohnen

- 9:15 am MAISRC researchers have been investigating the spread of invasive *Phragmites australis* (common reed) in Minnesota and supporting large-scale control efforts. Research Fellow, Dr. Julia Bohnen and Associate Professor / Extension Specialist, Dr. Dan Larkin will provide an update on control efforts, introduce new efforts to support transition of wastewater treatment facilities away from using invasive *Phragmites*, and present results of a genetic analysis to identify populations of native x invasive hybrid *Phragmites*.
- 2:15 pm

### Restoring Native Aquatic Vegetation - State of the Field - Dan Larkin & Mike Verhoeven

- 1:15 pm Reestablishment of native plants is a critical component of lake restorations. Paired with water quality improvements and invasive species control, reestablishing native aquatic plants has the potential to boost habitat value, reinforce water quality improvements, and potentially reduce future plant invasions.
- 3:15 pm We'll discuss the forefront of knowledge on native plant restorations, and showcase the results of a four-year MAISRC study aimed at understanding the role that invasive species removal can play in native lake plant revegetation.

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# 2021 Research and Management Showcase

## Session Descriptions

### Genetic Tools for Watermilfoil Management - Ray Newman

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When the invasive Eurasian watermilfoil crossbreeds with Minnesota's native Northern watermilfoil, hybrid strains are created. These hybrid strains have been shown to have more resistance to

11:15 am

management efforts including herbicide treatments. Hear from Dr. Ray Newman on his efforts to create a catalog of genotypes in Minnesota in order to improve management options.

### Illegal Release of Live Baitfish by Recreational Anglers Drives Fish Pathogen Introduction Risk in Minnesota - Nick Phelps & Meg McEachran

9:15 am

Baitfish have the potential to spread pathogens such as Viral Hemorrhagic Septicemia virus and Asian tapeworms to wild fish populations. An outbreak of any of these pathogens in Minnesota could lead to

1:15 pm

major economic, ecological, and societal consequences. Hear from MAISRC researchers, Meg McEachran and Dr. Nicholas Phelps, on their project to identify and quantify risk pathways of baitfish diseases.

### Panel - Common Carp Management - Przemek Bajer, Nick Phelps, Amit Pradhananga & Mike Smanski

3:15 pm

When common carp root in a lake bottom for food, they release mass quantities of nutrients and stir up sediment, compromising water quality. Once introduced, common carp reproduce quickly and are difficult to manage and remove. At this year's Showcase, join us for a meeting of the minds as we bring together some of MAISRC's foremost common carp researchers. Together, we will discuss combination management efforts of removal, genetic biocontrol, and more! *Note: this session is only offered once.*

### Lightning talks - New MAISRC Projects

2:15 pm

Join us to hear about MAISRC's newest projects. This year, we will have three new projects starting. Each project manager will give a brief overview of what they will be working on, saving time for questions until the very end. As always, the new projects will be announced the day of Showcase – however, as a teaser, you may be excited to see some familiar researchers presenting at this talk! *Note: this session is only offered once.*

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