



Founded in 2012, MAISRC'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.

## MAISRC research highlights 2012-2015:

### INVASIVE PLANTS

- Hired a new full-time professor of aquatic plant management to do research and outreach on invasive plants, including starry stonewort, Eurasian watermilfoil and curly-leaf pondweed
- Launched studies to improve treatment options for invasive plants through mechanical, herbicidal, and biocontrol methods
- Created a model to determine which Minnesota lakes are most at risk for a starry stonewort invasion
- Determined that low-dose, early-season endothall treatments are successful at controlling curly-leaf pondweed with minimal effects on native plants

### ZEBRA MUSSELS

- Partnering with the Genomics Center to sequence the zebra mussel genome to determine pathways of spread and to better understand weaknesses that can be targeted for prevention and control
- Launching efforts to improve zebra mussel biocide efficacy
- Hired the state's first full-time zebra mussel researcher and completed two field seasons of sampling
- Estimating overland spread of zebra mussels by residual water in recreational boats, establishing the ability of veligers to survive and move through residual water, and recommending boat redesign options



# INVASIVE CARPS

- Installed experimental sound deterrents at Lock and Dam 8 to deter Asian carp from moving up our rivers and into our lakes
- Made preliminary recommendations to the U.S. Army Corps of Engineers regarding simple changes that can be implemented at locks and dams – including altering gate heights and adding sound deterrents – to help prevent the spread of Asian carp
- Improved methods for using eDNA to detect and quantify invasive carps
- Discovered how to exploit common carp migration patterns to inform and improve control efforts in complex watersheds, and implemented successful control plans in two chains of lakes
- Determined that enhanced bubble curtains can divert the passage of common carp, silver carp, and bighead carp in the laboratory with a success rate of 82 - 90%
- Discovered two novel viruses that could lead to invasive carp control

# PATHOGENS AND HARMFUL MICROBES

- Identifying threats posed by Heterosporis to harvestable fish to inform management efforts
- Created a model that identified susceptibility of Minnesota lakes to Viral Hemorrhagic Septicemia virus and screened 33 waterbodies and over 3,300 fish for the virus

# OUTREACH

- Launched a new volunteer program with University of Minnesota Extension, the DNR, and others to improve the state's capacity to respond to AIS threats through early detection and AIS treatment evaluation
- Hosted 400 AIS managers, lakeshore owners, and researchers at our annual AIS Research and Management Showcase events

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