



Environment and Natural Resources Trust Fund

M.L. 2023 Approved Work Plan

General Information

ID Number: 2023-176

Staff Lead: Michael Varien

Date this document submitted to LCCMR: June 5, 2023

Project Title: Developing Research-Based Solutions to Minnesota's AIS Problems

Project Budget: \$4,941,000

Project Manager Information

Name: Cori Mattke

Organization: U of MN - MAISRC

Office Telephone: (612) 624-7785

Email: cmattke@umn.edu

Web Address: <https://www.maisrc.umn.edu/>

Project Reporting

Date Work Plan Approved by LCCMR: June 22, 2023

Reporting Schedule: March 1 / September 1 of each year.

Project Completion: June 30, 2027

Final Report Due Date: August 14, 2027

Legal Information

Legal Citation: M.L. 2023, Chp. 60, Art. 2, Sec. 2, Subd. 06b

Appropriation Language: \$4,941,000 the first year is from the trust fund to the Board of Regents of the University of Minnesota for the Minnesota Aquatic Invasive Species Research Center to conduct high-priority projects aimed at solving Minnesota's aquatic invasive species problems using rigorous science and a collaborative process. Additionally, funds may be spent to deliver research findings to end users through strategic communication and outreach. This appropriation is subject to Minnesota Statutes, section 116P.10. This appropriation is available until June 30, 2027, by which time the project must be completed and final products delivered.

Appropriation End Date: June 30, 2026

Narrative

Project Summary: MAISRC will launch 16-20 high-priority projects aimed at solving Minnesota's AIS problems using a rigorous, prioritized, and collaborative process. Results will be delivered to end-users through strategic communication and outreach.

Describe the opportunity or problem your proposal seeks to address. Include any relevant background information.

Aquatic invasive species (AIS) are a real and growing threat to Minnesota's lakes, rivers, and wetlands. From our docks to state budgets, damaging AIS, such as zebra mussels, common carp, Eurasian watermilfoil, and many others have degraded the State's ecosystem, economy, and way of life. For example, we recently found that in zebra mussel-infested lakes, young-of-the-year walleye are significantly smaller and catchable walleyes have higher mercury concentrations than in uninvaded lakes. In response to AIS impacts, Minnesotans invest millions of dollars each year to prevent and control infestations. These necessary investments have no doubt resulted in positive outcomes, but have fallen short of solving the long-term problem.

Minnesota became a national leader with the creation of the Minnesota Aquatic Invasive Species Research Center (MAISRC) in 2012. Meaningful progress is being made – we have advanced our fundamental understanding of many AIS, provided new tools for managers, informed decisions with research-based recommendations, and built capacity at all levels by translating science into action. Solutions to Minnesota's AIS problems are within reach. It is imperative that we remain committed to a long-term vision for AIS response in Minnesota, one that is informed by ground-breaking science that supports proven and efficient management action.

What is your proposed solution to the problem or opportunity discussed above? Introduce us to the work you are seeking funding to do. You will be asked to expand on this proposed solution in Activities & Milestones.

MAISRC was established with a game-changing investment from the ENRTF, creating a one-of-a-kind program focused on solutions-oriented research and outreach. We are driven to solve problems through innovative, rigorous and collaborative science. We have brought together ~25 different project managers (UMN, UMD/NRRI, MN DNR, USGS, etc.) and their experienced/diverse teams to pursue ~35 ENRTF-funded research projects (some multi-phase) on a range of high-priority species and strategies for AIS prevention, control, and management. Notable highlights are included in the infographic and much more is available here: www.maisrc.umn.edu. We are perfectly positioned to build on past success and continue to make advancements.

We propose to continue forward momentum by launching additional projects through our competitive RFP process, informed by our extensive research needs assessment and stakeholder engagement. All research will be vetted by internal and external peer-reviewers to ensure both scientific rigor and practical application. We will continue to prioritize communication and outreach to ensure results are effectively delivered to managers, practitioners, and the public to build our State's response capacity. Led by a 10-year strategic plan, we will continue to consult our external Advisory Board, Technical Advisory Board, and our Fellows Group to keep us mission-oriented.

What are the specific project outcomes as they relate to the public purpose of protection, conservation, preservation, and enhancement of the state's natural resources?

We will continue to advance scientific understanding and build capacity aimed at solving Minnesota's AIS problems. Through workshops and direct communication, we will translate our science and deliver tools directly to local, state, and federal AIS managers. We will share research findings with diverse audiences and formats, including media interviews, local presentations, webinars, published manuscripts, and much more. Through hands-on experience, this work will train the next generation of AIS professionals. Ultimately, we will be empowering more educated and active stakeholders, who are an essential part of the State's solution to improve and protect Minnesota's natural resources.

Project Location

What is the best scale for describing where your work will take place?

Statewide

What is the best scale to describe the area impacted by your work?

Statewide

When will the work impact occur?

During the Project and In the Future

Activities and Milestones

Activity 1: Creating knowledge and capacity to solve Minnesota’s AIS problems by supporting innovative solutions-oriented research

Activity Budget: \$4,199,730

Activity Description:

We will offer a competitive RFP in years one and two of this project, launching 16-20 new and continuation subprojects (approximately \$200k-250k each, with two-year durations) addressing Minnesota’s highest priority research needs on emerging and existing AIS threats. New lines of research will be focused on needs identified by our comprehensive research needs assessment. These new subprojects will provide a pipeline of innovation and collaboration. Concurrently, existing projects with high potential will be evaluated through the competitive peer-review process and continued. By providing a long-term strategy to build upon promising research, we are better positioned to realize the value of previous research investments. We have demonstrated the rigor and success of this process by launching both new and continuation subprojects in previous RFP cycles (2017-2022; new projects only 2015-2016).

Our RFP is open to all Minnesota-based researchers and we encourage collaboration and the creation of multi-disciplinary teams. As a result, we have brought together new teams and agency partnerships from across the state and world, adding much-needed expertise and leveraging significant non-ENRTF funds. This coordinated process has also avoided duplication of research efforts and identified gaps where we have successfully recruited new research expertise to complement our current capacity.

Activity Milestones:

Description	Approximate Completion Date
Internal and external review of 2023 RFP proposals	September 30, 2023
Award subproject funding to 8-10 proposals from 2023 RFP, subprojects begin on January 1, 2024	September 30, 2023
Issue 2024 RFP on high priority research needs	March 31, 2024
Internal and external review of 2024 RFP proposals	September 30, 2024
Award subproject funding to 8-10 proposals from 2024 RFP, subprojects begin on January 1, 2025	September 30, 2024
Issue 2025 RFP on high priority research needs	March 31, 2025
Subprojects awarded in 2023 RFP completed (subprojects run January 1, 2024 - December 31, 2025)	December 31, 2025
Subprojects awarded in 2024 RFP completed (subprojects run January 1, 2025 - December 31, 2026)	December 31, 2026

Activity 2: Leadership to facilitate AIS research, collaboration and outreach

Activity Budget: \$741,270

Activity Description:

The value of a Center-based approach to AIS research reaches far beyond what a fragmented effort could accomplish. MAISRC provides leadership for AIS research by establishing priorities, facilitating coordination, evaluating research progress in real-time, and being a trusted go-to resource for countless individuals, groups, and advisory committees. We also provide physical infrastructure, shared equipment, and lab support in ways that maximize resource efficiency and effectiveness. One core researcher is included in Activity 2 focused on common carp (0.5 FTE) - this position is central to MAISRC's mission and is not otherwise supported by the UMN.

The successful implementation of our science into management action and public engagement has demonstrated the value of MAISRC. Since inception, we have been featured in ~560 media stories, published ~125 manuscripts and ~20 factsheets, trained ~350 community science volunteers, and presented our work countless times to end-users in in-person and virtual formats. Our staff and researchers meet regularly with managers, practitioners, lake associations, etc.

to ensure the translation of technical science into meaningful real-world action.

Leadership functions will be performed on 2021 ENRTF funding from July 2023 - June 2025, then on 2023 ENRTF funding from July 2025 - June 2027.

Activity Milestones:

Description	Approximate Completion Date
Prioritize 2026 research needs through research needs assessment process	December 31, 2025
Initial dissemination of results and next steps identified for projects completed December 31, 2025	June 30, 2026
Prioritize 2027 research needs through research needs assessment process	December 31, 2026
Initial dissemination of results and next steps identified for projects completed December 31, 2026	June 30, 2027
Continued dissemination of research results from past MAISRC subprojects and provide science-based recommendations.	June 30, 2027

Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Invasive Species Program Staff	MN Dept of Natural Resources	Staff from the MN DNR Invasive Species Program sit on the MAISRC Technical Committee and participate in the biennial Research Needs Assessment process to identify priority species and research needs.	No
External Researchers & Managers	State, federal, and tribal agencies, counties, watershed districts, soil and water conservation districts, etc.	As a part of the Research Needs Assessment process, MAISRC brings representatives to the table from multiple external research and management agencies to participate in the prioritization of research needs.	No
Community Partners	County AIS managers, lake Associations, and non-profits	MAISRC partners with local governments and community organizations to disseminate research findings and help translate research into tools and resources that are available to both managers and the public.	No

Dissemination

Describe your plans for dissemination, presentation, documentation, or sharing of data, results, samples, physical collections, and other products and how they will follow ENRTF Acknowledgement Requirements and Guidelines.

A central part of MAISRC's work is the translation of AIS science into public and management action. MAISRC provides a platform for information and new research findings about AIS to be widely disseminated. This is accomplished by providing rich opportunities for stakeholder engagement through the annual public Research and Management Showcase event and ongoing outreach efforts, as well as making research progress and results accessible to the public and AIS managers through reports, brochures, the MAISRC website, Facebook and Twitter, Extension programming, seminars, talks, and via peer reviewed publications and student theses. Additionally, MAISRC organizes a publicly available and indefinite data repository ("MAISRC-DRUM") in partnership with the UM Libraries for data related to ongoing and completed MAISRC projects.

The Minnesota Environment and Natural Resources Trust Fund (ENRTF) will be acknowledged through use of the trust fund logo or attribution language on project print and electronic media, publications, signage, and other communications per the ENRTF Acknowledgement Guidelines.

Long-Term Implementation and Funding

Describe how the results will be implemented and how any ongoing effort will be funded. If not already addressed as part of the project, how will findings, results, and products developed be implemented after project completion? If additional work is needed, how will this work be funded?

MAISRC has a demonstrated track record of not only conducting high-quality research, but also providing the public and managers with research tools and science-based information in understandable formats. We are committed to research transparency and long-term public accessibility of data and related products. ENRTF funding would ensure that these activities will continue until 2027. We have, and will continue to, leverage the ENRTF investment with significant UMN support (faculty positions, foregone ICR, etc.), direct legislative funding, and external grant support from Partnership

Projects'. However, to ensure MAISRC remains focused on Minnesota's priorities and solutions-oriented research, additional ENRTF support remains crucial.

Other ENRTF Appropriations Awarded in the Last Six Years

Name	Appropriation	Amount Awarded
Aquatic Invasive Species Research Center - Phase II	M.L. 2017, Chp. 96, Sec. 2, Subd. 06a	\$2,700,000
Building Knowledge and Capacity to Solve AIS Problems	M.L. 2019, First Special Session, Chp. 4, Art. 2, Sec. 2, Subd. 06a	\$4,000,000
Building Knowledge And Capacity For AIS Solutions	M.L. 2021, First Special Session, Chp. 6, Art. 6, Sec. 2, Subd. 06e	\$3,750,000

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	\$ Amount
Personnel								
Project Manager		Lead MAISRC research activities and coordinate with local, state, and national agencies and AIS professionals.			33.5%	1		\$221,635
Co-Project Manager		Coordinate MAISRC research program, outreach to stakeholders, and dissemination of research findings.			33.5%	1		\$113,285
Communications Manager		Maintain MAISRC communications platforms to effectively disseminate research findings and connect MAISRC research with the public.			33.5%	1		\$109,155
Contract Faculty		Perform dedicated research on control and management of common carp in Minnesota.			33.5%	1		\$134,881
Graduate Student		Perform research on the prevention, control and management on AIS in Minnesota. Fringe rate includes cost of tuition.			87.9%	1		\$103,714
Undergraduate Students		2 Undergraduate students to support MAISRC research program, outreach to stakeholders, and dissemination of research findings.			0%	1		\$15,600
							Sub Total	\$698,270
Contracts and Services								
To be awarded to subprojects	Sub award	Budget reserve for awarding to subprojects, upon approval from LCCMR				0		\$4,199,730
Awarded to subprojects	Sub award	Cumulative budget, spent, and balance for all subprojects combined. Detailed subproject budgets are submitted in an Excel workbook via the attachments page under "Optional Attachments/Support Letter or Other" with the name as the date of submission (e.g. "YYYY-MM-DD Budget Update")				0		-
Private Contractors	Professional or Technical Service Contract	Rentals: Space and facilities for conferences and events (e.g. annual Showcase)				0		\$5,000
							Sub Total	\$4,204,730

Equipment, Tools, and Supplies								
	Tools and Supplies	Field/Lab Supplies	Supplies for research in the field and lab (e.g. Piping, fish food, gas for boats, tanks, reagents, sampling supplies, and other consumables)					\$6,000
	Equipment	Field/Lab Equipment	Equipment for research in the field and lab (e.g. storage containers, software, nets, and other equipment)					\$8,000
							Sub Total	\$14,000
Capital Expenditures								
							Sub Total	-
Acquisitions and Stewardship								
							Sub Total	-
Travel In Minnesota								
	Miles/ Meals/ Lodging	Travel for MAISRC staff	AIS coordination meetings, support of MAISRC research, and dissemination of research results					\$6,000
	Conference Registration Miles/ Meals/ Lodging	Project Manager travel to two conferences	Presentation of research findings					\$4,000
							Sub Total	\$10,000
Travel Outside Minnesota								
	Miles/ Meals/ Lodging	Project Manager travel to four regional AIS meetings	Coordination of AIS research with regional managers and researchers	X				\$4,500
	Conference Registration Miles/ Meals/ Lodging	Project Manager travel to one national conference	Presentation of research findings to strategic audiences and expanding AIS research for Minnesota	X				\$3,500
							Sub Total	\$8,000

Printing and Publication								
	Printing	Annual research report, fact sheets, training materials, white papers, etc	Dissemination of research findings and support for research activities					\$6,000
							Sub Total	\$6,000
Other Expenses								
							Sub Total	-
							Grand Total	\$4,941,000

Classified Staff or Generally Ineligible Expenses

Category/Name	Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request
Travel Outside Minnesota	Miles/Meals/Lodging	Project Manager travel to four regional AIS meetings	Working with regional AIS managers and researchers is essential to advancing AIS solutions for Minnesota by sharing knowledge and coordinating control/management efforts that are rooted in the latest science. Participating in regional meetings allows MAISRC to engage in AIS prevention and management efforts that will have direct impacts on Minnesota waters.
Travel Outside Minnesota	Conference Registration Miles/Meals/Lodging	Project Manager travel to one national conference	Sharing research findings at regional and national conferences allows MAISRC researchers to connect with others in the field and advance knowledge and AIS solutions. Shared research findings directly impact Minnesota by bringing new ideas and information into the state that can further AIS prevention, control, and management efforts.

Non ENRTF Funds

Category	Specific Source	Use	Status	\$ Amount
State				
In-Kind	University of Minnesota foregone indirect costs	Administrative support of MAISRC activities including payroll and human resources, finance, facilities, and IT.	Secured	\$2,538,568
Cash	Environment and Natural Resources Appropriation M.L. 2023, Art. 1, Sec. 3, Subd. 6, Sec. 9(a)	Enhance and implement MAISRC's research-based solutions through: (1) implementation of a watershed-scale carp management plan and additional research focused on site-specific method refinement and evaluation; (2) creation of a long-term monitoring program with state and local partners that evaluates the feasibility of whole-lake zebra mussel control projects and the development of criteria for selecting and managing lakes; (3) refinement and implementation of large scale surveillance and early detection methods for high-priority aquatic invasive species; and (4) development and sharing, with relevant experts and stakeholders, contingency plans regarding the potential risks of aquatic invasive species.	Secured	\$1,000,000
Cash	Environment and Natural Resources Appropriation M.L. 2023, Art. 1, Sec. 3, Subd. 3(j)	Prioritize, support, and develop research-based solutions that can reduce the effects of aquatic invasive species in Minnesota by preventing spread, controlling populations, and managing ecosystems and to advance knowledge to inspire action by others.	Secured	\$3,820,000
			State Sub Total	\$7,358,568
Non-State				
			Non State Sub Total	-
			Funds Total	\$7,358,568

Attachments

Required Attachments

Visual Component

File: [33f7c267-309.pdf](#)

Alternate Text for Visual Component

The visual component includes a description of a three-step process for MAISRC research: 1. Ideas and needs, 2. Research, 3. Real-world solutions. A timeline depicts the MAISRC funding cycle, with overlapping RFPs and 2-year projects. A map of Minnesota depicts research activities throughout the state and highlights notable accomplishments....

Optional Attachments

Support Letter, Photos, Media, Other

Title	File
Full description of visual component	7b4e0302-860.docx
U of MN Authorization	899ad2f0-973.pdf
Background Check Authorization Form	09996d55-997.pdf
MAISRC 2023 Priority Species	a766cc1b-5a3.pdf
MAISRC 2023 Research Priorities	9e2f904e-baa.pdf

Difference between Proposal and Work Plan

Describe changes from Proposal to Work Plan Stage

We have adjusted our budget to reflect the recommended award amount of \$4,199,730. This adjustment was made by reducing the total amount available for subprojects, thus reducing the number of subprojects from 18-24 to 16-20. We set-up the budget in the online system to reflect MAISRC's core operating budget and reserves for allocating to subprojects, and updated the record of the non-ENRTF funds that will be supporting this project following the 2023 legislative session.

Additional Acknowledgements and Conditions:

The following are acknowledgements and conditions beyond those already included in the above workplan:

Do you understand and acknowledge the ENRTF repayment requirements if the use of capital equipment changes?

N/A

Do you agree travel expenses must follow the "Commissioner's Plan" promulgated by the Commissioner of Management of Budget or, for University of Minnesota projects, the University of Minnesota plan?

Yes, I agree to the UMN Policy.

Does your project have potential for royalties, copyrights, patents, or sale of products and assets?

Yes

Do you understand and acknowledge IP and revenue-return and sharing requirements in 116P.10?

Yes

Do you wish to request reinvestment of any revenues into your project instead of returning revenue to the ENRTF?

No

Does your project include original, hypothesis-driven research?

Yes

Does the organization have a fiscal agent for this project?

No