



Environment and Natural Resources Trust Fund

2027 Request for Proposal

General Information

Proposal ID: 2027-456

Proposal Title: AIS Solutions for Minnesota - Innovation, Translation, Leadership

Project Manager Information

Name: Nicholas Phelps

Organization: U of MN - MAISRC

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Project Basic Information

Project Summary: Using innovative and collaborative approaches, MAISRC will launch 16-20 high-priority projects aimed at solving Minnesota's AIS problems. Impacts will be realized with strong end-user engagement and an emphasis on research-implementation.

ENRTF Funds Requested: \$6,000,000

Proposed Project Completion: June 30, 2031

LCCMR Funding Category: Fish and Wildlife (D)

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

Narrative

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, species such as zebra mussels, carp, Eurasian watermilfoil, and many others have degraded the State's ecosystem, economy, and way of life. Minnesota spends millions on direct management costs each year, and the impact on ecosystem services is much greater. These realities can feel overwhelming, but there is hope...

Meaningful progress is being made at the Minnesota Aquatic Invasive Species Research Center (MAISRC). Through innovative research and statewide engagement, we have advanced our fundamental understanding of many AIS, provided new approaches for managers, informed decisions with research-based recommendations, and built capacity at all levels by translating science into action. For example, recent analyses show that research-informed prevention strategies and state investment have indeed slowed the rate of AIS spread – a success story not reported in any other state.

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. This potential is not hyperbole – it has been demonstrated throughout Minnesota.

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 is a one-of-a-kind program focused on solutions-oriented research and outreach. We are driven to solve the state's AIS problems and have a proven record of pursuing innovative, rigorous, and collaborative science.

MAISRC brings together experienced and multidisciplinary teams, and engages directly with natural resource managers, policy makers, and the public to identify needs, co-create research objectives, and translate results into action on a range of high-priority species and approaches. The outcomes have advanced the science beyond what we knew to be possible and provided Minnesota with many new tools and strategies.

We will continue forward momentum by launching projects through our competitive RFP process, informed by our extensive research needs assessment and stakeholder engagement. Internal and external peer-reviewers will vet all research to ensure both scientific rigor and practical application. A center-based approach to supporting our projects ensures we maximize the efficiency and effectiveness of the ENRTF's investment in aquatic invasive species research.

In addition, we will continue to increase our focus on research-implementation, as demonstrated with our Lab to Lakes Initiative. Partnering with end-users throughout the research process has shown that our early research investments can, and do, have an impact across Minnesota.

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?

Our mission is to develop research-based solutions to Minnesota's AIS problems and inspire action by others. The impacts of our project outcomes will be far-reaching and long-lasting. We commit to:

- Develop new tools, fill knowledge gaps, and make non-biased recommendations to better manage and control AIS populations.
- Engage all Minnesotans through active outreach and participatory science programs, provide active support to managers across the state, and train the next-generation of AIS professionals through real-world experiences.

- Protect at-risk waterbodies and restore impacted ecosystems by partnering with end-users to understand their objectives and translate our science into action.

Activities and Milestones

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

Activity Budget: \$4,270,158

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 for 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 positioned to maximize the value of previous ENRTF investments. We have demonstrated the rigor and success of this process by launching both new and continuation subprojects in previous RFP cycles (2017-2025; new projects only 2015-2016).

Our RFP is open to all Minnesota-based researchers. We encourage collaboration through multi-disciplinary teams and require end-user engagement. 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 2027 RFP proposals	September 30, 2027
Award subproject funding to 8-10 proposals from 2027 RFP, subprojects begin on January 1, 2028	September 30, 2027
Issue 2028 RFP on high priority research needs	March 31, 2028
Internal and external review of 2028 RFP proposals	September 30, 2028
Award subproject funding to 8-10 proposals from 2028 RFP, subprojects begin on January 1, 2029	September 30, 2028
Issue 2029 RFP on high priority research needs	March 31, 2029
Subprojects awarded in 2027 RFP completed (subprojects run January 1, 2028 - December 31, 2029)	December 31, 2029
Subprojects awarded in 2028 RFP completed (subprojects run January 1, 2029 - December 31, 2030)	December 31, 2030

Activity 2: Implementation of high-impact and high-priority research with end-user engagement

Activity Budget: \$1,000,000

Activity Description:

Many promising research outcomes fall short of their potential, assuming "if you build it, they will come". Reports and publications alone rarely lead to meaningful management action. Translating science into practice requires sustained engagement with end-users and capacity that extends beyond the lifecycle of a typical research project. MAISRC has intentionally built the partnerships, culture, and infrastructure needed to close this gap.

MAISRC has demonstrated the potential impact of this approach through the successful launch of the Lab to Lakes Initiative. In partnership with local managers, we have scaled MAISRC research to suppress common carp and cattails, eradicated local populations of non-native Phragmites, and deployed MAISRC-developed surveillance technologies for statewide AIS monitoring.

We will leverage the "MAISRC Method", a novel approach to advancing research from need prioritization to

implementation, to identify research that is ready to be scaled and co-develop researchable management objectives with management partners (e.g., Tribal Nation, county, DNR). Selected projects (n=2-3) will be presented to MAISRC's Technical Committee and Advisory Board, and approved by LCCMR staff, to ensure continued alignment with MAISRC's mission and statewide management need. Ultimately, this activity will produce real-world case studies and implementation guidance that will be replicable across the state.

Activity Milestones:

Description	Approximate Completion Date
Evaluate and select 2-3 research projects for implementation.	December 31, 2027
Identify partners and create implementation work plans.	March 31, 2028
Implementation projects completed.	November 30, 2030
Dissemination of results and deployment of guidance materials for use throughout Minnesota.	June 30, 2031

Activity 3: Leadership to facilitate AIS research, collaboration and outreach

Activity Budget: \$729,842

Activity Description:

The value of a Center-based approach to AIS research extends far beyond what a fragmented effort could accomplish. Led by a new 10-year strategic plan, MAISRC provides leadership for AIS research by establishing research priorities with input from all Minnesotans, facilitating coordination to best steward limited research dollars, evaluating research progress in real-time, and providing transparent oversight. We also provide physical infrastructure, shared equipment, and lab support in ways that reduce waste by maximizing resource efficiency and effectiveness.

MAISRC serves the state as a trusted go-to resource for countless individuals, groups, and advisory committees. The MAISRC team meets regularly with managers, practitioners, lake associations, etc. to understand needs, ensure the research outcomes are broadly disseminated, and that our technical science is translated into meaningful real-world action. In addition, we have published nearly 160 peer-reviewed papers and numerous factsheets, trained 580 community science volunteers, and presented our work countless times to end-users.

MAISRC's impact on Minnesota's environment and natural resources has been proven through previous ENRTF investments – this activity will ensure continued momentum. Leadership functions will be performed on M.L 2025 from July 2027 - June 2029, then on M.L. 2027 funding (this proposal) from July 2029 - June

Activity Milestones:

Description	Approximate Completion Date
Prioritize 2030 research needs through research needs assessment process	December 31, 2029
Initial dissemination of results and next steps identified for projects completed December 31, 2029	June 30, 2030
Prioritize 2031 research needs through research needs assessment process	December 31, 2030
Initial dissemination of results and next steps identified for projects completed December 31, 2030	June 30, 2031
Continued dissemination of research results from past MAISRC subprojects and provide science-based recommendations	June 30, 2031

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 record of high-impact solutions-oriented research. We accomplish this through partnerships with highly-engaged managers (Tribal, federal, state, local), academics (in Minnesota and around the world), and many others (lake associations, NGOs, public, etc.). We are committed to research transparency and accessibility of our outcomes in ways that benefit the public good.

We have, and will continue to, leverage the ENRTF investment with significant UMN support (faculty positions, foregone

overhead, etc.), direct legislative funding, private donations, and external grant support. 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
Building Knowledge And Capacity For AIS Solutions	M.L. 2021, First Special Session, Chp. 6, Art. 6, Sec. 2, Subd. 06e	\$3,750,000
Developing Research-Based Solutions to Minnesota's AIS Problems	M.L. 2023, , Chp. 60, Art. 2, Sec. 2, Subd. 06b	\$4,941,000
Aquatic Invasive Species: From Problems to Real-World Solutions	M.L. 2025, First Special Session, Chp. 1, Art. 2, Sec. 2, Subd. 06a	\$5,771,000

Project Manager and Organization Qualifications

Project Manager Name: Nicholas Phelps

Job Title: Director

Provide description of the project manager's qualifications to manage the proposed project.

Dr. Nick Phelps has been the Director of the Minnesota Aquatic Invasive Species Research Center (MAISRC) since 2016 and was an original MAISRC faculty member when the Center was created in 2012. In addition, Dr. Phelps is a Professor and Interim Head in the Department of Fisheries, Wildlife, and Conservation Biology at the University of Minnesota. His research focuses on emerging threats to the health and sustainability of aquatic ecosystems, which lie at the intersection of animals, humans and the environment. Dr. Phelps has managed ~\$40M in competitive grant funding, led large collaborative initiatives, and published ~85 peer-reviewed manuscripts and book chapters. Under his leadership, MAISRC has become an international leader in solutions-oriented research on AIS and a go-to source for science-based information for AIS managers, practitioners, and the public.

Organization: U of MN - MAISRC

Organization Description:

The Minnesota Aquatic Invasive Species Research Center (MAISRC) uses innovative science to develop solutions to Minnesota's AIS problems. Our mission is to develop research-based solutions that can reduce the impacts of AIS in Minnesota by preventing spread, controlling populations, and managing ecosystems; and to advance knowledge of AIS to inspire action by others. MAISRC was created in 2012 with broad bipartisan, public, agency, and University support thanks to funding from the Environment and Natural Resources Trust Fund.

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.			36.6%	1		\$275,278
Co-Project Manager		Coordinate MAISRC research program, outreach to stakeholders, and dissemination of research findings.			36.6%	1		\$166,824
Communications Manager		Maintain MAISRC communications platforms to effectively disseminate research findings and connect MAISRC research with the public.			32.2%	1		\$107,739
Co-PIs		20 Co-PIs to perform research on the prevention, control and management on AIS in Minnesota. Positions will be funded through research projects that are funded by MAISRC RFPs.			36.6%	1.6		\$257,555
Post-Doctoral Associates		12 Post-docs to perform research on the prevention, control and management on AIS in Minnesota. Position will be funded through research projects that are funded by MAISRC RFPs.			26.1%	24		\$2,015,000
Graduate Students		13 Graduate students to perform research on the prevention, control and management on AIS in Minnesota. Position will be funded through research projects that are funded by MAISRC RFPs. Fringe rate includes cost of tuition.			48%	13		\$1,432,620
Undergraduate Students		12 Undergraduate students to perform research on the prevention, control and management on AIS in Minnesota. Position will be funded through research projects that are funded by MAISRC RFPs.			0%	6		\$224,949
							Sub Total	\$4,479,965
Contracts and Services								
Private Contractors	Service Contract	Mailing, communications services, web hosting, software subscriptions, etc. More detail provided as specific research projects are proposed.				0		\$48,000
Co-PIs	Subaward	Subawards to Co-PIs outside of the UMN (e.g. USGS, other colleges/universities, local units of government for implementation activities). More				0		\$500,000

		detail provided as specific research projects are proposed.						
University of Minnesota	Internal services or fees (uncommon)	UMN contract research services (e.g. genetic analysis, supercomputing). More detail provided as specific research projects are proposed.				0		\$70,000
Private Contractors	Service Contract	Lab and field equipment rental and repair. More detail provided as specific research projects are proposed.				0		\$30,000
Private Contractors	Service Contract	Space and facility rental for events, meetings, and workshops. Including the MAISRC Research & Management Showcase. More detail provided as specific research projects are proposed.				0		\$32,500
							Sub Total	\$680,500
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). More detail provided as specific research projects are proposed.					\$291,535
	Equipment	Field/Lab Equipment	Equipment for research in the field and lab (e.g. storage containers, software, nets, and other equipment). More detail provided as specific research projects are proposed.					\$240,000
	Tools and Supplies	General Operating Supplies	Supplies for research coordination and workshops (e.g. paper, office supplies), provisions for external meetings and events. More detail provided as specific research projects are proposed.	X				\$10,000
							Sub Total	\$541,535
Capital Equipment								
							Sub Total	-

Acquisitions and Stewardship								
							Sub Total	-
Travel In Minnesota								
	Miles/ Meals/ Lodging	Travel for MAISRC staff and researchers. More detail provided as specific research projects are proposed.	Conduct research, AIS coordination meetings, and dissemination of research results.					\$206,000
	Conference Registration Miles/ Meals/ Lodging	Project Manager registration and travel to two conferences over the course of the project (4 years). Co-PI's registration and travel to one in-state conference per project. More detail provided as specific research projects are proposed.	Presentation of research findings					\$44,000
							Sub Total	\$250,000
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 to travel to one national conference over the course of the project (4 years). Co-PIs travel to national conferences, with prior approval.	Presentation of research findings to strategic audiences and expanding AIS research for Minnesota.	X				\$43,500
							Sub Total	\$48,000
Printing and Publication								
							Sub Total	-
Other Expenses								
							Sub Total	-
							Grand Total	\$6,000,000

Classified Staff or Generally Ineligible Expenses

Category/Name	Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request
Equipment, Tools, and Supplies		General Operating Supplies	MAISRC research teams often conduct workshops, public surveys, and stakeholder meetings and participate in dissemination events that require basic office supplies such as paper, pens, name tags, file folders, etc. Office materials like these are not provided by the UMN.
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 to travel to one national conference over the course of the project (4 years). Co-PIs travel to national conferences, with prior approval.	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. If funding is awarded at less than the requested amount, proposed cost sharing will be reduced proportionately.	Secured	\$2,640,515
			State Sub Total	\$2,640,515
Non-State				
			Non State Sub Total	-
			Funds Total	\$2,640,515

Total Project Cost: \$8,640,515

This amount accurately reflects total project cost?

Yes

Attachments

Required Attachments

Visual Component

File: [e841b770-531.pdf](#)

Alternate Text for Visual Component

The visual component includes a map of Minnesota that depicts research activities throughout the state and highlights notable accomplishments. A timeline depicts the MAISRC funding cycle, with overlapping RFPs and 2-year projects....

Supplemental Attachments

Capital Project Questionnaire, Budget Supplements, Support Letter, Photos, Media, Other

Title	File
Accompanying text for the visual component	d8ac0b49-6cc.docx
UMN Approval for submission	28440b3f-1f7.pdf

Administrative Use

Does your project include restoration or acquisition of land rights?

No

Do you understand that travel expenses are only approved if they 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 understand the UMN Policy on travel applies.

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

No

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

N/A

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

N/A

Does your project include original, hypothesis-driven research?

Yes

Does the organization have a fiscal agent for this project?

No

Does your project include the pre-design, design, construction, or renovation of a building, trail, campground, or other fixed capital asset costing \$10,000 or more or large-scale stream or wetland restoration?

No

Do you propose using an appropriation from the Environment and Natural Resources Trust Fund to conduct a project that provides children's services (as defined in Minnesota Statutes section 299C.61 Subd.7 as "the provision of care, treatment, education, training, instruction, or recreation to children")?

No

Provide the name(s) and organization(s) of additional individuals assisting in the completion of this proposal:

Cori Mattke (MAISRC)

Do you understand that a named service contract does not constitute a funder-designated subrecipient or approval of a sole-source contract? In other words, a service contract entity is only approved if it has been selected according to the contracting rules identified in state law and policy for organizations that receive ENRTF funds through direct appropriations, or in the DNR's reimbursement manual for non-state organizations. These rules may include competitive bidding and prevailing wage requirements

Yes, I understand