

# **Environment and Natural Resources Trust Fund**

# 2026 Request for Proposal

**General Information** 

Proposal ID: 2026-117

Proposal Title: Pig's Eye Lake Monitoring

# **Project Manager Information**

Name: Alicia Coleman Organization: U of MN - College of Food, Agricultural and Natural Resource Sciences Office Telephone: (732) 674-8204 Email: aliciac@umn.edu

# **Project Basic Information**

**Project Summary:** This project will evaluate a backwater island construction project in Saint Paul to assess the establishment of climate-adaptive vegetation, water quality, aquatic and terrestrial habitat, and future recreational benefits.

**ENRTF Funds Requested:** \$137,000

Proposed Project Completion: June 30, 2030

LCCMR Funding Category: Small Projects (G) Secondary Category: Fish and Wildlife (D)

# **Project Location**

- What is the best scale for describing where your work will take place? Region(s): Metro
- What is the best scale to describe the area impacted by your work? Statewide
- When will the work impact occur?

In the Future

# Narrative

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

St. Paul's Pigs Eye Lake had long suffered from significant wind-generated waves, causing turbid water conditions and shoreline erosion. Roughly 111 acres of shoreline had eroded since the 1950s, and significant erosion of marsh and floodplain forest was expected to continue without intervention. In addition to the largest heron and egret rookery in the metro and one of the largest in the state, this 640-acre lake now contains newly constructed islands designed to control shoreline erosion and enhance aquatic and terrestrial habitat. The islands are owned by Ramsey County, constructed by U.S. Army Corps of Engineers (USACE), and funded by a grant from the Outdoor Heritage Fund.

Pig's Eye Lake is a well-known urban hotspot for wildlife habitat. The lake is also a priority fishing and recreation site in Ramsey County's park master plans; however, notable public safety concerns, like water quality, need to be addressed prior to recreational access and community resource use. By monitoring the establishment of climate-adaptive vegetation, water quality, and habitat benefits associated with this island building project, new information will be gained about the feasibility of constructed islands to improve ecosystems and serve as a climate adaptation strategy, with far-reaching potential for future application.

# 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.

Following construction of six islands in the lake, USACE will monitor the success of the constructed islands' and a handful of water quality indicators. Our research team from the University of Minnesota and Friends of the Mississippi River, alongside partners from the USACE and Ramsey County, identified an opportunity to monitor lake-wide ecological dynamics that have the potential to bolster improved water quality and healthy fish populations - which are safe for waterbirds and recreational users to consume. These monitoring efforts will add to a developing body of regionally and nationally-relevant knowledge about: 1) the establishment and survival of climate-adaptive plants in urban floodplains; 2) the influence between aquatic, upland, and shoreline habitat communities to sediment and water dynamics; 3) key takeaways for federal, county, and non-governmental agencies for large-scale urban floodplain restoration practices, performance monitoring, and various outdoor recreation activities. An ongoing monitoring effort will also leverage and continue improving upon the invested restoration effort and to make informed decisions about future conservation projects at Pig's Eye Lake and other urban areas with riverine artificial island construction projects.

# 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?

This project will support the protection, conservation, preservation, and enhancement of Minnesota's urban natural resources by:

- Measuring and monitoring water, fish, and plant indicators on the land and in the waters of Pig's Eye Lake
- Quantifying plant and fish community health to bolster fishing and outdoor recreation opportunities
- Building on existing project investment to strategically guide urban natural resource management over time

- Generating realistic lessons that work within collaborative conservation management frameworks between federalstate-and local partners

# Activities and Milestones

# Activity 1: Monitoring and assessing fish populations and water quality

Activity Budget: \$21,545

#### **Activity Description:**

The health of the Pig's Eye Lake waters and fish habitat is critical to recreational user's ability to enjoy fishing. Adequate aquatic habitat is important to sustain fish populations, which provide recreational opportunities for anglers and food for migratory and waterfowl bird species. Previous MNDNR work identified four habitats in the lake that support a surprising diversity of 54 fish species, including recreationally important (e.g., walleye, white bass, black crappie) and threatened (e.g., black buffalo, yellow bass) species. In this activity, we will expand upon MNDNR and Ramsey County aquatic sampling to monitor elements that support fish population health, including water clarity, dissolved oxygen, temperature and water level using automated sensors, including a water quality sonde. Additionally, we will quantify the diversity of fish species across four habitat types using standard population monitoring techniques (e.g., backpack electrofishing, seines, mini fyke nets). Monitoring will occur for three seasons. Together, the data will help to understand the influence of new plant communities on lake sediment dynamics and the impact on fish diversity and abundance. Data will be analyzed and shared with local and state partners to aid in the development of effective restoration techniques for floodplain forests.

#### **Activity Milestones:**

Description	Approximate
	Completion Date
Hire Researcher 5, purchase equipment	August 31, 2026
Develop monitoring protocols and establish at least four plots across each significant habitat type	September 30, 2026
Three years aquatic resource data collection	December 31, 2028
Analyze and share results	June 30, 2029

# Activity 2: Monitoring and assessing forest restoration methods

#### Activity Budget: \$23,982

#### **Activity Description:**

Floodplain forest ecosystems provide critical ecosystem services. However, it is difficult to restore ecosystems. One goal of this activity is to quantify the survival and growth of planted shrub and tree species. These species were chosen from a list of projected climate adapted species and are part of the funded island construction project. Additionally, we will quantify the diversity of species from seeding mixtures and natural seeding events from surrounding ecosystems. We will monitor sedimentation and erosion related to island stability. We will establish a minimum of 35 permanent plots and use standard vegetation monitoring techniques (e.g. square quadrats) to quantify species composition, diversity, survival, and growth. Monitoring will occur for three seasons. Data will be analyzed and shared with local and state partners to aid in the development of effective restoration techniques for floodplain forests.

#### **Activity Milestones:**

Description	Approximate Completion Date
Develop monitoring protocols and establish 35 permanent plots	September 30, 2026
Analyze and share results	June 30, 2029
Develop management recommendations related to floodplain forests restoration	June 30, 2029
Three years vegetation data collection	December 31, 2029

#### Activity 3: Convening research and conservation partners

Activity Budget: \$91,473

#### **Activity Description:**

Pig's Eye Lake and the surrounding area has numerous ongoing environmental projects and a variety of stakeholders to engage during the proposed environmental monitoring program (for example, Pig's Eye Landfill, Metropolitan Wastewater Treatment Plant, National Park Service, City of St. Paul, Great River Passage, Mississippi Park Connection, etc). Friends of the Mississippi River (FMR) - a longtime partner with Ramsey County and many of the aforementioned organizations - intends to serve as a central node for the environmental monitoring team and local conservation and community partners. FMR will maintain regular meetings and lines of communication with all partner groups, including convening quarterly project meetings and through email and/or newsletter communications. FMR will also lead two wildlife survey and site tour events each year to engage community members and supplement project monitoring. FMR will also present project status reports and monitoring findings at yearly community meetings. UMN will also work with FMR to host "bioblitz" participatory science data collection gatherings, including a focus on invasive plants. The purpose of these events are to engage the community and future recreational user groups that will benefit from a restored Pig's Eye Lake.

#### **Activity Milestones:**

Description	Approximate Completion Date
Coordinate bi-monthly project meetings between research collaborators at UMN, Ramsey Count, U.S.	June 30, 2029
ACOE	
Host all-partners meeting to share ongoing progress and share results twice/ year	June 30, 2029
Host a minimum of 2 community events per year	June 30, 2029
Host a minimum of 3 "bioblitzes" per year	June 30, 2029
Host an annual community project update meeting	June 30, 2029

# **Project Partners and Collaborators**

Name	Organization	Role	Receiving
			Funds
Marcella	University of	Co-Investigator	Yes
Windmuller	Minnesota		
Campione			
Holly Embke	U.S. Geological	Co-Investigator	No
	Survey		
Alex Roth	Friends of the	Co-Investigator	Yes
	Mississippi		
	River		

# 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?

Monitoring will run for three years immediately following the final 2025 island construction, with the intention to continue in years following. The project's findings will be shared with local and state natural resource managers, policymakers, and community stakeholders to guide sustainable vegetation and wildlife management strategies. Results will be disseminated through workshops, reports, and academic outlets. Local governments, nonprofits, and state agencies can use this information to support cross-agency urban ecosystem restoration projects. Future work may expand modeling, monitoring, and implementation support, with potential funding from municipal budgets, state grants, federal programs, and private partnerships.

# Project Manager and Organization Qualifications

#### Project Manager Name: Alicia Coleman

Job Title: Assistant Professor of Urban and Community Forestry

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

Alicia Coleman was hired as a new assistant professor in the Department of Forest Resources in August 2023. Coleman's research expertise covers geospatial aspects of urban forestry programs, residents' preferences for trees on private property, and climate-adaptive urban tree selection. Her postdoctoral research helped the Connecticut Department of Energy and Environmental Protection assess the co- benefits and impacts of urban and community forestry grant funding.

Coleman has experience supervising dozens of undergraduate and graduate students during her PhD data collection at the University of Massachusetts and postdoctoral research at the University of Connecticut. She has experience training students to collect, clean, standardize, and analyze human subjects data, field data, and related attributes between digital mapping and other data analysis software.

Presently, Coleman is a member of four master's thesis committees. Coleman teaches two required courses in the Urban and Community Forestry track of the UMN Forest and Natural Resource Management undergraduate degree program and, in establishing these courses, has developed an expanding professional network of arboriculture, urban forestry, and Extension points-of-contact around the state.

Organization: U of MN - College of Food, Agricultural and Natural Resource Sciences

#### **Organization Description:**

The College of Food, Agricultural, and Natural Resource Sciences (CFANS) has twelve academic departments and ten

research and outreach centers, alongside the Minnesota Landscape Arboretum, the Bell Museum, and many interdisciplinary centers. Within CFANS, the Department of Forest Resources has produced high quality research in natural resource management issues across the state of Minnesota, and the present undergraduate and graduate education programs are consistently ranked among the top in the nation. For over 100 years, the department has been physically located on the St. Paul campus of UMN Twin Cities and will host this research project. Project Manager Coleman is affiliated with the Urban Forestry Outreach & Research (UFOR) lab, whose field nursery exists on the Minnesota Agricultural Experiment Station grounds. UFOR is located within the Department of Forest Resources and offers a variety of research, teaching, and outreach opportunities for university students and outreach education for professionals, volunteers, and interns. Staff, research assistants, and volunteers maintain the demonstration nursery and field based research projects. The UFOR nursery has also been used for teaching university students, Tree Care Advisors, Minnesota Tree Inspectors, and industry professionals.

# Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineli gible	% Bene fits	# FTE	Class ified Staff?	\$ Amount
Personnel				0				
PD/PI (A. Coleman)		Co-lead Activity 3			36%	0.24		\$39,631
Co- Investigator (M. Windmuller- Campione)		Lead Activity 2			36%	0.12		\$23,044
Researcher 5		Lead Activity 1			36%	0.24		\$19,108
							Sub Total	\$81,783
Contracts and Services								
Friends of the Mississippi River	Service Contract	This will contribute to the equivalent of 1 FTE with responsibilities that include communications and collaborative project management coordination.				3		\$51,842
							Sub Total	\$51,842
Equipment, Tools, and Supplies								
	Tools and Supplies	Water Quality Sonde (x1)	Device with multiple sensor ports that records data for multiples of water quality parameters					\$1,500
							Sub Total	\$1,500
Capital Expenditures								
							Sub Total	-
Acquisitions and Stewardship								
							Sub Total	-

Travel In Minnesota						
	Miles/ Meals/ Lodging	20 trips per year, 39 round trip miles per trip	To support field data collection			\$1,875
					Sub Total	\$1,875
Travel Outside Minnesota						
					Sub Total	-
Printing and Publication						
					Sub Total	-
Other Expenses						
					Sub Total	-
					Grand Total	\$137,000

# Classified Staff or Generally Ineligible Expenses

Category/Name Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request
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# Non ENRTF Funds

Category	Specific Source	Use	Status	Amount
State				
In-Kind	Indirect Costs	Facilities and Administration costs (54% modified total direct costs)	Secured	\$73,980
			State Sub	\$73,980
			Total	
Non-State				
			Non State	-
			Sub Total	
			Funds	\$73,980
			Total	

## Total Project Cost: \$210,980

This amount accurately reflects total project cost?

Yes

# Attachments

### **Required Attachments**

*Visual Component* File: <u>80e1ca1a-bb8.pdf</u>

#### Alternate Text for Visual Component

By monitoring the establishment of climate-adaptive vegetation, water quality, and habitat benefits that are expected at Pig's Eye Lake (Saint Paul), new information will be gained about the feasibility of constructed islands to improve ecosystems and serve as a climate adaptation strategy, with far-reaching potential for future applications....

#### Supplemental Attachments

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

Title	File
University of Minnesota Approval	9dc39a7f-cb0.pdf
LOS_Ramsey County	<u>4a1eaee7-590.pdf</u>
LOS_US Army Corps of Engineers	7efaa1ab-0f1.pdf
LOS_Mississippi Park Connection	529f5de4-ad5.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:

Rick Huisman, Fiscal Professional for the University of Minnesota

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