



# Environment and Natural Resources Trust Fund

## 2026 Request for Proposal

### General Information

**Proposal ID:** 2026-245

**Proposal Title:** Lake Mollusk Surveys to Inform Climate Change Analysis

### Project Manager Information

**Name:** Kathryn Holcomb

**Organization:** MN DNR - Ecological and Water Resources Division

**Office Telephone:** (651) 314-6307

**Email:** kathryn.holcomb@state.mn.us

### Project Basic Information

**Project Summary:** Mollusks are part of healthy aquatic ecosystems. Climate change is a perceived threat to mollusks, but impacts are poorly understood. Lake mollusk surveys will help inform understanding of this threat.

**ENRTF Funds Requested:** \$157,000

**Proposed Project Completion:** June 30, 2028

**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?**

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.**

Native freshwater mollusks (mussels, snails, fingernail clams) are among the most imperiled and understudied groups of animals in Minnesota. They provide a range of important ecosystem services, such as water filtration, nutrient cycling, and structural habitat (via live and empty shells). Since mollusks are sensitive to environmental disturbances, they are considered indicators of healthy aquatic ecosystems. Therefore, there is value in maintaining healthy mollusk communities in Minnesota lakes, and their presence (or absence), abundance, demographics, and diversity can help us understand threats facing our aquatic ecosystems.

Mollusks are declining due to a range of threats. Climate change is a threat, but our understanding of how it impacts native mollusks is still in progress. The Mn DNR's Sentinel Lakes Program exists to quantify and monitor physical, chemical, and biological communities within representative lakes across Minnesota. This program provides critical monitoring data to help managers understand how Minnesota lakes respond to climate change and other environmental stressors. However, mollusks are not currently part of this program; adding them provides a prime opportunity for the DNR to better understand climate change impacts to mollusks, and it would also provide a more holistic understanding of climate change impacts to lake ecosystems.

### **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.**

We propose conducting initial lake mollusk surveys in the DNR's Sentinel Lakes to contribute data that will inform climate change impacts to native mollusks. Adding our mollusk data to the existing Sentinel Lakes dataset will provide a more robust assessment of how lake ecosystems and mollusks are responding to climate change over time and across the state. We will survey mollusks at Tier 1 Sentinel Lakes using standard, repeatable techniques designed to measure mussel demographics that may be affected by climate change. Data collected will also help inform mollusk conservation status and trends, identify future research needs, and how we can improve our monitoring methods to better understand climatic impacts to native mollusks.

Public education contributes to reducing threats to imperiled species and habitats; therefore, we also propose developing naturalist programs for State Parks with Sentinel Lakes to help increase public awareness of native mollusks, aquatic environments, threats to mollusks (including climate change), and what the public can do to reduce the threats (e.g., actions to improve water quality, prevent spread of invasive species). These programs can be used for many years and can be shared among State Parks to expand our outreach effort.

### **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?**

Project outcomes will contribute toward understanding mollusk associations with climatic conditions in Minnesota Lakes. This information will help inform and tailor management of Minnesota lakes to better conserve native mollusks. Because many mollusks are under-surveyed, this project will also contribute to updating conservation status for most mollusk species encountered (in particular, Lake Floater) in Minnesota's Wildlife Action Plan. Further, our outreach efforts will increase public awareness and concern for mollusks, their threats, and aquatic ecosystems. Public interest and support is vital to preserving Minnesota's natural resources long-term.

## Activities and Milestones

### Activity 1: Lake Mollusk Surveys

**Activity Budget:** \$119,748

**Activity Description:**

We will conduct mollusk surveys at 11 Tier 1 Sentinel Lakes following standardized methods. We will measure relative abundance, species composition, and mollusk demographics that may be affected by climate change (e.g., age, length, etc.). Depending on lake size and number of mussels encountered, 5-15 sites around each lake perimeter will be surveyed using timed searches. Mollusks will be surveyed using timed SCUBA or snorkel searches that are efficient at detecting species diversity and ages ranging from subadult to adult. Snails and fingernail clams will be surveyed visually and by sifting sediment through sieves. Mussel assemblage metrics will include relative abundance of each species, number of individuals < age 5 and > age 6, and > 10 lengths representing all age classes present. Snail and fingernail clam metrics will include presence and absence of live individuals.

**Activity Milestones:**

Description	Approximate Completion Date
Present first season data during annual Sentinel Lakes webinar	March 31, 2027
Survey 5 lakes in first season; data entry, quality control, and analysis	June 30, 2027
Present second field season data during annual Sentinel Lakes webinar	March 31, 2028
Survey remaining 6 lakes; data entry, quality control, and analysis	June 30, 2028
Final report prepared and shared with Sentinel Lakes Program	June 30, 2028

### Activity 2: Outreach programs for Mn State Parks

**Activity Budget:** \$37,252

**Activity Description:**

We will develop naturalist programs for State Parks with Sentinel Lakes (Lake Carlos, Itasca, and Bear Head Lake) to help increase public awareness of native mollusks and aquatic environments (highlighting local waters near State Parks), threats to mollusks (including climate change), and what the public can do to reduce the threats (e.g., actions to improve water quality and prevent spread of invasive species). Outreach will range from presentations with mollusk specific programming to short field excursions to find and view live mollusks in their natural habitat. This new naturalist program will be shared with other Minnesota State Parks, which will greatly expand the reach of our public outreach efforts statewide. We will work with State Park Naturalists to develop programs that are appropriate for expected audiences and will work to improve program content and presentation based on feedback from the public and State Park Naturalists. All outreach materials will include ENRTF acknowledgement following established guidelines.

**Activity Milestones:**

Description	Approximate Completion Date
Develop draft outreach programs with guidance from State Park Naturalists	June 30, 2027
Present outreach programs at State Parks spring-fall in 2026-2028	June 30, 2028
Update and finalize naturalist programs using feedback from the public and State Park Naturalists	June 30, 2028
Distribute final naturalist programs to collaborating Mn State Parks and other interested State Parks	June 30, 2028

## Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Casey Schoenebeck	Mn DNR	Mn DNR's Sentinel Lakes program Program Coordinator; provide advisory role to ensure mollusk survey efforts mesh with existing Sentinel Lakes protocols to contribute toward understand climate change impacts to Mn lakes.	No
MN State Park Naturalist staff at Itasca, Bear Head Lake, and Lake Carlos (Connie Cox, Jen Westlund, Ben Eckhoff, Kathy Beaulieu)	MN State Parks and Trails	Provide assistance and advice related to developing the project's outreach programs for the public	No

## 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?**

This project will complete an initial round of mollusk surveys in Minnesota Sentinel Lakes. Future survey efforts will be needed to improve our understanding of climate impacts to mollusks and lake ecosystems and to inform future mollusk conservation actions and decisions (e.g., species of greatest conservation needs updates). Continued survey efforts will be incorporated as an objective in a variety of grant-funded projects into the future. Sampling will likely occur every 2-4 years (depending on grant cycles), so reoccurring funds are not required. Periodic ENRTF funding between other sources of grant funding would help ensure continuation of this effort.

## Other ENRTF Appropriations Awarded in the Last Six Years

Name	Appropriation	Amount Awarded
Restoring Mussels in Streams and Lakes - Continuation	M.L. 2021, First Special Session, Chp. 6, Art. 6, Sec. 2, Subd. 08b	\$619,000
Mississippi River Aquatic Habitat Restoration And Mussel Reintroduction	M.L. 2021, First Special Session, Chp. 6, Art. 5, Sec. 2, Subd. 09e	\$1,800,000
Restoring Mussels in Streams and Lakes - Continuation	M.L. 2023, , Chp. 60, Art. 2, Sec. 2, Subd. 08d	\$825,000

## Project Manager and Organization Qualifications

**Project Manager Name:** Kathryn Holcomb

**Job Title:** Mussel Program Supervisor

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

Kate Holcomb has supervised the Mn DNR's freshwater mussel program since 2022. She manages a mix of about 7 state and federal funding sources annually. Kate has worked for State DNR agencies in Florida, Utah, and Minnesota since 2010, and is experienced with conservation of freshwater mussels, snails, and nongame freshwater fishes.

**Organization:** MN DNR - Ecological and Water Resources Division

**Organization Description:**

The Mn DNR's Center for Aquatic Mollusk Programs (CAMP) is dedicated to conservation of freshwater mollusks in Minnesota, with the ultimate goal of preserving self-sustaining mollusk populations across the state. Given mollusks' important role in healthy, functional aquatic ecosystems, this contributes to the DNR's Ecological and Water Resources Division's vision of "healthy watersheds throughout Minnesota".

## Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	\$ Amount
<b>Personnel</b>								
Supervisor		Grant administration, assist with field work			25%	0.16	X	\$19,100
Research Scientist II		Lead field work, analysis, and reporting			25%	0.12	X	\$18,100
NR Specialist Intermediate		Lead field work, analysis, and reporting			25%	0.42	X	\$41,100
NR Specialist		Assist with field work and data entry			25%	0.18	X	\$14,700
Intern		Assist with field work			1%	0.52		\$6,500
							<b>Sub Total</b>	<b>\$99,500</b>
<b>Contracts and Services</b>								
							<b>Sub Total</b>	-
<b>Equipment, Tools, and Supplies</b>								
	Tools and Supplies	Field and voucher specimen supplies -- ethanol, specimen jars/vials, specimen boxes, calipers, batteries, data recording supplies (e.g., pencils, paper). No item will cost over \$5,000.	Items are needed to collect and record data and preserve mollusk voucher specimens.					\$1,715
	Tools and Supplies	SCUBA and dive boat maintenance and gear -- SCUBA air refills, annual SCUBA gear inspections and maintenance, new dive gear (wetsuits, boots, weights), dive boat motor maintenance, boating safety gear. No item will cost over \$5,000.	SCUBA equipment and dive boats are required to complete surveys in lakes. Dive gear and dive boats need to be maintained, and gear needs to be periodically replaced to maintain safe diving and boating conditions.					\$2,750
							<b>Sub Total</b>	<b>\$4,465</b>
<b>Capital Expenditures</b>								
							<b>Sub Total</b>	-
<b>Acquisitions and Stewardship</b>								

							<b>Sub Total</b>	-
<b>Travel In Minnesota</b>								
	Miles/ Meals/ Lodging	Hotel and meals -- 27 days of sampling lakes and 6 days of hotel and meals related to outreach efforts. This will cover costs for 7 people.	Since this project has statewide coverage, overnight travel expenses (hotel and meals) will be required for field work and outreach efforts.					\$20,900
	Miles/ Meals/ Lodging	DNR fleet costs for 2 work trucks = \$14,600 (estimated 5,194 miles).	Two trucks are needed to complete field work and outreach in the same field season, and both efforts are statewide.					\$14,600
							<b>Sub Total</b>	<b>\$35,500</b>
<b>Travel Outside Minnesota</b>								
							<b>Sub Total</b>	-
<b>Printing and Publication</b>								
							<b>Sub Total</b>	-
<b>Other Expenses</b>								
		Direct and Necessary	Direct and Necessary costs cover people support (\$2,868), safety support (\$454), financial support (\$1,600), communication support (\$1902), IT support (\$9,340), and planning support (\$1,371)					\$17,535
							<b>Sub Total</b>	<b>\$17,535</b>
							<b>Grand Total</b>	<b>\$157,000</b>

## Classified Staff or Generally Ineligible Expenses

Category/Name	Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request
<b>Personnel</b> - Supervisor		Grant administration, assist with field work	<b>Classified</b> : This position does not have a permanent dedicated funding base and so the MN DNR cannot backfill the ENRTF portion of their salaries. Classified staff manage this program but they may not be retained to work on mussels without the support of this ENTRF grant. Retaining these positions is essential for implementing this project.
<b>Personnel</b> - Research Scientist II		Lead field work, analysis, and reporting	<b>Classified</b> : This position does not have a permanent dedicated funding base and so the MN DNR cannot backfill the ENRTF portion of their salaries. Classified staff manage this program but they may not be retained to work on mussels without the support of this ENTRF grant. Retaining these positions is essential for implementing this project.
<b>Personnel</b> - NR Specialist Intermediate		Lead field work, analysis, and reporting	<b>Classified</b> : This position does not have a permanent dedicated funding base and so the MN DNR cannot backfill the ENRTF portion of their salaries. Classified staff manage this program but they may not be retained to work on mussels without the support of this ENTRF grant. Retaining these positions is essential for implementing this project.
<b>Personnel</b> - NR Specialist		Assist with field work and data entry	<b>Classified</b> : This position does not have a permanent dedicated funding base and so the MN DNR cannot backfill the ENRTF portion of their salaries. Classified staff manage this program but they may not be retained to work on mussels without the support of this ENTRF grant. Retaining these positions is essential for implementing this project.



Non ENRTF Funds

Category	Specific Source	Use	Status	Amount
State				
			State Sub Total	-
Non-State				
			Non State Sub Total	-
			Funds Total	-

Total Project Cost: \$157,000

This amount accurately reflects total project cost?

Yes

## Attachments

### Required Attachments

#### *Visual Component*

File: [b178aff9-1a7.pdf](#)

#### *Alternate Text for Visual Component*

Eleven Sentinel Lakes will be sampled for mollusks (freshwater mussels, fingernail clams, snails) across Minnesota. This DNR project will also expand awareness and appreciation for freshwater mollusks and their benefits to Minnesota lakes and streams....

### 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 Commissioner's Plan 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?**

No

**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")?**

Yes

**Do you certify that background checks are performed for background check crimes, as defined in Minnesota Statutes, section 299C.61, Subd. 2, on all employees, contractors, and volunteers who have or may have access to a child to whom children's services are provided by your organization?**

Yes

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

None

**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**

N/A

