



Environment and Natural Resources Trust Fund

2025 Request for Proposal

General Information

Proposal ID: 2025-027

Proposal Title: Think Like a Geologist: Field-Training for Environmental Staff

Project Manager Information

Name: Carrie Jennings

Organization: Freshwater Society

Office Telephone: (651) 313-5812

Email: cjennings@freshwater.org

Project Basic Information

Project Summary: County Geologic Atlases place water features in a regional geologic context. Geology field training for regional staff contextualizes protection and restoration efforts, promotes successful outcomes, and maximizes the State's return-on-investment.

ENRTF Funds Requested: \$334,000

Proposed Project Completion: December 31, 2027

LCCMR Funding Category: Environmental Education (C)

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

Narrative

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

A wave of retirements affecting the natural resources field is leading to loss of institutional, place-based, field knowledge. A new generation of workers may be equipped with data synthesis and modeling tools, and Geographic Information System skills, but may have more limited exposure to relevant field work. Recruitment and retention of State agency, Tribal, soil and water conservation district, watershed, local government and county environmental staff is difficult and there are currently many open positions. These jobs are viewed as entry-level and commonly have high turnover rates. Even where there are adequate numbers of natural resource professionals in a region, they may not work as coordinated teams across governments. This is happening at a time when more State dollars are available for restoration projects and the pressure to demonstrate successful outcomes is at an all-time high. Environmental work begins and ends in the field. Resilient restoration projects are aligned with, not in opposition to, geologic processes. In order for the State to implement cost-effective solutions to surface-water challenges, protect groundwater, and build resilience for the plants, animals and people in a region, an understanding of the geologic history and ongoing processes in a region is critical for successful project outcomes.

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 to develop 4, 2- to 3-day, field-based workshops across the State, organized by geologic terrane, to highlight the glacial and bedrock features that impact land-use and water-management decisions as they pertain to surface-water-quality and groundwater protection. These workshops will be open to all but explicitly designed for those currently working in, or hoping to work in, natural resource fields. Current and former specialists at the Minnesota Geological Survey and DNR County Geologic Atlas program will help provide relevant content and curate geologic information. Participants will use available maps and resources to identify geologic terranes and units and learn about the origin and geologic setting of surface-water and groundwater features. They will learn about sediment and rock types, how these units are represented on maps, subsurface cross sections, and drill logs. They will see the evidence for ongoing geologic processes such as river incision and landslides, learn how land-use practices may unintentionally amplify these processes, and where geologically sensitive or hazardous areas exist. The goal is to work with, not against nature for resilient, successful, and cost-effective protection efforts to improve water. Participants will be invited to bring their specific questions regarding planned or existing projects for group discussion.

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?

These pilot workshops will support institutional, place-based knowledge production and lead to a better understanding of the design and implementation of cost-effective projects. Participants will become familiar with the sources of necessary geologic information and whom to consult. Future proposals will focus on projects with the highest chance for long-term survival because they align with geologic processes rather than work against them. The State's ROI for funded projects will improve because projects will be vetted by collaborative, intergovernmental teams, where shared knowledge and beneficial outcomes emphasizing co-benefits are prioritized. This camaraderie will also make regional, environmental positions more appealing.

Activities and Milestones

Activity 1: Develop Field Workshops and Participant Lists in Coordination with LGUs, regional State Agency staff, watersheds, SWCDs and Tribes

Activity Budget: \$131,000

Activity Description:

Our goal is to familiarize all current and potential natural resource workers with the major geologic terranes in order to frame their work and provide the highest likelihood of success and return on investment. Ongoing geological processes, landscape sensitivity, and climate change play a role in restoration success. A second important goal is creating a cohesive regional workforce. We will use geologists who have mapped the regions and local experts to find exemplary exposures of geologic materials and design a tour that highlights major sediment and rock types. The focus will be on the role geology plays in surface water and groundwater occurrence and sensitivity. We will highlight known problem areas and review State-funded restoration efforts for possible inclusion and discussion on the tour. The State has been divided in different ways: by SWCD service area, DNR Regions, watersheds, and major landform areas. Political boundaries and ceded territory also impact how regional workers collaborate. We will use completed County Geologic Atlases and One Watershed One Plan Agreements to create 4 field-based workshops (two/year) that make the most sense from a geological and organizational point of view for those hoping to, or working in, natural resource fields.

Activity Milestones:

Description	Approximate Completion Date
Divide State into logical regions for field trips.	December 31, 2025
Review available geologic and hydrogeologic information.	December 31, 2025
Consult with experts and select areas of state for 2 trips per field season	March 31, 2026
Create invitation language and distribution lists and send for first year in March	March 31, 2026
Plan Logistics for 2 field workshops for first field season	April 30, 2026
Create Field Guides for 2 trips for first field season	April 30, 2026
Consult with Tribal and local governments and regional State offices in region	December 31, 2026
Send invitations for second set of field trips	March 31, 2027
Plan Logistics for 2 field workshops for second field season	April 30, 2027
Create Field Guides for 2 trips for Second Field Season	April 30, 2027

Activity 2: Host 2 workshops per field season (May - October) for a total of 4, 2-to-3 day trips.

Activity Budget: \$179,000

Activity Description:

The cohort will convene in a central location, be introduced to one another, given background information and briefed on trip route. The goal is to familiarize all with the geology and hydrology of the area they work in and the land-use and climate pressures facing that region. They will travel as a group. Guidebooks, trip logs, map applications for smart devices, and associated information will help participants follow along and use as a reference in their future work. Experts will present relevant information at each site, the known extent of the unit exposed, place it in geologic time, and provide any other helpful context. This will provide an understanding of how surface water and groundwater bodies formed, the ongoing geologic processes that impact rivers, lakes, wetlands, and the unique challenges or hazards in a particular geologic terrane. With this context, group discussion can turn to implications for restoration work in that particular geologic setting. We will visit State-funded restoration efforts as examples and areas of concern submitted by the participants ahead of time. Where possible, we will feature Tribal and regional perspectives and expertise. Legislators and staff will be invited. We will make an effort to accommodate those with disabilities.

Activity Milestones:

Description	Approximate Completion Date
Participants are confirmed and receive necessary instructions for first year	April 30, 2026
Trip logistics planned for first year (transportation, food, route, accommodations)	April 30, 2026
Detailed route and schedule for the field workshop coordinated with instructors, year 1	April 30, 2026
Host two trips between May and Oct. in the first year	October 31, 2026
Trip logistics planned for second year (food, route, accommodations)	April 30, 2027
Detailed route and schedule for field workshop coordinated with instructors	April 30, 2027
Host two workshops with field trips between May and October, year 2	October 31, 2027

Activity 3: Evaluate workshops, recommend best practices for future hosts, help build towards a field-sharing tradition in each region.**Activity Budget:** \$24,000**Activity Description:**

We want to offer workshops that are a valuable use of the participants' time. We will solicit feedback from both attendees and instructors, compile and distribute results to participants, and incorporate them into future workshops. This will be done iteratively as we go so that each workshop improves upon the preceding one. A final summary of all of the workshop best practices will be distributed to attendees to encourage them to make these regular occurrences in their regions. They will also receive digital copies of final guidebooks, lists of attendees with contact information, and encouragement to host trips as new information becomes available or new staff come on board. Participants will be encouraged to sign up for news of new mapping, pertinent gatherings, and provided with a forum or digital platform to share their stories and observations.

Activity Milestones:

Description	Approximate Completion Date
Create post-workshop surveys	June 30, 2026
Distribute surveys, year 1	October 31, 2026
Compile survey results, year 1	November 30, 2026
Compile attendee contact lists for year 1 and distribute as permitted	November 30, 2026
Distribute surveys, year 2	October 31, 2027
Compile survey results, year 2	November 30, 2027
Create and distribute summary report of best practices for field workshops	December 31, 2027
Create platform for sharing stories and observations and to receive news of new mapping	December 31, 2027

Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Barbara Lusardi	Minnesota Geological Survey	Local expertise and geologic content for field-based workshops.	Yes
Kris Meyer	Freshwater	Senior Program Manager	Yes

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?

The field workshops that are created during this pilot can be repeated using the guides developed as new employees are on-boarded and new information comes to light. As experiential knowledge grows, the collaboratives and trips will become a self-sustaining part of the institutional culture and hosted by those in the regions. This will create ongoing learning opportunities and career pathways for those who want to serve greater Minnesota communities. This approach can be refined and expanded to include all areas of the State if the pilot project is well received. Others, including legislators should be encouraged to attend and learn.

Project Manager and Organization Qualifications

Project Manager Name: Carrie Jennings

Job Title: Research and Policy Director

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

Dr. Carrie Jennings Research and Policy Director for Freshwater applies her understanding of glacial geology and landscape evolution to shape policy and technical approaches for managing surface water and groundwater, avoiding hazards, and using resources wisely. She does this through building teams to tackle applied research challenges; promoting the results of these studies in white papers, journal publications, maps, fact sheets and talks; implementing solutions as directly as possible in communities to achieve results; interacting with the legislative branch to shape laws where necessary; working with executive branch agencies to shape rules derived from laws; and supervising Freshwater’s intern program and mentoring students who are interested in science and policy. She was formerly a field geologist for 24 years, 22 of those with the Minnesota Geological Survey and two with the DNR, Division of Lands and Minerals where she subsequently served as the science reports lead for the County Geologic Atlas program at the DNR. She is a science communicator and believes that the best way to understand geology and its impacts on the world around us is through hands-on experiences in the field.

Organization: Freshwater Society

Organization Description:

Since 1968, Freshwater has been a leading public nonprofit organization dedicated to preserving clean, sustainable water that is vital for healthy communities and ecosystems. To that end, we:

- recognize the vital role of freshwater to all living things and the impending crisis in water quantity and quality.
- dedicate our experience and resources to understanding, protecting, enhancing and restoring clean, accessible water.
- invite the participation and support of individuals, associations, business and industry, institutions, educators, and governments.

We value:

- equity and inclusion of diverse perspectives in shaping our shared water future, and we seek to rectify the historical and continued exclusion of underserved communities in the making of water policy and budgetary decisions.

- safe and reliable water for all Minnesotans and everyone downstream.
- community-led solutions that foster equitable and durable change.
- science and evidence-based principles as a basis for our advocacy and action.
- convening collaboratively and serving as a catalyst for constructive dialogue and change.
- teamwork, transparency, integrity and shared leadership.
- sustainability in our operations, which includes reducing water use and energy consumption, reaching carbon-neutral impact and zero waste production.

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	\$ Amount
Personnel								
Research and Policy Director		Oversee geologic content creation, trip route, content providers, and final guidebook preparation			13%	0.2		\$64,000
Senior Program Manager		Oversee logistics, communications, and surveys			13%	0.2		\$35,000
Program Coordinator		Daily communications, vendor contracts, support staff coordination, and field trip details			13%	0.2		\$30,000
Associate Director, MGS		Coordinate content experts for trip stops			37.1%	0.2		\$6,000
Editor		Review and edit guidebook content for publication and distribution			37%	0.1		\$20,000
							Sub Total	\$155,000
Contracts and Services								
Host site space rental and AV use	Professional or Technical Service Contract	Compensation for host location for participants to gather, leave vehicles, listen to preliminary lecture and use bathrooms. \$1500 per site.				0		\$6,000
Stipend for County Atlas staff to provide content, plan and attend trip	Professional or Technical Service Contract	Atlas staff will be doing additional work to assist with these field trips.				0		\$40,000
							Sub Total	\$46,000
Equipment, Tools, and Supplies								
	Tools and Supplies	Field safety, first aid, comfort equipment, and field gear. Includes high-viz vests, bug deterrent,	Participants will be in remote locations and in our charge 2 days. We will provide for their comfort and safety.					\$2,000

		sunscreen, hand cleaners, water bottles, and other items depending on season.						
							Sub Total	\$2,000
Capital Expenditures								
							Sub Total	-
Acquisitions and Stewardship								
							Sub Total	-
Travel In Minnesota								
	Miles/ Meals/ Lodging	4 trips, 2 nights per trip, 5 people (Atlas staff, FW organizers)	Mileage, per diem and lodging for MGS, DNR and FW staff to do pre-trip planning					\$25,000
	Other	Mini-bus or van rental for trip participants and leaders	Transport participants safely and together for ease of communication en route					\$30,000
	Miles/ Meals/ Lodging	Hotels and food for up to 36 participants and leaders per trip	We will want to keep participants together as a group to foster conversation and cohort development. We will book lodging and provide meals.					\$68,000
							Sub Total	\$123,000
Travel Outside Minnesota								
							Sub Total	-
Printing and Publication								
	Printing	Guidebooks and maps for participants	Printed guidebooks with stop descriptions, route map, background information will be provided to each participant. Large format maps will be created for display.					\$8,000
							Sub Total	\$8,000

Other Expenses								
							Sub Total	-
							Grand Total	\$334,000

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				
			State Sub Total	-
Non-State				
			Non State Sub Total	-
			Funds Total	-

Total Project Cost: \$334,000

This amount accurately reflects total project cost?

Yes

Attachments

Required Attachments

Visual Component

File: [ad3cfd27-de8.pdf](#)

Alternate Text for Visual Component

A series of maps show service areas for regional offices that align with political boundaries compared to ecological subsections, One Watershed One Plan agreements, surficial geology, treaty boundaries, and completed Trust Fund and Legacy projects. We proposed to convene practitioners across artificial boundaries in common geologic terranes for learning purposes....

Financial Capacity

Title	File
Freshwater Business Filing_2023	2246b99e-3f9.pdf
FW BusinessFilingDetails2024	500cb33e-a76.pdf
FW2023Audit	77ba6268-690.pdf
FW990PublicDisclosure	ef2d4bf5-e27.pdf
FW2022TaxReturn	cbb6d9ce-593.pdf

Board Resolution or Letter

Title	File
SupportLetterPineCounty	22fa0542-044.pdf
Board Resolution Letter	a5d63ca4-74b.pdf

Administrative Use

Does your project include restoration or acquisition of land rights?

No

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")?

No

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

Barbara Lusardi, Minnesota Geological Survey; Jason Moeckel, Dept. of Natural Resources; Michelle Stockness, Freshwater

