



2025 Nonpoint Source Pollution Reduction Application - Capacity Building/Education Outreach Projects

General Information

Project Name The EcosySTEM Project--Community Outreach and Education in the Yellowstone and Clark Fork Watershed

Applicant Name Ripple: The Center for Education and Ecosystem Studies--Montana Technological University

Is your organization registered with the Montana Secretary of State?

Explanation: Each applicant must be registered with the Montana Secretary of State to do business in the state of Montana. Registration with the Secretary of State may be completed via the following website: <https://sosmt.gov/business/>

Is your organization registered with the federal System for Award Management (SAM)?

Explanation: Each applicant is required to register with SAM. To register or check your organization's status, go to <https://sam.gov/content/home>. If you get an "Unsupported Browser" error, copy, and paste the link into a Google Chrome browser window.

Your organization's Unique Entity Identifier number (UEI #) JJKGF97BMBE1

Explanation: Each applicant is required to have a current UEI number. The UEI number replaces the old DUNS number. If your organization had a DUNS number, you should have received a notification from the federal government indicating that your DUNS number has been changed to a UEI number. If you did not receive this notification, or if you never had a DUNS number, you will need to go to the federal government's System for Award Management (SAM - <https://sam.gov/content/home>) to obtain your UEI number. DEQ recommends starting this process early as it is very time-consuming, requires providing documentation-sometimes with follow-up requests for additional information, and can take up to 2 months to complete. If you need assistance, you may contact the federal help desk at 866-606-8220 Monday-Friday 8:00 a.m. through 8:00 p.m. EST.

Does your organization have adequate liability insurance for the risks associated with your project?

Explanation: Each applicant must have or obtain liability insurance coverage meeting the requirements stated in the Draft Sample Contract and/or requirements negotiated based on the appropriate level of risk associated with the project.

Primary Contact Rayelynn Brandl Title Executive Director

Address 1300 W. Park City Butte State MT Zip Code 59701

Phone Number 406-496-4898 Email rbrandl@mtech.edu

Signature Rayelynn Brandl Digitally signed by Rayelynn Brandl
Date: 2025.03.28 08:43:21 -06'00'

Explanation: This is the person who DEQ would routinely contact to discuss project progress, billing, etc.

Signatory Joanne Lee Title Director of Sponsored Programs

Address 1300 W. Park City Butte State MT Zip Code 59701

Phone Number 406-496-4769 Email

Signature Joanne Lee Digitally signed by Joanne Lee
Date: 2025.03.28 15:04:22 -06'00'

Explanation: This is the person who can legally sign contracts and other binding documents on behalf of the applicant (e.g., a board chair)

Note: The primary contact and the signatory must both sign the application. Signatures must be either signed electronically, or wet-signed, scanned and emailed.



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Project Description

Project Type

Is this a Capacity Building Project, or is it an Education and Outreach Project?

Education and Outreach Project

Explanation: DEQ supports education and outreach efforts that focus on changes in behavior that will prevent or reduce nonpoint source pollution. Our goal is to encourage adoption of Community Based Social Marketing concepts to produce measurable, sustainable change. We also want to support activities that improve local capacity to develop and implement on-the-ground projects to prevent or reduce nonpoint source pollution. In so doing, we are making a distinction between capacity building projects, and education and outreach projects. The selection you make above will be used to determine which questions on the Scoring Sheet reviewers will use to evaluate your project.

Activity Location

List the watershed(s) where your proposed work will happen.

Clark Fork Watershed
Yellowstone Watershed

Activity Description

Describe your project goals and your proposed activities. Explain why the proposed work is an appropriate next step towards preventing or reducing nonpoint source pollution.

This grant proposal seeks funding for the EcosySTEM Project, a comprehensive teacher professional development program to build systemic, long-term change toward negative environmental factors, like nonpoint source pollution (NPS), within each teacher's community. Phase One of the EcosySTEM Project will address time and resource barriers identified by our partners and teachers that stand in the way of measurable, behavioral change. The project includes a gap analysis to assess current NPS education and outreach efforts and a teacher academy to equip educators and partners with behavior-change methodologies that focus on inspiring action among students and community members.. Through this approach, the EcosySTEM project will address the expertise and knowledge barriers that teacher leaders and their community partners face when transforming awareness into action. Ultimately, this process will help us operationalize the framework outlined by McKenzie-Mohr and Tabanico in their book *Fostering Sustainable Behavior* by identifying and using commonalities between communities in the specified watersheds to offer support, expertise, and co-develop outreach campaigns with our partners and teachers.

We will begin our gap analysis by conducting focus groups and surveys to help our many partners and teacher leaders identify if/when/how their education and outreach efforts about NPS lead to behavior change. We will then identify common gaps between watersheds and make recommendations for targeting specific behaviors based on individual community needs. Partners will participate in surveys and focus groups in the Fall of 2025 and return for a discussion of results and training in sustainable behavior outreach methods in the Summer of 2026 - held in conjunction with our summer teacher academy.

We will help teachers change their pedagogical practice to incorporate NPS pollution instruction in their classrooms and to build outreach efforts that employ the behavioral change model outlined by McKenzie-Mohr and Tabanico in our summer academy. Over our 20-year history, we have learned that empowering teachers to become agents of change for environmental issues is the strongest method for creating lasting impact, hence our focus on partnership development between teachers and community stakeholders. Over a 30-year career, a single teacher can serve up to 4,500 students. Teachers who are equipped with behavior-change methodologies gain the capacity for long-term environmental education. Our framework emphasizes sustained impact by ensuring that teachers are not just delivering content but actively guiding students in applying behavior-change principles through citizen science and outreach projects. Teachers' behavioral changes toward incorporating NPS pollution pedagogy will be measured by the collection of teachers' artifacts and self-reports of NPS content frequency in the curriculum.

Budget Form

Please fill out the Capacity Building and/or Education Outreach Project Budget Template (Excel file). Cells highlighted in yellow may be edited to fit the needs of your particular project. DEQ uses a template to construct nonpoint source grant contracts. The Budget Template contains tasks and typical deliverables that match up with the grant contract template. Please see the Example Contract and Scope of Work template for a more detailed look at typical task requirements and deliverables.

Capacity Building Projects

(only complete this page if you selected "Capacity Building Project" on the top of page 2; otherwise, leave this page blank)

Need and Opportunity

Describe your organization's need for increased capacity, and how the proposed project activities will help you meet those needs. Describe the local interest and opportunities for using the capacity you create to prevent or reduce nonpoint source pollution.

Measurement and Sustainability

Describe how you will measure the increase in capacity. Describe how will sustain the capacity you generate on into the future.

Timeline

Describe your anticipated project timeline

Education and Outreach Projects

(only complete this page if you selected "Education and Outreach Project" on the top of page 2; otherwise, leave this page blank)

Behavioral Change

Identify the behavior you will be working to change. What is the behavior? From a nonpoint source pollution perspective, why is the change in behavior important? What are the existing barriers to changing the behavior? How will your proposed activities address the identified barriers? How will you measure the extent of the behavioral change?

While many education and outreach efforts have successfully increased awareness of NPS, translating that awareness into sustained community action requires additional support, strategic frameworks, and evaluation tools. To address these challenges, this project will focus on strengthening the capacity of teachers and partner organizations to apply behavior-change strategies in both classroom instruction and community outreach. Our long-term goal is to assist our partners and our teachers with co-development of methodologies and campaigns that lead to behavior change. To do so, we have to start at phase one by creating understanding of the sustainable behavior model. Secondly, we collectively need to build the skills to implement and assess projects that result in behavioral changes. In this project, we will provide the background assessment necessary (gap analysis) for our partners and teachers to identify possible behavioral interventions. With our assistance and expertise in professional evaluation and research, we are confident our partners can operationalize this model in their communities.

We have identified four key target behaviors that will drive long-term impact:

1. Teachers and partner organizations will conduct a gap analysis to evaluate existing education and outreach efforts related to nonpoint source pollution (NPS) - identifying successful strategies, unmet needs, and opportunities to integrate behavior-change methodologies.
2. Teachers will incorporate at least one NPS lesson that applies behavior-change strategies, ensuring that students are not only learning about NPS but also taking actions to mitigate its effects.
3. Partner organizations and agencies will commit to implementing behavior-change strategies into their education and outreach goals, encouraging them to move beyond raising awareness to fostering measurable, community-wide action.
4. Students will develop public service messages to be broadcast across Montana media platforms. These messages will integrate behavior-change strategies, demonstrating the scalability and effectiveness of this education/outreach methodology.

By embedding behavior-change science into professional development, outreach programs, and student-led initiatives, this project will equip teachers, students, and partner organizations with the tools needed to drive sustainable, long-term reductions in nonpoint source pollution in the Clark Fork and Yellowstone watersheds. Our proposal is designed to translate research into practice by equipping teachers and partner organizations with the tools to apply behavior-change science to NPS education and outreach.

Our evaluation plan emphasizes outcomes as aligned with McKenzie-Mohr and Tabanico (see timeline section). We will also assess changes in teacher instructional practices, student engagement, and partner organization outreach strategies to measure the extent of capacity-building efforts and to ensure that Indigenous perspectives on land and water stewardship are incorporated.

Timeline

Describe your anticipated timeline

Fall 2025

1) Workshop or training on behavior-change strategies for initial participants. 2) Gap analysis framework finalized.

Winter 2025 - Early Spring 2026

1) Gap analysis report summarizing key findings and behavior-change opportunities. 2) Drafted training materials for teacher academy. 3) Next-phase funding application submitted.

Summer 2026

1) 20 teachers trained on applying CBSM principles to lesson design. 2) Partner organizations co-present and/or trained on refining outreach strategies. 3) Teachers create preliminary plans for student-led NPS lessons.

Fall 2026

1) Teacher self-reports on NPS lessons. 2) Partner outreach plans incorporating CBSM strategies. 3) Student PSAs completed

Late Fall 2026 - Winter 2026

1) Data collected on participant-level behavior adoption and instructional changes. 2) Preliminary findings compiled for final report
3) Final report submitted end of grant cycle

Community Engagement

DEQ is committed to carrying out nonpoint source pollution reduction projects within engaged communities. We encourage applicants to apply the principles of community engagement in development and implementation of nonpoint source pollution prevention projects. Below are a few examples of how applicants might apply these principles. DEQ will award additional points in the scoring form for projects that emphasize community engagement.

- Project planning included consultation with Tribal Nations
- Project will benefit underserved markets
- Project will occur in a community that has not previously received nonpoint source pollution reduction grant funding
- Project will address nonpoint source pollution in a community that has been disproportionately burdened by impacts from legacy pollution (e.g., SuperFund sites, legacy mine waste, etc)

Please use this section to highlight connections your project may have to underserved markets.

The communities of the Clark Fork Watershed (Butte, Anaconda, Deer Lodge, Drummond, Phillipsburg, Clinton, and Bonner) are located within the Clark Fork Superfund site. Ten teachers from the Clark Fork Watershed, teaching in these communities will be recruited for the project and are current partners of Ripple. Ten additional teachers from the Yellowstone Watershed (Livingston and Gardiner) will be recruited.

As part of the overall EcosySTEM project, we have recruited Indigenous partners to provide guidance and oversight regarding the development of the EcosySTEM project. Those partners include: Mike Jetty, Program Director, MT Office of Public Instruction, Indian Education For All and Dr. Shane Doyle, Executive Director, Yellowstone Peoples

Project Partners and Roles

Identify the partners that will be working on the project, and their roles.

Ripple has a long history of providing high-quality education and outreach programming in Montana, ensuring that teachers are equipped with science knowledge and engagement tools that reflect local, cultural, and ecological contexts, including Indigenous ways of knowing. Our programming efforts have shown us that teachers can become powerful agents of change in their communities. For example, in our recent EPA Environmental Education grant, participating teachers reported gains in ability to design and carryout research projects and community engagement activities related to environmental issues, including non-point source pollution (Pavlovich, et al., 2021). This is just one example among many. Our work and existing network of community partners places our team in a uniquely strong position to create measurable behavioral change in Montana's youth.

Ripple employs a professional social scientist, Dr. Christina Pavlovich, who will lead a comprehensive study assessing the program's effectiveness in building capacity for teachers, students, and partner organizations.

This evaluation will include the following elements:

- Teacher instructional shifts, including the percentage of teachers integrating EcosySTEM lessons and applying behavior-change strategies, measured through surveys and focus groups. Note: Focus groups rather than interviews are being deployed due to financial and time constraints. However, these are coupled with surveys to increase generalizability in accordance with the framework outlined by McKenzie-Mohr and Tabanico.
- Student engagement, tracked through classroom lesson participation and the creation and dissemination of public service messages (PSAs) and participation in conservation actions.
- Changes in partner organization outreach strategies, measured through surveys and focus groups.
- Overall behavior adoption, using pre/post surveys according to gap analysis data, teacher-submitted lesson artifacts, and participant self-reports on NPS content implementation.

Project Administration

Each contract will have a Project Administration Task. Take the requirements (listed below) into consideration when planning logistics and budget for your project. Project administration includes bookkeeping, invoicing, interim/annual/final report preparation, office supplies, rent, communications, etc. Nonpoint source funding applied to this task must not exceed 10% of the total amount of funding requested, or \$3,000, whichever is lower. Like all other tasks, payment is by reimbursement for actual expenses incurred.

Report Format:

- *Contractor shall submit each Attachment B Billing Statement, Status Report and Final Report using the most current reporting guidance and templates provided by the DEQ project manager.*
- *Contractor shall ensure each Status Report and Final Report contains adequate documentation to justify accompanying reimbursement requests and match reporting, to the satisfaction of the DEQ project manager.*
- *Contractor shall ensure that the Final Report is a standalone document describing all contract activities and containing copies of all contract deliverables (even if the deliverables were previously submitted).*

Reporting Schedule:

- *Status Reports: Due June 15th and December 15th of each year the Contract is in effect.*
- *Draft Final Report: Contractor shall submit a complete draft Final Report for DEQ review and comment at least 15 days prior to the contract expiration date.*
- *Final Report: Contractor shall submit a Final Report, addressing DEQ comments on the draft Final Report, on or before the Contract expiration date.*
- *Attachment B Billing Statements: Contractor shall submit an Attachment B Billing Statement with each Status Report, or Final Report submitted to DEQ while the Contract is in effect. To maintain cash flow, Contractor may submit interim Attachment B Billing Statements as frequently as monthly during the term of the Contract. However, each interim Attachment B Billing Statement must be accompanied by an Interim Report.*

Additional Information

Use the space below to include anything additional for the review panel to consider. Attach additional items and information that could help reviewers better understand your project. Please be conscious of reviewers' time, as they may not have time to read lengthy studies and reports. Please do not attach copies of TMDL documents or watershed restoration plans.

BUDGET

Project Title:									
Instructions	Tasks and Potential Deliverables	Nonpoint Source Request*	Non-Federal Match**	Other Funding***	Match Source	Match Secured? (Y/N)	Total Project Cost	Additional Information****	
This task may include the initial stages of, for example, developing the Plan, demonstration project, outreach program, educational materials or planning project tours. Please include anticipated deliverables and a detailed budget.	Project and Program Development								
	Survey Development	\$ 2,500.00	\$ 2,500.00		NRD	Y	\$ 5,000.00	Estimate of 100 hours total for survey development (Matched)	
	Focus Group Development	\$ 2,500.00	\$ 2,500.00		NRD	Y	\$ 5,000.00	Estimate of 100 hours total for focus group development and planning (Matched)	
	Development of Fostering Sustainable Behavior Materials	\$ 1,000.00	\$ 1,000.00		NRD	Y	\$ 2,000.00	Estimate of 40 hours for materials adaptation--Communications coordinator	
	Develop Teacher Academy Schedule	\$ 5,000.00			NRD	Y	\$ 5,000.00		
							\$ -		
							\$ -		
							\$ -		
	Total	\$ 6,000.00	\$ 11,000.00	\$ -			\$ 17,000.00		
	Implementation								
This task would include, for example, the time getting stakeholder involvement and writing the Plan, leading the project tours or outreach program, and coordinating volunteers. Please include anticipated deliverables and a detailed budget.	Deploy surveys to partners and teachers	\$ 1,000.00					\$ 1,000.00	Student interns to complete reach out. Estimate 80 hours	
	Focus Group Hosting	\$ 1,000.00					\$ 1,000.00	Salary costs for Ripple to host community focus groups with partners & teachers	
	Travel for partners to YBBA facility	\$ 2,000.00					\$ 2,000.00	Travel to Red Lodge Yellowstone Big Horn Research facility for partners in Clark Fork	
	Salary and benefits for data analysis	\$ 5,500.00					\$ 5,500.00	assume 100 hours for analysis of surveys and focus group outcomes to present at academy	
	Ripple travel for focus groups and academy	\$ 500.00	\$ 500.00		NRD	Y	\$ 1,000.00		
	Summer Academy			\$ 8,000.00	YBBA	Y	\$ 8,000.00	Salary costs for Ripple to facilitate results discussion and community outreach planning with partners and teachers	
	Teacher zoom meetings for implementation	\$ 2,000.00			NRD	Y	\$ 2,000.00	Salary and benefits for monthly check in 1-2 hours per month	
	Total	\$ 10,000.00	\$ 2,500.00	\$ 8,000.00			\$ 20,500.00		
	Effectiveness Monitoring								
	Salary and Benefits for Project Evaluation (Dr. Pavlovich)	\$ 5,500.00					\$ 5,500.00	assume 100 hours for analysis of teacher artifacts, surveys and 25-26 5Y plans	
This task includes costs for evaluating the success of your project or program. This may include surveys, community readiness factors, landowner buy in for projects, completion of a Plan, etc. Please include anticipated deliverables and a detailed budget.							\$ -		
							\$ -		
							\$ -		
							\$ -		
							\$ -		
	Total	\$ 5,500.00	\$ -	\$ -			\$ 5,500.00		
	Administration								
	Mid/Annual/Interim Reports and Billing Statements	\$ 1,500.00					\$ 1,500.00		
	Draft/Final Report and Billing Statements	\$ 1,000.00					\$ 1,000.00		
	Communication with DEC	\$ 500.00					\$ 500.00		
Funding applied to Project Administration must not exceed 10% of the total amount of nonpoint funding requested, or \$3,000, whichever is lower. Project includes normal business expenses and reporting requirements.							\$ -		
							\$ -		
							\$ -		
							\$ -		
	Total	\$ 3,000.00	\$ -	\$ -			\$ 3,000.00		
	Grand Totals	Nonpoint Funding Request*	Non-Federal Match**	Other Funding***			Total Project Cost		
		\$ 24,500.00	\$ 13,500.00	\$ 8,000.00			\$ 46,000.00		

*Funding Request - Must not exceed \$30,000

**Non-Federal Match - Can include in-kind materials.

***Other Funding - Use this space for funding that will be used to support creation of task deliverables, but will not be reported as match.

****Additional Information - Use to justify cost if needed.
(Hourly rates, rental costs, etc.)