

**Environment and Natural Resources Trust Fund
2018 Request for Proposals (RFP)**

Project Title:

ENRTF ID: 119-C

Minnesota River Water Quality Education

Category: C. Environmental Education

Total Project Budget: \$ 65,000

Proposed Project Time Period for the Funding Requested: 3 years, July 2018 to June 2021

Summary:

This project targets Environmental Education and will provide a water quality education, field trips, monitoring and assessment to a total of 3,000 students in Southwestern Minnesota.

Name: Robyn Ceurvorst

Sponsoring Organization: Minnesota State University - Mankato

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Mankato Minn 56001

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Location

Region: Southwest

County Name: Statewide

City / Township: Mankato

Alternate Text for Visual:

Students monitoring water quality

_____ Funding Priorities	_____ Multiple Benefits	_____ Outcomes	_____ Knowledge Base
_____ Extent of Impact	_____ Innovation	_____ Scientific/Tech Basis	_____ Urgency
_____ Capacity Readiness	_____ Leverage	_____ TOTAL	_____ %



Environment and Natural Resources Trust Fund (ENRTF)

2018 Main Proposal

Project Title: Minnesota River Water Quality Education

PROJECT TITLE: Minnesota River Water Quality Education

I. PROJECT STATEMENT

This project targets Environmental Education and will provide a water quality education, field trips, monitoring and assessment to a total of 3,000 students in Southwestern Minnesota from Minnesota State University, Great Mankato Area schools. The project builds on a program started in August of 2014 which established a long-term working relationship between Minnesota State University, Mankato, Minnesota Department of Natural Resources (MNDNR), Minnesota Historical Society (MHS), Minnesota Pollution Control Agency (MPCA), and area public schools. This project will expand the focus of the educational component, include new partnerships with state agencies, and demonstrate the value of individual involvement in community conservation to ensure resources for the future.

This project funds water safety equipment, water quality monitoring / assessment equipment, and one project coordinator salary. From engaging in this water quality education project, students will: enhance current curriculum standards through environmental education, river equipment orientation and technical skills, utilize risk management and appropriate safety training, and collaborate with scientists, collecting data and gaining expertise on benchmarks. The goals of the program are to target under-represented university, college and high school students in Southwest Minnesota, Greater Mankato and St. Peter Area to: 1) understand basic concepts related to water quality issues; 2) develop skills needed to measure local water quality and stay safe around water; and 3) create solutions to address water quality challenges.

Each semester over three years, twenty-five MSU students will then travel to area schools and mentor 250 high school students who in turn teach 225 middle school students how to use test kits and meters to analyze water quality. Water quality meters and test kits will be transported from MSU to the public schools so that students get hands-on experience learning to use the equipment during the mentoring activities. MSU faculty, DNR, MPCA, MHS and MSU students will lead high school and middle school students on river field trips to gather water quality monitoring data at five sites on the Blue Earth and Minnesota Rivers. Students will learn water safety before paddling the river, and learn two to three water quality parameters and get experience with both test kits and meters. Partners from the MN DNR will join students at the river when they are monitoring and demonstrate equipment used by the DNR. A second part of the project would include developing a relationship between MSU Water Resources Center; Recreation, Parks and Leisure Services Natural Resource Management majors; and 4-H students.

II. PROJECT ACTIVITIES AND OUTCOMES

Activity 1 – Facilitate Minnesota River Water Education Monitoring Field Trips. Budget = \$65,000.

Water safety and monitoring equipment and expendable chemicals will be purchased and dates for mentoring and monitoring with the high school and middle school students will be determined in coordination with teachers by the project manager and board. A local outfitter and bus transportation system will be secured for shuttling students and equipment to water monitoring sites. Minnesota State University, Mankato (MSU) students in the Recreation, Parks and Leisure Services Program and related natural resource management majors will enroll in an existing course. A pre-assessment quiz will be administered to all students the first day of class to determine initial content knowledge. MSU students will be tested on their content knowledge and mastery of water quality equipment through a lab practical exam in which they must demonstrate how to use meters and test kits, and analyze provided samples to obtain accurate values.



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A pre-assessment quiz will be administered to all high school students to determine their initial level of understanding and knowledge. The mentoring will be done in small groups: one (or two) MSU undergraduates, two high school students and/or two middle school students per group. Students will learn water safety before paddling the river and both test kits and meters to measure ten different parameters will be measured (dissolved oxygen, temperature, pH, turbidity, flow, ammonia, nitrate, phosphate, alkalinity and coliform bacteria). All students will travel to the Blue Earth River or Minnesota River together to monitor three of the five sites per trip: one site at Rapidan Dam on the Blue Earth River, a second site at the confluence of the Le Seuer and Minnesota Rivers, a third site in Mankato at the confluence of the Blue Earth and Minnesota Rivers, a fourth site at downstream from Mankato at Kiwanis Park Recreation Area, and a fifth site at the Seven Mile Creek confluence.

Water quality data will be compiled and graphed. Each class of students will discuss the results, examine inputs to the river at each site and speculate on causes for variations between sites. Discussions will include the importance of water conservation, and the challenges and responsibilities that the agricultural community faces relative to water conservation and protection of water resources. Partners from the MPCA and MNDNR will discuss their roles in statewide efforts to maintain healthy aquatic systems. Water quality values measured will also be examined relative to previous data collected. A post-assessment quiz will be administered to all students to determine the change in content knowledge.

Outcome	Completion Date
1. River equipment and expendable chemicals purchased. Students enroll.	Aug. or Jan. 2018-21
3. Twenty-five undergraduates demonstrate mastery of water quality items.	Oct. or Mar. each year 2018-21
4. Twenty-five undergraduates mentor 250 high school & 225 middle school students.	Oct. or Mar. each year 2018-21
5. Five river sites monitored for 10 parameters with 500 students.	Nov. or April each year 2018-21
6. Data summarized and disseminated to database and website.	May 2019, 2020, 2021
7. Annual fall/spring semester assessment data compiled and analyzed.	June 2019, 2020, 2021
8. Final annual results reported each year for 3 years.	June 2019, 2020, 2021

III. PROJECT STRATEGY

A. Project Team/Partners. The project team / advisory board and partners consists of: one project manager/coordinator (Robyn Ceurvorst, Assistant Professor at Minnesota State University, Mankato); one volunteer coordinator (Kim Musser, Water Resources Center Director from Minnesota State University, Mankato); one field trip coordinator / naturalist (Scott Kudelka, Department of Natural Resources Area Naturalist); and one educational outreach specialist (Ben Leonard, Minnesota Historical Society Educational Outreach Coordinator).

B. Project Impact and Long-Term Strategy.

Students will have a better understanding of water issues and, as they grow into adults, cultivate a sense of environmental stewardship and community service involvement to protect clean water resources. By educating 3000 students over the project period, we hope to see an improvement in local water resources over time. Students will learn how to become ‘citizen scientists’ by collecting data that will be available to the public. For field experience and practicum requirements, Natural Resource Management related majors at MSU will gain valuable experience to become competent entry-level professionals and community educators.

C. Timeline. The anticipated timeline for this project starts August 2018 and finishes January 2021.

2018 Detailed Project Budget

Project Title: Minnesota River School Environmental Education and Training Partnership

IV. TOTAL ENRTF REQUEST BUDGET -- 3 years

BUDGET ITEM (See "Guidance on Allowable Expenses", p. 13)	AMOUNT
Personnel: Minnesota State University, Mankato, Project Manager, Robyn Ceurvorst, quarter-time (\$15,000) of course load annual salary/ benefits to teach RPLS 479 and 475 courses x 3 years = \$45,000.	\$45,000
Professional/Technical/Service Contracts: Bus Travel and Water Equipment Shuttle Expenses - Yaeger or Palmer Bus Services and Bent River Outfitters = \$10,000.	\$10,000
Equipment/Tools/Supplies: Vernier LabPro (12 ea) and probes (6 temperature, 2 dissolved oxygen, 2 pH, 4 turbidity, and 2 flow probes) \$6,000; LaMotte Water Quality Test Kits (4 pH, 2 nitrate nitrogen, 4 phosphate, 4 dissolved oxygen, 4 alkalinity, 4 turbidity, 4 thermometers, 4 ammonia-nitrogen) \$2000; Coliform Test Kits \$1000; Secchi Tubes \$1000;	\$10,000
Land Acquisition: N/A	\$ -
TOTAL ENVIRONMENT AND NATURAL RESOURCES TRUST FUND \$ REQUEST =	\$65,000

V. OTHER FUNDS (This entire section must be filled out. Do not delete rows. Indicate "N/A" if row is not applicable.)

SOURCE OF FUNDS	AMOUNT	Status
Other Non-State \$ To Be Applied To Project During Project Period: N/A	\$ -	N/A
Other State \$ To Be Applied To Project During Project Period: N/A	\$ -	N/A
In-kind Services To Be Applied To Project During Project Period: Minnesota Department of Natural Resources Scott Kudelka Area Naturalist, quarter-time of annual salary/benefits \$25,000 x 3 years = \$75,000. MNDNR equipment and supplies such as computers, printers, ink, paper, transportation and boating equipment Fleet of 8 canoes, 1 trailer, 16 paddles, and 24 life jackets \$10,000 x 3 years = \$30,000.	\$105,000	current
Funding History: N/A	\$ -	N/A
Remaining \$ From Current ENRTF Appropriation: N/A	\$ -	N/A



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EDUCATION

- Ph.D.** Forest (Recreation) Resources. (December 2010).
Dissertation Project: Methodological and managerial applications of the structural norm approach to social and facility capacity indicators in Hawai'i's Coastal Recreation Areas. Part of a larger study entitled: *A multi-stakeholder approach to coastal and marine recreation and tourism management in Hawai'i*. Sponsored by: NOAA, Hawai'i Coral Reef Initiative Research Program (HCRI-RP) and Hawai'i Division of Aquatic Resources (DAR).
Oregon State University, Corvallis, Oregon
- M.S.** Human Dimensions of Natural Resources Recreation & Tourism. (December 2004).
Thesis Project: Colorado Welcome Center visitor study on information gathering behavior. Sponsored by: Colorado Tourism Office, Denver, Colorado and Department of Natural Resources Recreation and Tourism and Colorado State University, Fort Collins, Colorado.
Colorado State University, Fort Collins, Colorado
- B.A.** Leisure, Youth & Human Services. (August 1998). Outdoor Recreation Certificate.
Minor: Business Administration
Practicum Project: Development of Risk Management Plan, Volunteer Coordination Plan, board member service, outdoor leadership trip leader and K-12 at-risk youth outdoor leadership programs.
University of Northern Iowa, Cedar Falls, Iowa

PROFESSIONAL (ACADEMIC) EXPERIENCE

Assistant Professor, Department of Recreation, Parks and Leisure Services, Resource Management, College of Allied Health and Nursing, Minnesota State University, Mankato, Minnesota (2014 – present)

- Curriculum development, course design and teaching of four courses per semester
- Scholarship and research study focused in the discipline and within transdisciplinary realms
- Advising and mentorship to students in coursework, field experience, practicum & research
- Service to natural resource management agencies, private organizations and community in service-learning partnerships, citizen science research projects, educational outreach partnerships

Assistant Professor, Department of Environment & Society, College of Natural Resources, Utah State University (2011 – 2014):

- 70% Teaching, 25% Research, 5% Service
- Prepare program curriculum, design and teach three courses a semester including online, interactive broadcast capture video, hybrid/blended, field, and face-to-face class delivery
- Research within the discipline of natural resource recreation management
- Provide service, education and outreach to agencies, institutions and community groups