



Environment and Natural Resources Trust Fund

2021 Request for Proposal

General Information

Proposal ID: 2021-378

Proposal Title: Foundational Hydrology Data for Wetland Protection and Restoration

Project Manager Information

Name: Jennie Skancke

Organization: MN DNR - Ecological and Water Resources Division

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Project Basic Information

Project Summary: This project will improve wetland protection, management and restoration in Minnesota by completing a partially established long-term wetland hydrology monitoring network that will provide critical knowledge of wetland hydrology dynamics.

Funds Requested: \$400,000

Proposed Project Completion: 2023-09-30

LCCMR Funding Category: Foundational Natural Resource Data and Information (A)

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.

This proposal seeks to improve wetland protection, management and restoration in Minnesota by completing a partially established long-term wetland hydrology monitoring network. Effective wetland management and restoration requires a fundamental understanding the frequency, timing, duration and depth of water level fluctuations in different types of wetlands -- the hydrologic regime. Also, because wetlands are frequently connected to and dependent on groundwater, understanding wetland hydrology can better inform groundwater management. The hydrology of lakes and streams has been systematically monitored for decades, yet there has never been a comprehensive program to monitor wetland hydrology. To address this lack of foundational data, we designed a monitoring framework that requires installing hydrology monitoring equipment in 60 reference (minimally disturbed) wetland sites across the state (see attachment). This number of sites (60) is the minimum necessary to adequately sample the wide variety of wetland types that occur in Minnesota as well as account for geographic variation.

What is your proposed solution to the problem or opportunity discussed above? i.e. What are you seeking funding to do? You will be asked to expand on this in Activities and Milestones.

In 2017 we began a pilot monitoring effort by installing equipment at 10 wetland sites and collecting continuous hydrology data. In 2018, the U.S. Environmental Protection Agency (EPA) awarded the DNR a grant of \$200,160 to fund 20 monitoring stations, which will include upgrading the existing pilot installations. This proposal seeks ENRTF funds to complete the monitoring network by purchasing and installing hydrology monitoring equipment at an additional 40 sites. The proposed ENRTF funding is solely for purchasing and installing the monitoring equipment (wells/gauges and automatic data loggers) and to conduct baseline vegetation surveys. Subsequent, long-term data collection and maintenance of the monitoring network will be done by the DNR using other funding sources.

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?

- Improve the design and implementation of wetland restoration and management projects;
- Improve our understanding of how alterations to groundwater affect wetlands and their associated benefits and allow more informed and objective management of both wetlands and groundwater;
- Improve our understanding of the relationship between hydrology and wetland plant communities;
- Reveal long-term changes to the state's wetlands that may result from a variety of factors such as land use changes, climatic changes and changes in surface and groundwater use.

Activities and Milestones

Activity 1: Install Wetland Hydrology Monitoring Equipment at 40 Sites

Activity Budget: \$367,800

Activity Description:

Purchase and install hydrology monitoring equipment at 40 reference (minimally-disturbed) wetlands around the state over two field seasons. Conduct elevation surveys for each site to calibrate the monitoring equipment and establish ground surface elevations. Conduct follow-up site visits as needed to ensure all sites are operating properly. The monitoring equipment at each site consists of a shallow water table monitoring well (a pipe with slotted or perforated walls along its length) and a continuously recording data logger with sensors to record water level.

Activity Milestones:

Description	Completion Date
First Season Installation of Wetland Monitoring Stations	2021-09-30
Second Season Installation of Wetland Monitoring Stations	2022-09-30
Initial Data Analysis and Project Completion Report	2023-06-30

Activity 2: Conduct Wetland Vegetation Surveys at 40 Hydrology Monitoring Sites

Activity Budget: \$32,200

Activity Description:

Wetland vegetation surveys will be conducted at each of the reference wetlands where hydrology monitoring equipment is installed. Vegetation and hydrology data will be analyzed to understand how long term wetland hydrology patterns influence wetland plant communities, which in turn relates to various wetland benefits, especially fish and wildlife habitat.

Activity Milestones:

Description	Completion Date
Wetland Vegetation Survey Reports Completed	2022-09-30

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 be funded?

This grant will fund a portion of the start-up costs for this effort, including monitoring equipment. The long-term operation of the program will be funded from a combination of other funding sources. The DNR is committed to the long-term operation of this monitoring network.

Project Manager and Organization Qualifications

Project Manager Name: Jennie Skancke

Job Title: Wetlands Program Consultant

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

Jennie Skancke is the MN DNR wetlands program consultant. She acts as the Department's coordinator for projects related to wetland hydrology, status and trends of MN wetlands, and liason between the MN Board of Water and Soil Resources and MN DNR.

Organization: MN DNR - Ecological and Water Resources Division

Organization Description:

The Minnesota Department of Natural Resources - Division of Ecological Resources oversees projects related to water ecosystem management and protection, conservation assistance and regulation, inventory and monitoring of natural resources, as well as several others.

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	\$ Amount
Personnel								
Field Hydrologist		Install and troubleshoot equipment			20%	0.88	X	\$90,480
Wetland vegetation botanist		Conduct wetland vegetation surveys			15%	0.34		\$27,840
							Sub Total	\$118,320
Contracts and Services								
							Sub Total	-
Equipment, Tools, and Supplies								
	Equipment	Monitoring equipment - wells and loggers	Monitor hydrology in wetlands					\$259,178
							Sub Total	\$259,178
Capital Expenditures								
							Sub Total	-
Acquisitions and Stewardship								
							Sub Total	-
Travel In Minnesota								
	Miles/ Meals/ Lodging	Mileage, and per diem	In state travel for installation and troubleshooting of equipment.					\$8,700
							Sub Total	\$8,700
Travel Outside Minnesota								

							Sub Total	-
Printing and Publication								
							Sub Total	-
Other Expenses								
		DNR's Direct and Necessary Costs	Costs for activities that are directly related to and necessary for accomplishing appropriated projects. Direct and necessary costs cover HR Support (~\$1,870), Safety Support (~\$338), Financial Support (~\$4,620), Communication Support (~\$1,388), IT Support (~\$4,447), and Planning Support (~\$1,138) necessary to accomplish funded programs/projects.					\$13,802
							Sub Total	\$13,802
							Grand Total	\$400,000

Classified Staff or Generally Ineligible Expenses

Category/Name	Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request
Personnel - Field Hydrologist		Install and troubleshoot equipment	Classified : If existing employees are used to achieve this work, their existing duties will be backfilled.

Non ENRTF Funds

Category	Specific Source	Use	Status	Amount
State				
In-Kind	In kind staff time:	Project management, coordination, data analysis, report writing, field ops coordination.	Secured	\$99,000
			State Sub Total	\$99,000
Non-State				
Cash	U.S EPA Grant	Used to purchase and install hydrology equipment on 20 wetland sites.	Secured	\$349,967
			Non State Sub Total	\$349,967
			Funds Total	\$448,967

Attachments

Required Attachments

Visual Component

File: [b652be1e-4f7.docx](#)

Alternate Text for Visual Component

This is the design grid used to select sites for long-term hydrologic monitoring of reference wetlands as well as the equipment set-up, including power source, shallow well and logger.

Optional Attachments

Support Letter or Other

Title	File
US Fish and Wildlife Letter of Support	a745970b-349.pdf

Administrative Use

Does your project include restoration or acquisition of land rights?

No

Does your project have patent, royalties, or revenue potential?

No

Does your project include research?

Yes

Does the organization have a fiscal agent for this project?

No



Example of installed wetland hydrology monitoring station.

Wetland Characteristics			Ecological Province		
Hydro-Geomorphic Class	Water Regime Class	Plant Community	Prairie Parkland	Eastern Broadleaf	Laurentian Mixed Forest
Depression/Flat	Temporarily Flooded to Saturated	Wet Meadow	3	3	3
Depression/Flat	Temporarily to Seasonally Flooded	Wooded and Shrub Swamps	3	3	3
Depression	Seasonally Flooded	Shallow Marsh	3	3	3
Depression	Semi-Permanently Flooded to Intermittently Exposed	Deep Marsh	3	3	3
Riverine Floodplain Flats	Temporarily to Seasonally Flooded	Forested and Shrub Floodplain	3	3	3
Depression/Sloped	Saturated	Rich Fen and Poor Fen	3	3	3
Organic Peatland	Saturated	Open and Coniferous Bog	--	3	3
Lacustrine	Semi-Permanently to Permanently Flooded	Aquatic	Monitored by Shallow Lakes Program		

Proposed wetland hydrology monitoring design. The grid indicates the proposed number of monitoring sites for each wetland type and ecological province. Twenty-five of these sites will be installed using non-ENRTF funding sources.