

# Environment and Natural Resources Trust Fund 2020 Request for Proposals (RFP)

**Project Title:**

**ENRTF ID: 213-F**

Maximizing Ecosystem Benefits through Integrated Wetland-Watershed Planning

**Category:** F. Methods to Protect, Restore, and Enhance Land, Water, and Habitat

**Sub-Category:**

**Total Project Budget: \$** 506,517

**Proposed Project Time Period for the Funding Requested:** June 30, 2023 (3 yrs)

## Summary:

To improve ecological outcomes for wetland and watershed planning, the DNR and SCWRS propose to develop a web-based tool that delivers the latest wetland information within a watershed planning framework.

**Name:** Steve Kloiber

**Sponsoring Organization:** MN DNR

**Job Title:**

**Department:** Ecological and Water Resources

**Address:** 500 Lafayette Road

St. Paul MN 55155

**Telephone Number:** (651) 259-5164

**Email** steve.kloiber@state.mn.us

**Web Address:** <https://www.dnr.state.mn.us/wetlands/index.html>

**Location:**

**Region:** Statewide

**County Name:** Statewide

**City / Township:**

## Alternate Text for Visual:

This graphic shows an example of the look-and-feel of the proposal application along with a flow diagram of the planning process for integrating wetland protection and restoration goals into watershed management plans.

_____ 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) 2020 Main Proposal – Maximizing Ecosystem Benefits through Integrated Wetland-Watershed Planning

### PROJECT TITLE: Maximizing Ecosystem Benefits through Integrated Wetland-Watershed Planning

#### I. PROJECT STATEMENT

Wetlands play a vital role in overall watershed health including reducing flooding, protecting water quality, and providing wildlife habitat. However, wetland planning and watershed planning often occur in different silos, whereby watershed planning is often conducted without the most current and detailed wetland information available. While newly available wetland datasets for Minnesota can help address important wetland management and watershed planning questions, they are also large and have a learning curve that hinders wider use by local officials and citizens.

The Minnesota DNR and the St. Croix Watershed Research Station (SCWRS) propose to develop a web-based tool that delivers the most current and accurate wetland information from the newly updated National Wetland Inventory (NWI) and the new Restorable Wetlands Inventory GIS datasets. These large datasets will be analyzed and processed into meaningful metrics and presented in web-based maps, tables, and graphics.

The proposed web-based tool will help users better integrate wetlands into watershed planning efforts such as BWSR's One Watershed One Plan (1W1P), MPCA's Watershed Restoration and Protection Strategies (WRAPS) and local watershed management plans, and will be integrated into the existing web-based tool successfully employed by the DNR's Watershed Health Assessment Framework (WHAF).

The specific wetland metrics will be defined by consulting with an advisory committee composed of representatives from targeted wetland and watershed planning groups. Developed metrics will incorporate both simple summary statistics as well as more advanced wetland functions including, but not limited to:

- Area of wetland type by watershed
- Current flood storage volume in wetlands
- Percent wetland loss by watershed
- Location and area of drained and partially drained wetlands
- Area of wetland by type within areas of high or outstanding biological significance
- Area of wetland by type within publicly owned lands

The overall aim of this project is to help local officials and citizens leverage valuable new wetland datasets leading to better prioritization decisions about wetland protection and restoration within a watershed planning framework. Potential users include watershed and land use planners, wetland regulators, local communities, land trusts and other conservation groups

#### II. PROJECT ACTIVITIES AND OUTCOMES

##### Activity 1 Title: Define user requirements for wetland information deliverables

**ENRTF BUDGET:**  
**\$79,173**

**Description:** This activity will analyze the information requirements of end users. We will review existing reports and literature to identify potential ecological metrics. An advisory committee of 6-7 state and local watershed and wetland managers will help identify specific information deliverables that are required to meet their planning needs. We will augment this input with a web-based survey for a wider range of potential users. Development of metrics will be prioritized based on their potential value to planning efforts as well as the feasibility to generate these metrics on a statewide scale.



**Environment and Natural Resources Trust Fund (ENRTF)**  
**2020 Main Proposal – Maximizing Ecosystem Benefits through Integrated Wetland-Watershed Planning**

Outcome	Completion Date
1. User requirements documentation	December 2020

**Activity 2 Title: Develop ecological and hydrological metrics for wetlands and watersheds**

**ENRTF BUDGET: \$  
\$205,172**

**Description:** The SCWRS will have the primary role for this activity. This will involve compiling and analyzing the best available data for watershed and wetlands and evaluating the feasibility of computing the metrics defined by the users groups. A database of wetland and watershed metrics will be created based on user input for a variety of scales, supporting the ranking of watersheds and sites based on potential ecosystem service benefits.

Outcome	Completion Date
1. Create database of wetland and watershed metrics	November 2021
2. Document computational procedures and guidance on interpretation of results	February 2022

**Activity 3 Title: Develop, test, and deploy web-based wetland planning tool**

**ENRTF BUDGET: \$  
\$222,172**

**Description:** The DNR Watershed Health Assessment Framework team will have the primary role for this activity. This activity will involve developing, testing, and deploying an interactive map designed to assist a broad range of users by making the extensive data related to wetland planning more accessible.

Outcome	Completion Date
1. A web-based application to support integrated wetland and watershed planning	October 2022
2. User guidance and support material	February 2023

**III. PROJECT PARTNERS AND COLLABORATORS:**

The project team includes:

- Steve Kloiber (MNIT@DNR) – Project manager and wetland monitoring and analysis coordinator
- Beth Knudsen (DNR – EWR) – Watershed health assessment, program coordinator
- Ben Gosack (DNR – EWR) – Watershed health assessment, senior natural resource specialist
- Jason Ulrich (SCWRS) – Assistant scientist, lead data analyst

Collaborators in the monitoring network design and site selection include staff from BWSR, MPCA, and 6-7 representatives from local government units. The SCWRS will receive \$200,000 of the project funds for their role. The remaining funds will be spent within DNR or MNIT@DNR.

**IV. LONG-TERM IMPLEMENTATION AND FUNDING:**

The Ecological and Water Resources Division of the DNR is committed to ongoing application support of this planning tool. EWR allocates funds each year to provide for routine minor maintenance of software applications created to support the division's business goals.

**V. SEE ADDITIONAL PROPOSAL COMPONENTS:**

- A. Proposal Budget Spreadsheet**
- B. Visual Component or Map**
- C. Project Manager Qualifications and Organization Description**

Attachment A: Project Budget Spreadsheet  
 Environment and Natural Resources Trust Fund  
 M.L. 2020 Budget Spreadsheet

Legal Citation:

Project Manager: Steve Kloiber

Project Title: Maximizing Ecosystem Benefits through Integrated Wetland-Watershed Planning

Organization: Minnesota Department of Natural Resources

Project Budget: \$506,517

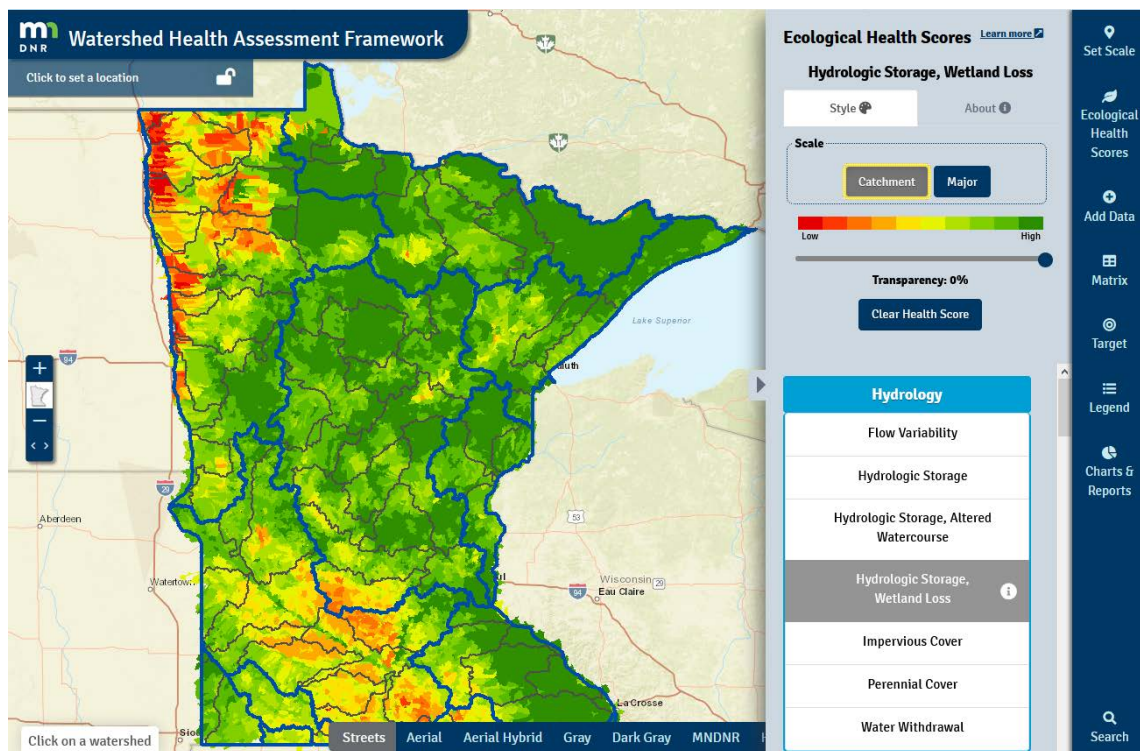
Project Length and Completion Date: 3 years, June 30, 2023

Today's Date: April 2, 2019

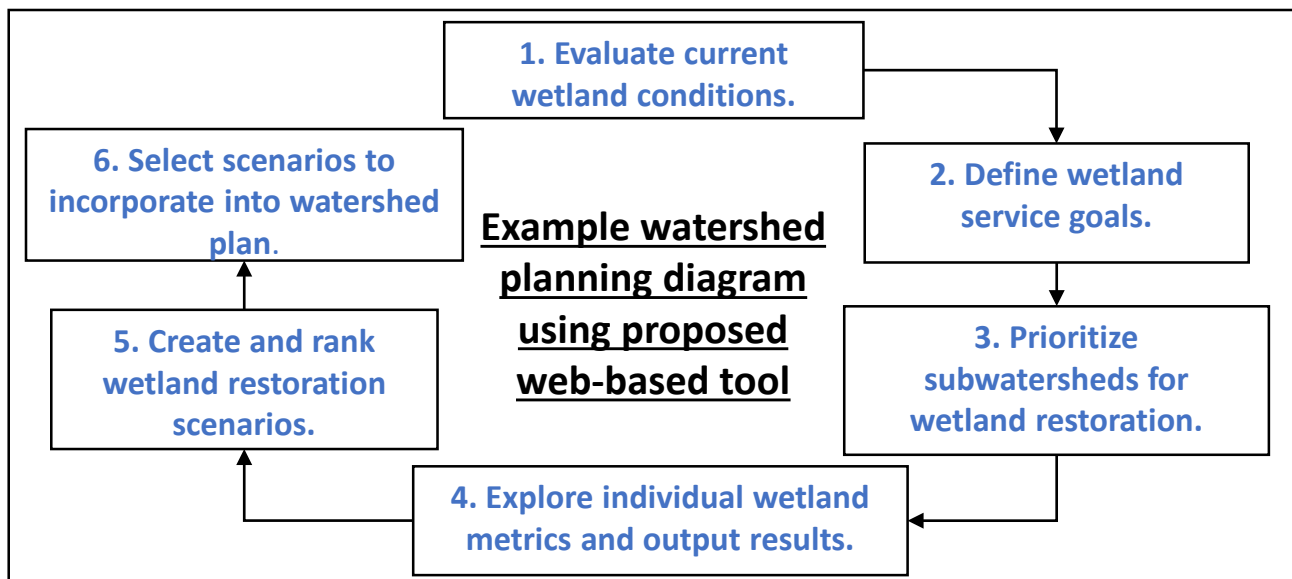


ENVIRONMENT AND NATURAL RESOURCES TRUST FUND BUDGET		Budget	Amount Spent	Balance
BUDGET ITEM				
Personnel (Wages and Benefits)				
DNR program staff for the Watershed Health Assessment Framework support for business analysis, defining user requirements, database migration, data management, application testing, user outreach and communications. The total estimated level of effort required for DNR staff time is 1200 hours (approximately 0.20 FTE x 3 yrs.). Salaries include ~15-25% fringe benefits as per state union contracts. Current DNR staff will be used, with their existing duties backfilled.		\$ 60,000	\$ -	\$ 60,000
Professional/Technical/Service Contracts				
Sole source contract with St Croix Watershed Research Station to help define wetland metrics, compile and process data for summary tables, charts, and maps.		\$ 200,000	\$ -	\$ 200,000
Service level agreement with MNIT Professional Services for business analysis, application development (programming), testing, and deployment.		\$ 120,000	\$ -	\$ 120,000
Service level agreement with MNIT Business Services for project management, coordination, and communications.		\$ 120,000	\$ -	\$ 120,000
Other				
*Direct and Necessary expenses: HR Support (~\$920), Safety Support (~\$166), Financial Support (~\$718), Communication Support (~\$1,388), IT Support (~\$2,187), and Planning Support (~\$1,138)		\$ 6,517	\$ -	\$ 6,517
COLUMN TOTAL		\$ 506,517	\$ -	\$ 506,517
SOURCE AND USE OF OTHER FUNDS CONTRIBUTED TO THE PROJECT	Status (secured or pending)	Budget	Spent	Balance
Non-State:		\$ -	\$ -	\$ -
State:		\$ -	\$ -	\$ -
In kind:		\$ -	\$ -	\$ -
Other ENRTF APPROPRIATIONS AWARDED IN THE LAST SIX YEARS	Amount legally obligated but not yet spent	Budget	Spent	Balance
		\$ -	\$ -	\$ -

# Maximizing Ecosystem Benefits through Integrated Wetland-Watershed Planning: A web-based tool to deliver valuable new wetland data to local officials and citizens



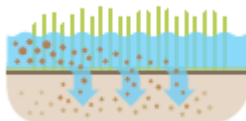
Example of the look-and-feel and functionality of proposed web-based wetland-watershed planning tool



## Wetland Services Provided to Watersheds



Page 5 of 6  
Flood Reduction



05/12/2019  
Water Quality



ENRTF ID: 213-F  
Habitat

## Project Manager Qualifications: Steve Kloiber, Ph.D., P.E.

<b>SUMMARY</b>	Steve Kloiber is the wetland monitoring coordinator for the Minnesota Department of Natural Resources. He has twenty years of experience in the water resources field with a special focus on geospatial analysis and environmental informatics. He has managed dozens of projects, ranging in size from tens of thousands to over a million dollars. Steve has authored or co-authored several peer-reviewed journal articles or book chapters on water resources, remote sensing, and GIS. He also serves on the Board of Managers for the Nine Mile Creek Watershed District.
<b>EDUCATION</b>	Ph.D. Civil (Environmental) Engineering/Water Resource Minor University of Minnesota, Minneapolis, Minnesota, 2002  M.S.C.E. Civil (Environmental) Engineering University of Minnesota, Minneapolis, Minnesota, 1992  B.A. Chemistry/Computer Science Concentration St. Olaf College, Northfield, Minnesota, 1988
<b>PROFESSIONAL REGISTRATION</b>	Professional Engineer in Minnesota (Registration #23804) First Issued February 1995
<b>AWARDS/ HONORS</b>	Academic Excellence Award 2002 Central States Water Environment Association
<b>EMPLOYMENT HISTORY</b>	<b>Minnesota Department of Natural Resources, St. Paul, MN</b> Wetland Monitoring Coordinator, October 2008 to Present  <b>Metropolitan Council, St. Paul, Minnesota</b> Lead Environmental Analyst, September 2002 to October 2008 Senior Water Resource Planner, September 2001 to September 2002 Water Resource Planner, January 1998 to September 2001  <b>Montgomery Watson, Wayzata, Minnesota</b> Professional Environmental Engineer, November 1995 to December 1997 Associate Environmental Engineer, June 1992 to November 1995  <b>University of Minnesota, Minneapolis, Minnesota</b> Research Assistant, September 1989 to March 1992

## Organizational Description: Minnesota DNR

The Minnesota Department of Natural Resources (DNR)'s mission is to work with citizens to conserve and manage the state's natural resources, to provide outdoor recreation opportunities, and to provide for commercial uses of natural resources in a way that creates a sustainable quality of life. The department consists of several divisions based on the state's natural resources, such as Fish and Wildlife, Forestry, Lands and Minerals, Parks and Trails, and Ecological Resources and Waters, as well as four regions and four support bureaus.