

**Environment and Natural Resources Trust Fund
2010 Request for Proposals (RFP)**

LCCMR ID: 039-A3

Project Title:

Wakanda Lake Chain Integrated Shallow Lake Conservation Plan

LCCMR 2010 Funding Priority:

A. Water Resources

Total Project Budget: \$ \$431,100

Proposed Project Time Period for the Funding Requested: 2 years, 2010 - 2012

Other Non-State Funds: \$ \$0

Summary:

A project to develop a conservation plan that addresses impaired waters issues in the Wakanda Chain of Lakes and move implementation forward.

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Sponsoring Organization: MN River Board

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Location:

Region: SW

County Name: Kandiyohi

City / Township:

_____ Knowledge Base	_____ Broad App.	_____ Innovation
_____ Leverage	_____ Outcomes	
_____ Partnerships	_____ Urgency	_____ TOTAL

MAIN PROPOSAL

PROJECT TITLE: Wakanda Lake Chain Integrated Shallow Lake Conservation Plan
Minnesota River Board (www.minnesotariver.org)
Ducks Unlimited, Inc. (www.ducks.org)

I. PROJECT STATEMENT

Over 40% of the Minnesota waters tested have been determined to be impaired by the Minnesota Pollution Control Agency. Shallow lakes, those basins less than 15 feet deep, have become some of the most impaired in prairie portions of the state due to their shallow water depths that make them particularly vulnerable to the combination of our highly drained and intensively cultivated agricultural landscape, nutrient rich soils, shallow water/sediment interfaces that are subject to mixing by wind and waves, and invasive fish such as carp. This complex combination of negative influences on shallow lake ecology warrants an integrated assessment and management approach that identifies multiple techniques that can improve aquatic ecology and water quality.

The Wakanda Chain of Lakes, south of Willmar, includes Lake Wakanda (1,792 acres), Little Kandiyohi Lake (932 acres), Kasota Lake (435 acres), and Lake Minnetaga (786 acres). These lakes are hydrologically connected – both naturally and artificially, and have a combined watershed of over 53 square miles. Most of their watershed is highly drained and farmed, and contains approximately 7,300 acres of restorable wetlands. Each lake is shallow and in the turbid state with few aquatic plants and very poor water quality. Wakanda is legally listed as impaired by MPCA, Little Kandiyohi and Kasota will be proposed for listing in 2010 as a result of recent sampling, and testing of Minnetaga is underway. Wakanda and Minnetaga are stocked with fish by DNR, and Wakanda is aerated in winter. Each shallow lake has a large population of benthic fish, including mostly carp. Each shallow lake formerly contained clear water and abundant aquatic plants, and formerly accommodated large numbers of migratory birds and other wetland-dependent wildlife. Remnant stands of old growth elm trees and some native prairie exist along the shores of Little Kandiyohi and Little Kasota Lakes.

Conservation professionals have identified multiple improvement projects, including restoration of large, drained wetlands such as “Grass Lake” and buffer establishment in upstream areas to conducting temporary draw-downs of Kasota and Little Kandiyohi to restructuring fish populations in Wakanda and Minnetaga. Local stakeholders generally agree that the lakes are highly degraded and in dire need of improvement, but opinions differ on which approach might work best. Meanwhile, the designation of impaired waters will require more in-depth water quality testing and mandated remediation plans in the future, but local stakeholders and conservationists are eager for a holistic plan that can combine improvement techniques.

This project proposes to merge the expertise of various natural resource management professionals to assess the problems facing the Wakanda Chain of Lakes and develop an integrated, holistic shallow lake conservation plan for their improvement and protection that directly addresses items A.3.a Aquatic Habitat Protection and E. Natural Resource Conservation Planning and Implementation. The Minnesota River Board, in conjunction with their relationship with the Water Resources Center at Minnesota State University will conduct water quality testing and assess fish populations, along with the completion of an impaired waters assessments that will include full watershed evaluations for each lake, however, given that this is a chain of lakes, they will be best treated as one common unit.

Ducks Unlimited, Inc. (DU) will lead an assessment of restorable wetlands in the lakesheds and work to prioritize those with the potential to improve lake hydrology and ecology. This will include development of a hydrologic model and water budget for all four lakes that can be used to guide restoration and management. DU engineers will also design water control structures and fish barriers for the connections between these lakes and on their outlets to give DNR managers the ability to conduct temporary water

level manipulations to rejuvenate their aquatic ecology. Throughout the process, local stakeholders such as the Wakanda Chain of Lakes Association and private landowners, and local and state agencies will serve as a steering committee and be asked to guide the process. These stakeholders and agencies will be the primary implementation vehicle for this plan. DNR's shallow lakes program will assess these lakes in the future.

This proposal addresses the LCCMR's 2010 Funding Priority item A (Water Resources) #3.a Aquatic Habitat Protection by demonstrating and evaluating innovative practices to improve native shallow lake aquatic habitat, and Funding Priority item C (Habitat Enhancement) #1.b Restoration and Enhancement by conducting innovative restoration projects and evaluating our methods. Further, this proposal addresses Habitat recommendation #4 "Restore and Protect Shallow Lakes" in the "Statewide Conservation & Preservation Plan" contained in Appendix A of LCCMR's "Six-Year Strategic Plan for the Environment and Natural Resources Trust Fund", which specifically calls for the Minnesota to restore and improve shallow lake habitats to reduce the number of lakes in the turbid water state. Similarly, Minnesota's Long Range Duck Recovery Plan calls for the protection and active management of 1,800 shallow lakes throughout the state. DNR Division of Fish & Wildlife is currently completing a shallow lakes program plan that targets shallow lakes for improvement that are partially or wholly on public land and those legally designated for wildlife management.

The Water Resource Center staff have significant experience in developing TMDLs, assessing impaired waters, and evaluating fisheries. This project, in conjunction with the Minnesota River Board and DU has great potential to bring expertise to the disposal of the local Wakanda Lake area.

II. DESCRIPTION OF PROJECT RESULTS

Result 1: Wakanda Lake Chain Integrated Shallow Lake Conservation Plan

Budget: \$500,000

The Minnesota River Board (with assistance from the Water Resources Center) and DU will prepare an integrated conservation plan for the Wakanda Chain of Lakes. This plan will utilize primary plan development outlines – including significant effort to gather local input and utilize local planning team members. We will evaluate all options, assess current lake and fish community status, and make recommendations regarding improvement actions. This plan will also start to be implemented as a result of this project, with engineering work to be completed and processes started to implement the plan – not just plan for the sake of planning.

Deliverables

1. Develop Integrated Shallow Lake Conservation Plan for Wakanda Chain

Completion Date

June 2012

III. PROJECT STRATEGY

A. Project Team/Partners

The partners will include the Minnesota River Board, DU, the Water Resources Center at MSU, Mankato, local lake associations, county planners, water planners, commissioners, and land owners.

B. Timeline Requirements

The Minnesota River Board requests a two year grant timeline for completion by June 30, 2012.

C. Long-Term Strategy

Local stakeholders and agencies will be responsible for implementation of the plan, DNR Division of Fisheries & Wildlife will manage fisheries and water levels, and DNR shallow lakes program will conduct periodic assessments to monitor water quality status and improvements.

Project Budget

Wakanda Lake Chain Integrated Shallow Lake Conservation Plan
Minnesota River Board and Ducks Unlimited, Inc.

IV. TOTAL PROJECT REQUEST BUDGET (2 years)

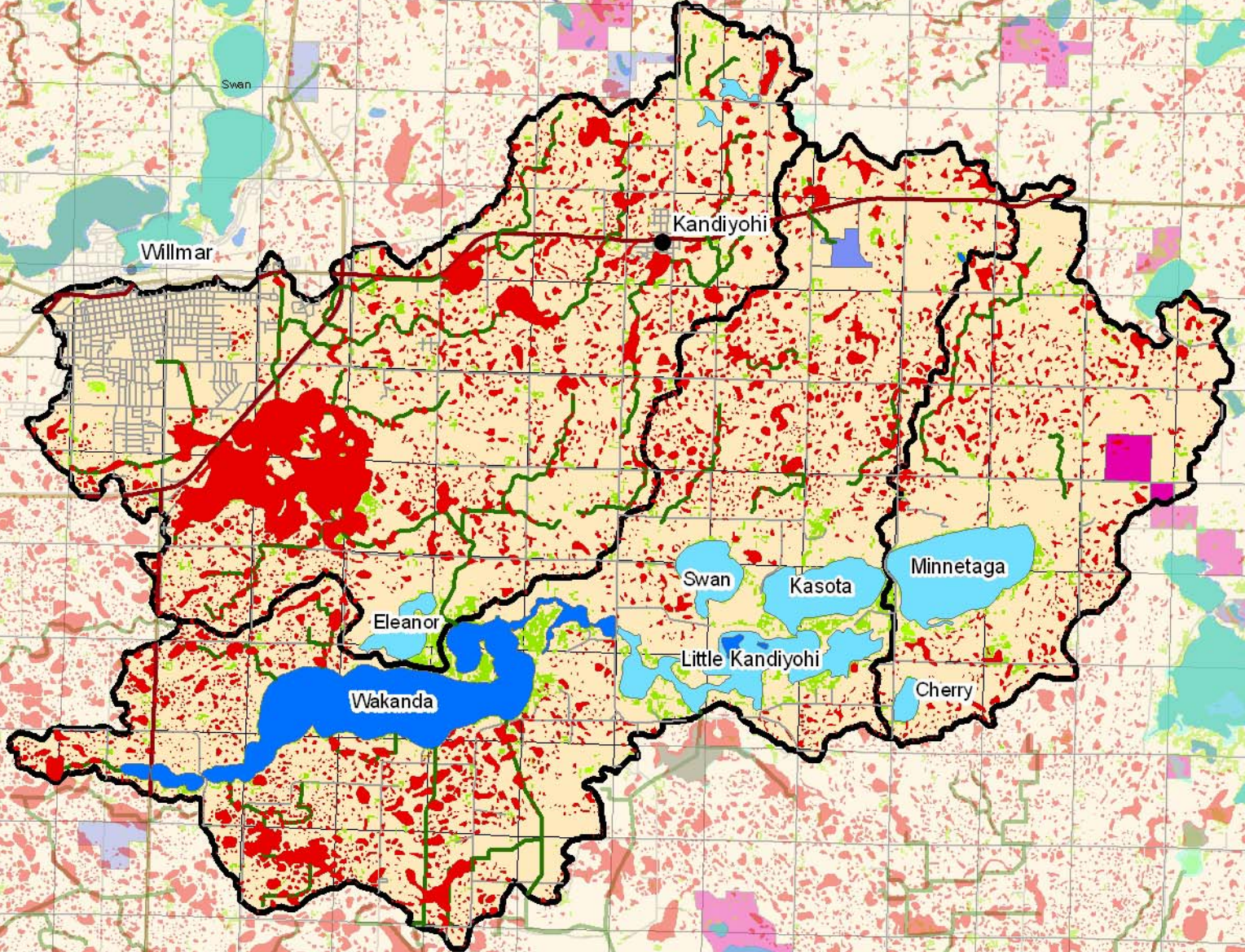
BUDGET ITEM: STAFF	AMOUNT
Impaired Waters Specialists - 100% employment/yr- 2 yr period. Will serve as lead technical investigator - complete watershed assessment, monitoring data coordination, develop fact sheets, promote outreach, and serve as one of the primary developers of the conservation plan. 65% salary - 35% benefits	\$ 135,000.00
Graduate Research Assistants (2) - Stipend Based (considered half time) - 2 yr period. Serve as the primary technical assistants to the Impaired Waters Specialist and MRB Project Manager - will be involved in monitoring, watershed assessment, data collections, report preparation, and outreach. Play important role in agency contact and lead fish assessments as part of a thesis project. 78% salary - 22% benefits	\$ 86,000.00
GIS Specialist - 30% employment/yr - 2 yr period Assist in watershed assessment, generate maps, review pertinent remote sensing data, etc....65% salary - 35% benefits.	\$ 42,500.00
Natural Resource/Waterfowl Biologist - 25% employment/yr - 2 year period Review watershed data, assistwith/coordinate data collection, work with local entities on public meetings, educational outreach, serve as conservation plan development advisor, develop infrastructure plans to improve lake quality. 70% salary - 30% benefits.	\$ 30,000.00
Engineer - 25% employment/yr - 2 yr period. Develop engineering specifications, review potential sites, and work with other staff to identify projects that facilitate improved watershed condition and water quality in the chain of lake. 70% salary - 30% benefits	\$ 60,000.00
Engineering Technician - 15% employment/yr - 2 yr period. Assist the engineer in the development of specifications, site review, relaying information to contractors, etc... 70% salary - 30% benefits	\$ 18,000.00
Local Project Manager Associated with Ducks Unlimited - 5% employment/yr - 2 yr period. Provide supervision of local engineering and biologist staff, aid in the communications with local interest groups and government officials. Serve as a reviewer for the conservation plan. 70% salary - 30% benefits	\$ 8,000.00
Budget Item: STAFF TOTAL	\$ 379,500.00
BUDGET ITEM:Non-staff expenses	AMOUNT
Travel: Travel for data collection, public meetings, outreach events, coordination meetings, etc... All travel will be in-state. No out-of-state travel will be paid from this project. Estimated mileage for the 2-year project period is 18,000 miles @ \$0.52/mile = \$9,360. In addition, we would anticipate approximately 48 overnight stays for the various staff involved (collectively) @\$95.00/night = \$4,560. Plus per diem costs of approximate \$30/day for days in the field (estimated at 10/month - all staff combined, on average = 240 days@\$30/day) = \$7,200).	\$ 22,120.00
Data collection equipment and sample processing - estimated based on the need to sample various portions of the watershed for water quality, habitat condition, soil status, etc.... Various meters, sample bottles, fish nets, etc... = \$18,000. Approximatley 8 samples per year per lake @ \$120/sample (to process nutrient analyses, turbidity, chlor-a, etc...) for 5 lakes. 8 @ 12 @ \$120 = \$11,520	\$ 29,520.00
Budget Item:NON-STAFF EXPENSES TOTAL	\$ 51,640.00
TOTAL PROJECT BUDGET REQUEST TO LCCMR	\$ 431,140.00

V. OTHER FUNDS

SOURCE OF FUNDS	AMOUNT	Status
In-kind Services During Project Period:		
MN River Board Project Manager/Accounting Services and Time	\$ 40,000.00	Secured
Expert/Agency Staff Time	\$ 15,000.00	Secured
Computers & Printing	\$ 1,500.00	Secured
Ducks Unlimited Staff and Project Management	\$ 60,000.00	Secured
TOTAL In-Kind	\$ 116,500.00	

Lakesheds of Kandiyohi Township

Kandiyohi County, Minnesota



 Lakeshed Boundary

Land Cover Classification

-  Shallow Lakes
-  Restorable Wetlands
-  Drainage Ditch
-  Grassland
-  Forests

Land Stewardship Layers

-  WPA
-  WMA



0 1 2 Miles

BUILDING CAPACITY IN THE MINNESOTA RIVER BASIN

Project Manager Qualifications

Shannon J. Fisher – Project Manager

Dr. Shannon Fisher received his Ph.D. in Biological Sciences in 1999 from South Dakota State University. Dr. Fisher currently serves as the Director of the Water Resources Center at Minnesota State University, Mankato and as the Executive Director of the Minnesota River Board.

Dr. Fisher supervises a staff of 7, plus graduate and undergraduate students. In fiscal year 2006, Dr. Fisher secured \$480,000 in new grants and contracts and managed a total budget of more than \$1 million. The Water Resources Center has work agreements in place with the EPA, MPCA, BWSR, MDA, and others. A partial list of projects that Dr. Fisher has recently completed and/or supervised include portions of the 2006 Public Ditch Survey Report, an Assessment of Walleye Ponds in Southwestern Minnesota, an Evaluation of Hard Rock Resources in the Minnesota River Valley, and the Development of the Minnesota River Board Strategic Plan.

Professional Experience

2005-present	Executive Director and Assistant Professor of Biology Water Resources Center and Minnesota River Board Minnesota State University, Mankato
2003-2005	Natural Resource Specialist - Senior (Regional Environmental Review Ecologist) Minnesota Department of Natural Resources
2003-present	Adjunct Professor Concordia University
2002-2003	Visiting Assistant Professor Gustavus Adolphus College
2000-2003	Natural Resource Specialist (Fisheries Management) Minnesota Department of Natural Resources
1997-2000	Graduate Teaching Assistant/Instructor/Assistant Professor South Dakota State University
1998-1999	Visiting Instructor Gustavus Adolphus College
1997-1999	Ph.D. Graduate Research Assistant South Dakota State University – College of Agriculture and Biological Sciences
1994-1996	M.S. Graduate Research Assistant South Dakota State University – Department of Wildlife and Fisheries Sciences

As the manager of this project, Dr. Fisher would coordinate all of the required administrative duties (subcontracts, payroll, accounting, etc...) and organize/direct the collection of requested data. In addition, Director Fisher would help coordinate training sessions and help identify trainers in the watersheds. Dr. Fisher intends to be a point of contact on this project long after the project ends – making the applicability and scope of this effort much greater than a 24-month window.

Organization Description

The Water Resources Center is an applied research unit nested within the College of Science, Engineering, and Technology at Minnesota State University, Mankato. We are an educational institution serving the Minnesota River Basin. The Center, however, serves as a bridge among education, policy, and research – providing substantive outreach to students of all types – including legislators, landowners, and agency staff.