Lessard-Sams Outdoor Heritage Council

Shallow Lake Enhancements in Grant County

ML 2023 Request for Funding

General Information

Date: 06/16/2022

Proposal Title: Shallow Lake Enhancements in Grant County

Funds Requested: $2,631,000

Manager Information

Manager's Name: Tracey Von Bargen
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Location Information

County Location(s): Grant.

Eco regions in which work will take place:

- Prairie

Activity types:

- Enhance

Priority resources addressed by activity:

- Wetlands

Narrative

Abstract

In West Central Minnesota, the Grant County Highway Department is requesting funding to enhance seven shallow lakes and two additional wetlands on three different complexes, covering 1300 acres. These basins will be

enhanced by constructing durable long-lasting water control structures. The structures will allow water level management on degraded shallow lakes that have high populations of rough fish, low populations of aquatic invertebrates, submerged and emergent vegetation. Once managed those populations would be inversed providing habitat for waterfowl and other water birds.

Design and Scope of Work

High water issues have plagued Grant County's shallow lakes for nearly 30 years creating many negative effects such as:

#1 Drown out emergent vegetation along the shore line.
Without the buffer of emergent vegetation, wave action has eroded shorelines, causing soil and excess nutrients to be dumped into these shallow lake systems. In many cases, this has led to 50-year-old oak trees dying and falling into the lake, leaving behind high clay banks that continue to erode. The loss of emergent vegetation also reduced the habitat needed for invertebrates, waterfowl, and other water birds.

#2 Allow rough fish to consistently survive over winter.
These fish suspend bottom sediments and submerged aquatic vegetation while feeding. With no rooted vegetation to hold them in place, wave action can further resuspend bottom sediments. Both of these resuspension activities block sunlight that would allow new plants to grow and increase the amount of excessive nutrients in the water column.

#3 Allow fathead minnows to flourish.
These shallow lakes now have little to no submergent or emergent vegetation remaining leading to the invertebrates having no food, breeding habitat, or places to hide from predators like fathead minnows. These factors lead to a crash of the aquatic invertebrate population. With no invertebrates to keep algae in check and the increased nutrients in the water column, an algae bloom takes place annually and further reduces the amount of sunlight reaching the bottom that is needed to grow aquatic vegetation.

This cycle has persisted in Grant County even after substantial winter kill events because damage to these systems is so severe that drastic reset is needed. This reset can usually occur only through an extended extreme drought or water level management.

To remedy the situation variable crest water control structures and fish barriers will be designed by engineering consultants with vast experience in natural resource bioengineering and installed by qualified contractors who specialize in heavy civil and infrastructure construction. Once the necessary infrastructure is installed it will allow Grant County staff to conduct temporary water level drawdowns. These drawdowns reset the ecology of the basin by eliminating rough fish populations, consolidating bottom sediments, and allowing new plants to germinate. Once desired results are achieved stoplogs are reinstalled into the structure to allow water to refill the shallow lake. The new vegetation holds the bottom sediments in place, buffers the shoreline from wave action, and provides habitat for invertebrates. These newly enhanced shallow lakes contain clean clear water that attracts many species of waterfowl, water birds and other animals including many species of greatest conservation need.

The primary objective is shallow lake enhancements, these basins will also provide many other societal benefits including: flood retention, clean water, and will help maintain public road infrastructure impacted by the sustained high water. While Grant County's main concern is flood retention and reducing impacts to public roads, with the LSOHC's help we can develop projects that have multiple benefits but will focus first and foremost on conservation.

How does the proposal address habitats that have significant value for wildlife species of greatest conservation need, and/or threatened or endangered species, and list targeted species?

The Minnesota River Prairie Subsection Profile states that 15 species of greatest conservation need are dependent on quality shallow lake habitat, including 14 birds and 1 reptile (common Snapping Turtle). The enhanced shallow lakes in this proposal will provide quality foraging, resting breeding, and migration habitat for these listed species. Healthy shallow lakes in this area typically support populations of breeding or migrating; Northern pintail, Lesser Scaup, American Bittern, Black tern, Marsh Wren, Sedge Wren, Trumpeter Swan, Black-crowned Night Heron, Greater Yellowlegs, American Avocet, Forster's Tern, Common Tern, Common Moorhen, Virginia Rail, and the Least Bittern.

Many other SGCN will visit shallow lakes to feed on the abundant resources including Common Night hawk, Northern Harrier, and Bald Eagle.

What is the degree of timing/opportunistic urgency and why it is necessary to spend public money for this work as soon as possible?

Since the flood of 1997 these basins have been able to consistently over winter rough fish populations. After the recent drier period lake levels have not receded. Several of these basins have roads adjacent to them and the county has decided to address the main issue of high water rather than pour more funds into raising roads and placing riprap. This would be done by lowering lake levels 1'-2' to the established OHW providing very little ecological benefit. Currently there is support from the County Board of Commissioners and adjacent landowners to manage these lakes for multiple benefits of water quality, flood retention, maintaining infrastructure, and habitat. If these projects are not funded, Grant County will be forced to act on the least expensive option and habitat will not be considered. If the basins are lowered to the OHW, the opportunity to do habitat enhancement will have passed.

Describe how the proposal uses science-based targeting that leverages or expands corridors and complexes, reduces fragmentation or protects areas identified in the MN County Biological Survey:

The shallow lakes and wetlands slated for enhancement in this grant proposal are identified or adjacent to identified key shallow lake habitats in the Minnesota River Prairie subsection profile. Once enhanced they will provide not only as stepping stones on migration routes but also more locally. There have been several shallow lake projects done in this area in the past 15 years, these additional projects will help expand the complex of managed shallow lakes to disperse waterfowl and other water birds. Birds will seek out the improved habitat either for foraging or to escape human disturbance. This will reduce the congregation of large flocks that may transmit diseases, such as the highly pathogenic bird flu that we are seeing now.
These projects are also located adjacent to the Pomme de Terre River Corridor which has a medium score from the Minnesota's 2015-2025 Wildlife Action Plan's Wildlife Action Network. This score is calculated based on the availability of habitats that support Species in Greatest Conservation Need.

Which two sections of the Minnesota Statewide Conservation and Preservation Plan are most applicable to this project?

- H4 Restore and protect shallow lakes
- H6 Protect and restore critical in-water habitat of lakes and streams

Which two other plans are addressed in this proposal?

- Long Range Duck Recovery Plan

- Managing Minnesota's Shallow Lakes for Waterfowl and Wildlife

Describe how your program will advance the indicators identified in the plans selected:

Both plans have a goal of managing 1,800 shallow lakes throughout Minnesota to provide prime feeding and resting habitats for migration and breeding waterfowl. This program will add seven additional managed shallow lakes. While these are not the type of lakes that are typically sought after for the MNDNR to actively manage, no public boat landing or WMA access. We will be adding another partner to help the MNDNR achieve the goal of active management on 1,800 shallow lakes by 2056.

Five of these shallow lakes will also provide places for people to recreate. Only one lake is partially contained within a WPA but the other four are adjacent to public roads that provide access to the entire lake basin. The lack of a public boat ramp will most likely limit the size and type of boat to smaller crafts rather than large boats with mud motors.

Which LSOHC section priorities are addressed in this proposal?

Prairie

- Protect, restore, and enhance shallow lakes

Describe how your program will produce and demonstrate a significant and permanent conservation legacy and/or outcomes for fish, game, and wildlife as indicated in the LSOHC priorities:

This program will increase the number of enhanced shallow lakes in the prairie section of Minnesota. The resulting increase in submergent and emergent vegetation will increase the productivity of the basins which will provide significant food resources for migrating and breeding waterfowl and other water birds. These projects will have other benefits that include clean water and flood retention. The clean water will result from submerged aquatic plants holding bottom sediments in place so the nutrients do not become resuspended in the water column and emergent vegetation will buffer the shoreline from wave action reducing bank erosion that adds silt and nutrients into the lake system. This shoreline erosion has also caused mature oak trees to fall into the lakes. Spring snowmelt will be captured and temporarily stored to mimic the natural wetland cycle of rising in the spring and receding throughout the summer.

These results will be achieved by having a specialized consultant engineering firm survey, design and oversee construction of durable water control structures that will have a life span of over 50 years.

Citizen scientist volunteers and school children will be engaged to help monitor these shallow lakes before, during, and after the enhancement. The desired outcome is to provide environmental education to area youth to develop the next generation of environmental conservationists.

What other fund may contribute to this proposal?

- N/A

Does this proposal include leveraged funding?

Yes

Explain the leverage:

Grant County Board of Commissioners has unanimously approved $75,000 of in-kind leverage.

We are still exploring potential opportunities from local sportsman's clubs and Bois de Sioux Watershed District to provide additional matching funds.

Per MS 97A.056, Subd. 24, Please explain whether the request is supplanting or is a substitution for any previous funding that was not from a legacy fund and was used for the same purpose.

Grant County has not done any habitat projects in the past nor spent county dollars on projects that habitat is the primary focus. This is a new program that we are exploring to deliver habitat projects that include multiple benefits.

Non-OHF Appropriations

Year	Source	Amount
2018-2022	Grant County and Bois de Sioux Watershed District	$282,898

How will you sustain and/or maintain this work after the Outdoor Heritage Funds are expended?

Lake management plans will be drafted as part of the permitting process. This plan will state how and when future drawdowns will be implemented. There will be ecological triggers that need to be met in order to perform a drawdown, these could include submerged aquatic vegetation density, water clarity, water quality, or presents of rough fish. These triggers will be monitored according to state standards by citizen scientist volunteers. Once a drawdown is ecologically needed county staff will oversee the task to make sure it is done in accordance with the lake management plan.

County staff will also be responsible for any potential maintenance needed.

Actions to Maintain Project Outcomes

Year	Source of Funds	Step 1	Step 2	Step 3
2028	County highway or citizen scientist volunteers	Monitor water quality parameters, vegetation and bird use response to shallow lake management	When ecological triggers laid out in lake management plans are met conduct the next drawdown cycle	Monitor water quality parameters, vegetation and bird use response to shallow lake management

Identify indicator species and associated quantities this habitat will typically support:

The MNDNR's Long Range Duck Recovery Plan estimates that one pair of ducks needs 20 acres of permanent wetland. Using this number there should be 65 pairs of ducks over the 1300 acres of enhanced shallow lakes and wetlands.

Trumpeter swans are estimated to establish large territories so a realistic quantity would be 10 pairs of trumpeter swans could be supported by this project.
While shallow lakes do provide breeding habitat for many species there is not enough population and distribution data available to quantify the outcome of the enhancements to those species.

How will the program directly involve, engage, and benefit BIPOC (Black, Indigenous, People of Color) and diverse communities:

Grant County welcomes the increasing population of BIPOC to live and work in our communities. We intend to engage the local schools where their children attend and introduce all kids to local conservation projects. If children become excited about conservation and parents take interest, the entire family can enjoy recreational activities on these projects.

Five of these projects have public access but no public boat ramp thus only smaller and cheaper water crafts could be used on these enhanced shallow lakes. Since a $10,000 boat with a mud motor cannot access these areas, the financial barrier to start hunting is lowered. Resulting in a new BIPOC demographic of hunters competing on a level playing field for access to quality habitat.

Activity Details

Requirements

If funded, this proposal will meet all applicable criteria set forth in MS 97A.056?
Yes

Will restoration and enhancement work follow best management practices including MS 84.973 Pollinator Habitat Program?
Yes

Is the restoration and enhancement activity on permanently protected land per 97A.056, Subd 13(f), tribal lands, and/or public waters per MS 103G.005, Subd. 15?
Yes

Where does the activity take place?

- Public Waters
- WPA

Land Use

Will there be planting of any crop on OHF land purchased or restored in this program?
No

Other OHF Appropriation Awards

Have you received OHF dollars in the past through LSOHC?
No

Timeline

Activity Name	Estimated Completion Date
Survey, Design and Permitting	June 2025
Construction of Water Control Structures	June 2027

Budget

Totals

Item	Funding Request	Antic. Leverage	Leverage Source	Total
Personnel	-	$70,000	Grant County	$70,000
Contracts	$2,030,000	-	-	$2,030,000
Fee Acquisition w/ PILT	-	-	-	-
Fee Acquisition w/o PILT	-	-	-	-
Easement Acquisition	-	-	-	-
Easement Stewardship	-	-	-	-
Travel	-	$5,000	Grant County	$5,000
Professional Services	$600,000	-	-	$600,000
Direct Support Services	-	-	-	-
DNR Land Acquisition Costs	-	-	-	-
Capital Equipment	-	-	-	-
Other Equipment/Tools	-	-	-	-
Supplies/Materials	$1,000	-	-	$1,000
DNR IDP	-	-	-	-
Grand Total	**$2,631,000**	**$75,000**	**-**	**$2,706,000**

Personnel

Position	Annual FTE	Years Working	Funding Request	Antic. Leverage	Leverage Source	Total
County Staff	0.15	4.0	-	$70,000	Grant County	$70,000

Amount of Request: $2,631,000
Amount of Leverage: $75,000
Leverage as a percent of the Request: 2.85%
DSS + Personnel: -
As a % of the total request: 0.0%
Easement Stewardship: -
As a % of the Easement Acquisition: -

Describe and explain leverage source and confirmation of funds:
Grant County will provide grant administration, project permitting, bidding, oversight and process payments. This amount was unanimously approved by the Grant County Board of Commissioners.

We continue to work to bring additional leverage and are in discussions with several local sportsman clubs and Bois de Sioux Watershed District.

Does this proposal have the ability to be scalable?
Yes

If the project received 70% of the requested funding

Describe how the scaling would affect acres/activities and if not proportionately reduced, why?
If 70% of funding was awarded, projects would be removed to match funding levels. These would be removed based on habitat outcomes, cost, and complexity.

Describe how personnel and DSS expenses would be adjusted and if not proportionately reduced, why?
Personnel leverage amount would be reduced because there should be less administration cost on smaller grant amounts and fewer projects. This may not be proportional but would just increase the percentage of leveraged funds.

If the project received 50% of the requested funding

Describe how the scaling would affect acres/activities and if not proportionately reduced, why?
If 50% of funding was awarded, projects would be removed to match funding levels. These would be removed based on habitat outcomes, cost, and complexity.

Describe how personnel and DSS expenses would be adjusted and if not proportionately reduced, why?
Personnel leverage amount would be reduced because there should be less administration cost on smaller grant amounts and fewer projects. This may not be proportional but would just increase the percentage of leveraged funds.

Contracts

What is included in the contracts line?
Once the projects are designed, they will be sent out for a competitive bid to qualified contractors who specialize in heavy civil and infrastructure construction.

Federal Funds

Do you anticipate federal funds as a match for this program?
No

Output Tables

Acres by Resource Type (Table 1)

Type	Wetland	Prairie	Forest	Habitat	Total Acres
Restore	0	0	0	0	0
Protect in Fee with State PILT Liability	0	0	0	0	0
Protect in Fee w/o State PILT Liability	0	0	0	0	0
Protect in Easement	0	0	0	0	0
Enhance	1,300	0	0	0	1,300
Total	**1,300**	**0**	**0**	**0**	**1,300**

Total Requested Funding by Resource Type (Table 2)

Type	Wetland	Prairie	Forest	Habitat	Total Funding
Restore	-	-	-	-	-
Protect in Fee with State PILT Liability	-	-	-	-	-
Protect in Fee w/o State PILT Liability	-	-	-	-	-
Protect in Easement	-	-	-	-	-
Enhance	$2,631,000	-	-	-	$2,631,000
Total	**$2,631,000**	**-**	**-**	**-**	**$2,631,000**

Acres within each Ecological Section (Table 3)

Type	Metro/Urban	Forest/Prairie	SE Forest	Prairie	N. Forest	Total Acres
Restore	0	0	0	0	0	0
Protect in Fee with State PILT Liability	0	0	0	0	0	0
Protect in Fee w/o State PILT Liability	0	0	0	0	0	0
Protect in Easement	0	0	0	0	0	0
Enhance	0	0	0	1,300	0	1,300
Total	**0**	**0**	**0**	**1,300**	**0**	**1,300**

Total Requested Funding within each Ecological Section (Table 4)

Type	Metro/Urban	Forest/Prairie	SE Forest	Prairie	N. Forest	Total Funding
Restore	-	-	-	-	-	-
Protect in Fee with State PILT Liability	-	-	-	-	-	-
Protect in Fee w/o State PILT Liability	-	-	-	-	-	-
Protect in Easement	-	-	-	-	-	-
Enhance	-	-	-	$2,631,000	-	$2,631,000
Total	**-**	**-**	**-**	**$2,631,000**	**-**	**$2,631,000**

Average Cost per Acre by Resource Type (Table 5)

Type	Wetland	Prairie	Forest	Habitat
Restore	-	-	-	-
Protect in Fee with State PILT Liability	-	-	-	-
Protect in Fee w/o State PILT Liability	-	-	-	-
Protect in Easement	-	-	-	-
Enhance	$2,023	-	-	-

Average Cost per Acre by Ecological Section (Table 6)

Type	Metro/Urban	Forest/Prairie	SE Forest	Prairie	N. Forest
Restore	-	-	-	-	-
Protect in Fee with State PILT Liability	-	-	-	-	-

Protect in Fee w/o State PILT Liability	-	-	-	-	-
Protect in Easement	-	-	-	-	-
Enhance	-	-	-	$2,023	-

Target Lake/Stream/River Feet or Miles

Outcomes

Programs in prairie region:

- Enhanced shallow lake productivity ~ *Citizen scientists will evaluate and document the response of enhancement on the shallow lake's productivity versus the current condition in accordance with MN DNR standards. Measurable outcomes will be high SECCHI disk readings, density and diversity of submerged aquatic vegetation, an emergent vegetation buffer around the shoreline, high invertebrate populations and high bird use. Secondary benefits would be reducing peak flows downstream and a shallow lake that functions in a manner that mimics nature.*

Parcels

Sign-up Criteria?
No

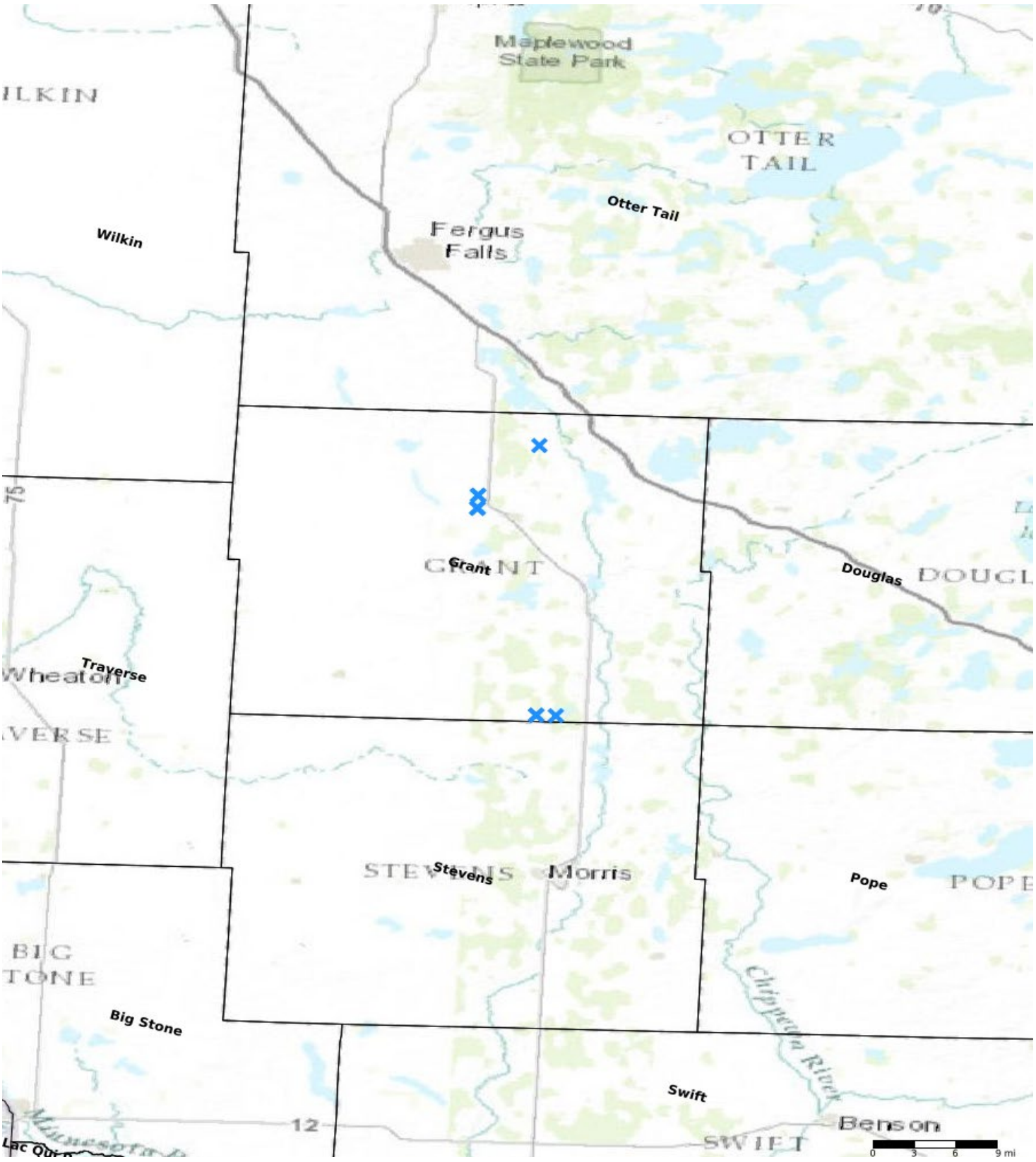
Explain the process used to identify, prioritize, and select the parcels on your list:
Minnesota River Prairie subsection profile shows locations of key shallow lake habitats. These shallow lakes were examined to determine if management was needed based on aerial photos and site visits to determine water quality, presence of aquatic vegetation and waterfowl use. Shallow Lakes that are a part of a complex were also prioritized.

If it was deemed management would benefit the basin, other multiple benefits were evaluated such as: a county road being impacted by highwater or flooding issues be addressed with an enhancement project. Lastly, the contributing watershed of the shallow lake was evaluated to see if any basins could harbor rough fish that could reinfest after enhancement. These were added to the project list if management was a possibility.

Restore / Enhance Parcels

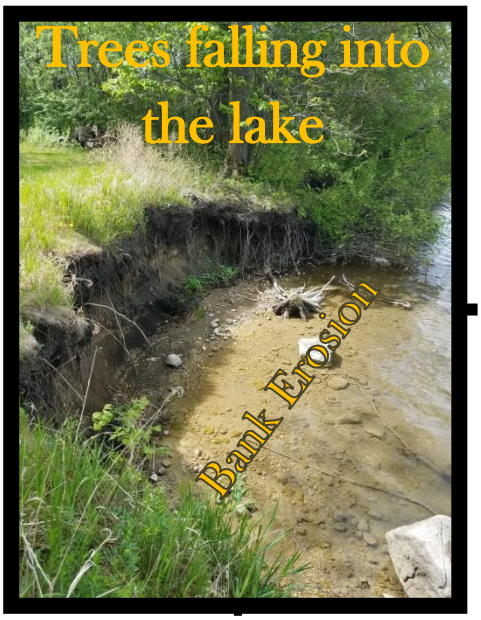
Name	County	TRDS	Acres	Est Cost	Existing Protection
Trisko Lake	Grant	12942207	76	$100,000	Yes
West Wetland	Grant	12942207	20	$75,000	Yes
North Wetland	Grant	12942207	19	$75,000	Yes
Silver Lake	Grant	12742234	150	$531,000	Yes
Shauer Lake	Grant	12742234	220	$550,000	Yes
Patchen Lake	Grant	12742235	330	$500,000	Yes
Elbow Lake	Grant	12942206	320	$300,000	Yes
Samantha Lake	Grant	12942206	100	$200,000	Yes
Strehlo Slough	Grant	13042215	65	$300,000	Yes

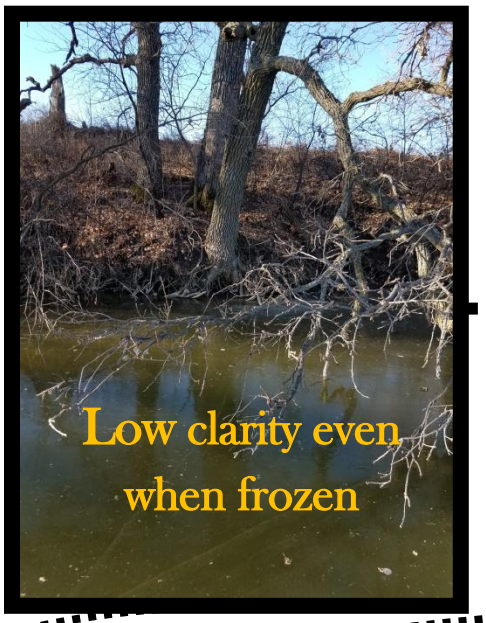
Parcel Map

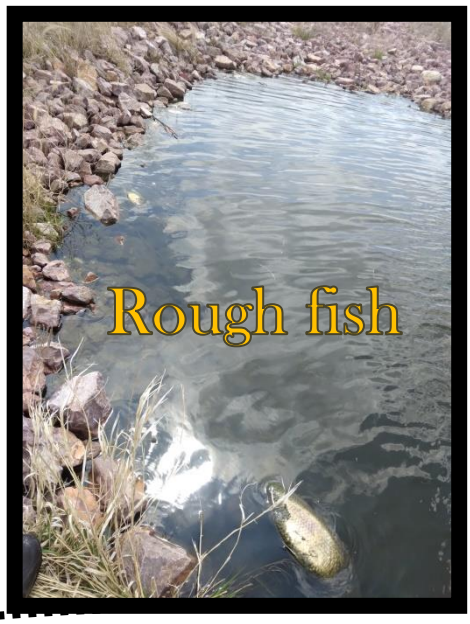


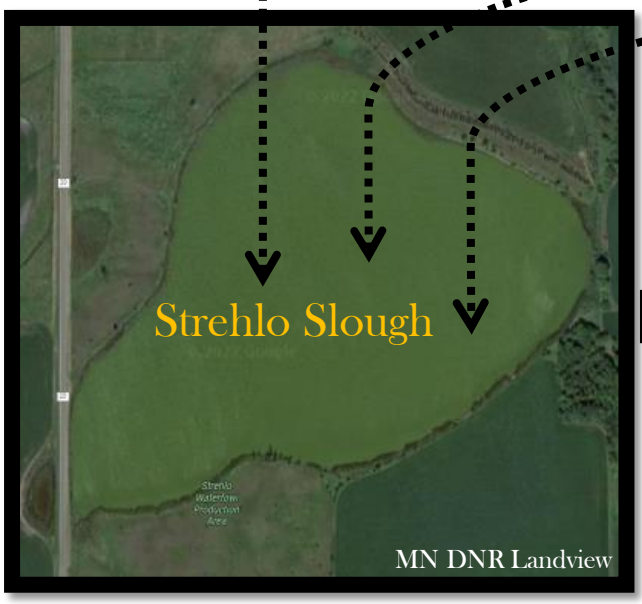
- Protect in Easement
- Protect in Fee with PILT
- Protect in Fee W/O PILT
- Restore
- Enhance
- Other

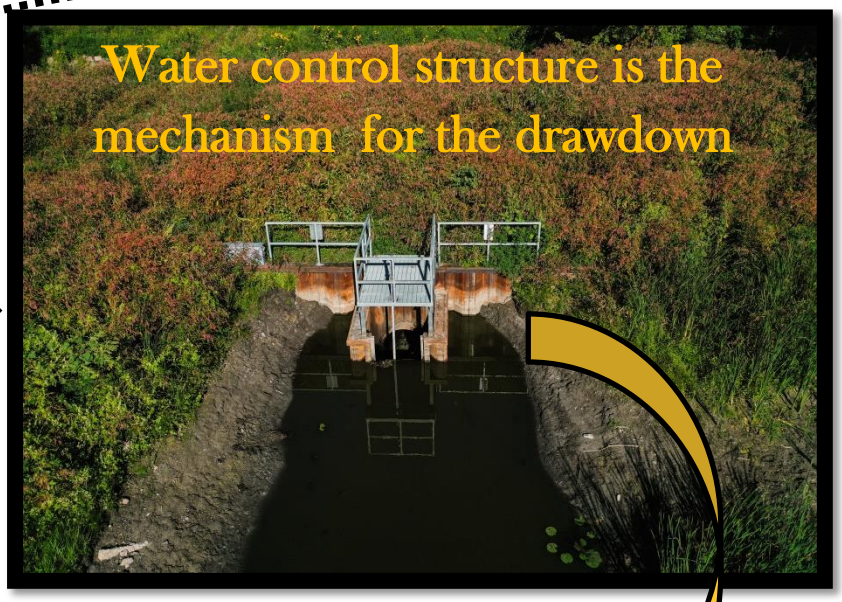
Shallow Lake Enhancements in Grant County

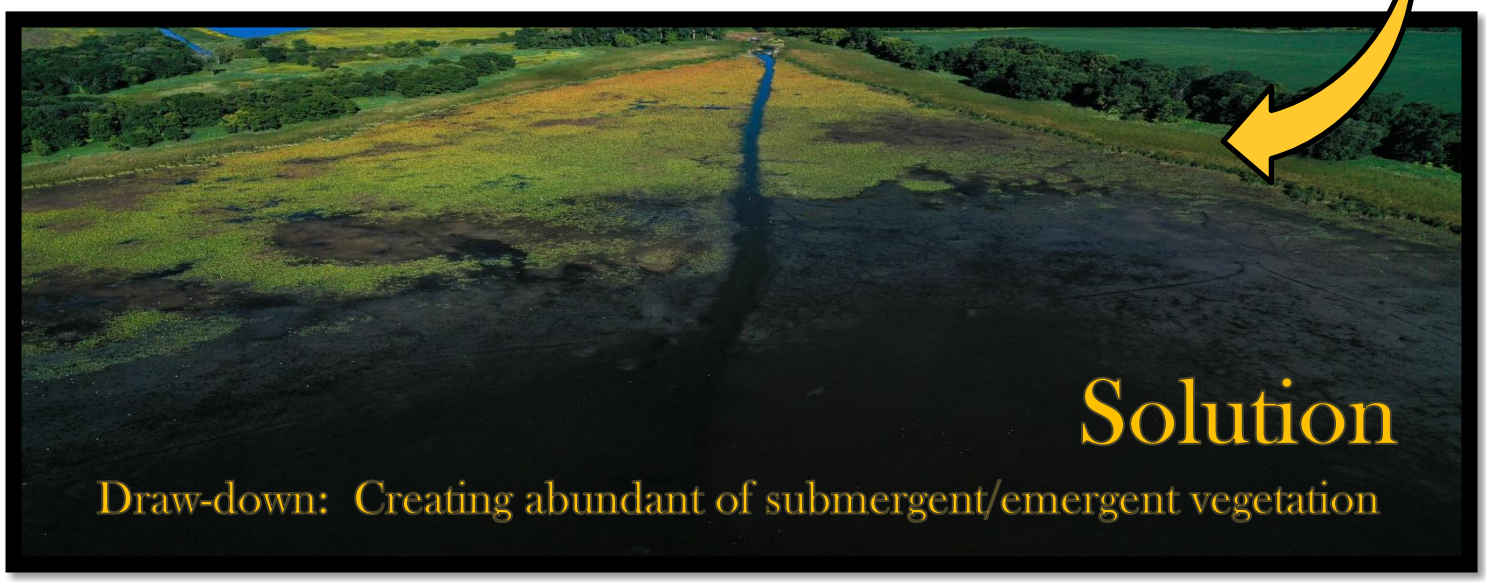












Shallow Lake Enhancements in Grant County

Grant County is rural community located in West Central Minnesota in in the prairie pothole region where 90% wetlands are drained and 99% of native prairie has been plowed. The remaining wetlands and shallow lakes are in poor ecological conditions due to high-water and rough fish population. Historically this has been a destination area for outdoor recreation for visitors living in the Twin Cities and beyond.

To enhance the shallow lakes, the county will go through Minnesota State Statute 103G.408 Temporary Drawdown of Public Waters and develop a comprehensive lake management plan for each basin or complex. Through this process MNDNR will ensure that these shallow lakes are managed for fish, wildlife or ecological purposes and are in the public's interest. USFWS owns approximately 40 acres under and around Strehlo Slough, so we have and will continue with discussions on how to manage this basin to maximize the habitat value and their goals.


Drawdown providing ideal habitat for migrating teal and shore birds

Grant County realizes the secondary benefits that shallow lake enhancement projects inherently provide such as clean water, flood control and high-water issues on public infrastructure. Several of these basins are above the ordinary high-water mark and may be lowered permanently as allowable by Minnesota State Statutes. This permanent lowering will also provide ecological benefits such as, increase the likely hood of winter killing rough fish and reduce the wave action on eroded shorelines.

Bois de Sioux
Watershed District

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May 19, 2022

Dear Chair Hartwell & Council Members of the Lessard-Sams Outdoor Heritage Council:

This letter is presented in support of the grant application submitted on behalf of Grant County to utilize drawdowns and build control structures to enhance habitat and water quality in numerous locations in Grant County, Minnesota. Of particular interest to the Bois de Sioux Watershed District, which has Minn. Stat. Chapter 103D watershed district jurisdiction in this area, is work proposed for Samantha and Elbow Lakes.

In 2021, the Bois de Sioux Watershed District, and 12 partner local governmental units, completed the One Watershed One Plan, adopting the Joint Comprehensive Watershed Management Plan for the Bois de Sioux and Mustinka Rivers. In that plan, Samantha and Elbow Lakes are identified as targeted locations for outlet improvements, control structures, and potential storage capacity. This work will contribute directly toward our goals for addressing altered hydrology, public flooding, and private flooding.

In our area of the state, excess water influences water quality and habitat quality – addressing flooding can alleviate damages to aquatic vegetation and wildlife which benefits public and private landowners. Therefore, we respectfully request that you support Grant County's grant application.

Sincerely,

Linda J. Vavra

Linda Vavra, President

Jamie Beyer, Administrator