

Lessard-Sams Outdoor Heritage Council

Fiscal Year 2020 / ML 2019 Request for Funding



Date: May 31, 2018

Program or Project Title: Big Rice Lake Wild Rice Enhancement

Funds Requested: \$1,192,000

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County Locations: St. Louis

Regions in which work will take place:

- Northern Forest

Activity types:

- Enhance

Priority resources addressed by activity:

- Wetlands

Abstract:

The Big Rice Lake wild rice enhancement proposal is a collaborative effort between the US Forest Service, 1854 Treaty Authority, Bois Forte and Fond du Lac Tribal Bands, and the MN DNR. Wild rice abundance has greatly declined across the lake while other competitive vegetation has drastically increased. This proposal will utilize knowledge gained from small-scale vegetation work as well as hydrological alterations and apply it to a lake-wide scale to enhance conditions for wild rice success. A total of 2,072 acres of wild rice habitat will be enhanced as a result of OHF's participation.

Design and scope of work:

Big Rice Lake historically was one of the best producing wild rice lakes in northeastern Minnesota for wild rice harvesters and migratory waterfowl use. Today, due to hydrologic alterations, stabilization of water level, and other variables, like changes in climatic conditions and impacts from wildlife herbivory, wild rice has declined across the lake and pickerelweed has become the dominant vegetation.

This proposal will accomplish 2,072 acres of wild rice habitat enhancement work on Big Rice Lake. A multi-agency effort will assist in the completion of the project and long-term success. The agencies involved include the US Forest Service, 1854 Treaty Authority, Bois Forte Band of Chippewa, Fond du Lac Band of Lake Superior Chippewa, and the Minnesota DNR Wildlife and Shallow Lakes Program. In addition to these key players, Big Rice Lake has a large recreational user group and concerned citizen following. Due to the extent of the issue and importance of the enhancement to all entities involved, it is critical that this project be completed as soon as possible.

The project will include three sections to address issues of concern. One section will address the outlet control structure that is inefficient and impacting hydrology. The structure is a rock weir which will be removed and the outlet will be restored to the pre-weir conditions to promote natural flow dynamics. The second section will address the public access to ensure large equipment can be launched as well as provide suitable landing area for boats and canoes. The third section will address the pickerelweed dominance and enhance wild rice abundance. Pickerelweed will be reduced by utilizing a combination of Fond du Lac Band's airboats and harvester barge, Bois Forte Band's harvester barge, and DNR airboats and harvester barge. Once pickerelweed is removed, wild rice will be more likely to re-establish. If wild rice does not re-establish naturally from the resident seed in the substrate, seed from another location will be evaluated and used to reseed Big Rice Lake.

The equipment needs will be essential to the long-term success since this project, specifically vegetation control, is predicted to require some small-scale maintenance until pickerelweed is no longer the dominant species. In addition to the required vegetation maintenance at Big Rice Lake, the acquired equipment would be available to address similar vegetation issues (pickerelweed, cattail, etc.) on wild rice lakes statewide.

Based on small-scale vegetation work already completed at Big Rice Lake and the information gathered from sources that have completed similar vegetation enhancement projects, there is a high level of confidence that this project will be successful and will enhance 2,072 acres of wild rice habitat for waterfowl, as well as the recreational users, wild rice harvesters, and waterfowl hunters.

Which sections of the Minnesota Statewide Conservation and Preservation Plan are applicable to this project:

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

Which 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:

Although habitat complexes in the northern and transitional portions of Minnesota are less well understood than their counterparts on the prairie, it is likely that shallow wetland habitat remains an important unifying theme for healthy waterfowl populations. Wetlands in this region tend to be more permanent although seasonal wetlands still play an important role. Wild rice lakes, slow moving streams, shallow areas of deeper lakes, and temporary and seasonal wetlands are important habitat components for waterfowl. The Long Range Duck Recovery Plan specifically identifies the need to actively manage at least 170 wild rice lakes annually. Managing Minnesota's Shallow Lakes for Waterfowl and Wildlife notes the value of wild rice in Minnesota for waterfowl and other wildlife. Outlet channel management and seeding wild rice, both components of the Big Rice Lake project, are listed as primary strategies for in-lake management to meet the objective of maximized management of shallow lakes

Which LSOHC section priorities are addressed in this proposal:

Northern Forest:

- Protect shoreland and restore or enhance critical habitat on wild rice lakes, shallow lakes, cold water lakes, streams and rivers, and spawning areas

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:

Nowhere has natural wild rice been more important, nor had a richer history, than in Minnesota. No other native Minnesota plant approaches the level of cultural, ecological, and economic values embodied by this species. The value of natural wild rice to wildlife has been long appreciated. Research has documented that wild rice provides food and shelter for many fish and wildlife species. It is one of the most important foods for waterfowl in North America. More than 17 species of wildlife listed in the MNDNR's Comprehensive Wildlife Conservation Strategy as "species of greatest conservation need" use wild rice lakes as habitat for reproduction or foraging. The ability to reestablish wild rice in a historically and biologically significant such as Big Rice Lake through an innovative and comprehensive approach will produce significant benefits for wildlife.

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:

This proposal incorporates the need for habitat enhancement at a local and regional scale when evaluating the overall change in habitat quality as well as the involvement of recreational users and the vested interested by partnering agencies; targeting Big Rice Lake is not only science-based but also interest-based. Big Rice Lake is listed as a Priority Shallow Lake for focused management by the Shallow Lakes Program. Additionally, Big Rice is a Designated Wildlife Lake. The Big Rice Lake area has been identified as a Conservation Focus Area in Minnesota's Wildlife Action Plan which identifies areas of high diversity and key areas for conservation management. Big Rice Lake has had multiple aquatic plant surveys completed by various entities within the DNR including the Shallow Lakes Program, Fisheries, and County Biological Survey. Additional aquatic plant surveys have been completed by tribal agencies to assist with on-going monitoring of lake habitat conditions.

This proposal includes successful management techniques completed on Big Rice Lake at a smaller scale, as well as Rice Lake National Wildlife Refuge and on lakes within the Fond du Lac Reservation. Additionally, the work completed on Big Rice Lake in the past five years has been copied by other tribal agencies in Wisconsin to restore wild rice. There is little scientific literature available or research completed on specific actions related to vegetation management for wild rice enhancement in the northern forest. However, in order to implement this proposal, the best science available is being utilized. Big Rice Lake has the potential to provide 2072 acres of high quality aquatic habitat that is located in an area dominated by small lakes (<200 acres), winding rivers, and vast forested wetland complexes. Such a large wild rice lake is rare and can provide the needed habitat for resident and migratory waterfowl.

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:

Big Rice Lake is one of the largest shallow, wild rice lakes in northeastern Minnesota. The habitat present is dominated by pickerelweed which does not provide the migratory food source, brood rearing and nesting cover, or offer the diversity of other aquatic plants that a wild rice dominated habitat can provide. Enhancing wild rice will offer that critical habitat for resident and migratory waterfowl as well as other shorebirds and wetland favoring species. Based on observational information gathered from waterfowl hunters and wild rice harvesters from the years that rice was more abundant on Big Rice Lake, it was common to see many thousands of waterfowl utilizing the lake throughout the migration. Currently, since the habitat conditions have declined, very few waterfowl are observed during the fall migration.

Specific species of greatest conservation need listed in the Minnesota's Wildlife Action Plan 2015-2025 that will benefit from the habitat work proposed include lesser scaup, northern pintail, American black duck, common moorhen, least bittern, American bittern, marsh wren, Virginia rail, yellow rail, and trumpeter swan.

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

Mallards are a typical indicator species, but don't represent a common-sense species to use as an indicator for a wild rice project in northeast Minnesota, at least in terms of breeding habitat. However, the value of wild rice to mallards, wood ducks, and ring-necked ducks is commonly recognized. Research on the Chippewa national Forest found that natural wild rice was the most important food for mallards. Rice Lake National Wildlife refuge received national notice in the fall of 2018 when it held a flock of 900,000+ ring-necked ducks. Trumpeter swans do utilize wild rice beds. Trumpeter swans are a readily recognizable feature on wetlands and their restoration is a modern wildlife management success story. Trumpeter swans are strictly territorial on their breeding areas with shoreline complexity and food availability being factors in defining the area being defended. Though reported territories can range in size from 1.5 - >100 hectares, a reasonable expectation is that 1 trumpeter swan pair would be supported by each 150 acres of wetlands protected, restored, or enhanced. Waterfowl listed as species of greatest conservation need that utilize wild rice habitat migration and/or breeding include American black ducks, lesser scaup, and pintails.

Outcomes:

Programs in the northern forest region:

- Improved availability and improved condition of habitats that have experienced substantial decline. As noted in a 2008 report to the Minnesota legislature, "The future of natural wild rice in Minnesota will depend in large part on its protection and management by state and tribal natural resource agencies." Big Rice Lake has serious, but fixable issues. The proposed work for this lake will reestablish wild rice in a large, historically important wild rice lake. Success of the project will be readily apparent based on one measure - does wild rice become abundant in the project area. DNR and tribal biologists will monitor Big Rice Lake to evaluate wild rice abundance over time.

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

Local DNR and tribal wildlife biologists will monitor the site to determine project outcomes. Future management of a well-established rice bed will include monitoring of the lake outlet to prevent obstructions such as beaver dams or fallen trees. Obstructions such as these will be removed to prevent rising water levels that can negatively impact wild rice. The equipment associated with this proposal will be essential to its long-term success since this project, specifically vegetation control, is predicted to require some small-scale maintenance for the foreseeable future until pickerelweed is no longer the dominant species. In addition to the required vegetation maintenance at Big Rice Lake, the acquired equipment would be available to address similar vegetation issues (pickerelweed, cattail, etc.) on wild rice lakes statewide.

Explain the things you will do in the future to maintain project outcomes:

Year	Source of Funds	Step 1	Step 2	Step 3
Annually	DNR staff funding from various sources	monitor wild rice abundance	monitor lake outlet and remove obstructions as needed	

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

Given the conditions present at Big Rice Lake and the concerns voiced and written by many local recreational users, action needs to be taken now. Over the past five years, small-scale vegetation management efforts have been completed and solely funded by tribal agencies, but due to obligations for other projects and on-reservation needs, additional work and funds are needed to facilitate a larger impact on Big Rice Lake. Additionally, action needs to be taken now before the wild rice seed present in the substrate becomes unviable and we lose that piece of history. With the promising support and active involvement provided by the collaborating agencies, now is the time to pursue this proposal and enhance wild rice conditions on Big Rice Lake.

How does this proposal include leverage in funds or other effort to supplement any OHF appropriation:

US Forest Service, 1854 Treaty Authority, Bois Forte and Fond du Lac Tribal Bands, and the MN DNR are all involved with the management of Big Rice Lake. While this OHF funding request will provide the bulk of the resources needed to perform the specific work outlined in this proposal, the partners who cooperated on Big Rice Lake management may expend other funding as well, however our ability to track these expenditures and directly tie them to this project precludes us from listing specific leverage amounts.

Relationship to other funds:

- Not Listed

Describe the relationship of the funds:

Not Listed

Per MS 97A.056, Subd. 24, Any state agency or organization requesting a direct appropriation from the OHF must inform the LSOHC at the time of the request for funding is made, 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:

This request is not supplanting and is not a substitution for any previous funding that was not from a legacy fund and was used for the same purpose.

Describe the source and amount of non-OHF money spent for this work in the past:

Not Listed

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 (Public Waters)**

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

Land Use:

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

Accomplishment Timeline

Activity	Approximate Date Completed
Modify access to accommodate large equipment, modify lake outlet flow restrictions	July 2020
Vegetation control	June 2023
Wild rice seeding	September 2023

Budget Spreadsheet

Total Amount of Request: \$1,192,000

Budget and Cash Leverage

Budget Name	LSOHC Request	Anticipated Leverage	Leverage Source	Total
Personnel	\$114,000	\$0		\$114,000
Contracts	\$290,000	\$0		\$290,000
Fee Acquisition w/ PILT	\$0	\$0		\$0
Fee Acquisition w/o PILT	\$0	\$0		\$0
Easement Acquisition	\$0	\$0		\$0
Easement Stewardship	\$0	\$0		\$0
Travel	\$110,000	\$0		\$110,000
Professional Services	\$0	\$0		\$0
Direct Support Services	\$56,000	\$0		\$56,000
DNR Land Acquisition Costs	\$0	\$0		\$0
Capital Equipment	\$240,000	\$0		\$240,000
Other Equipment/Tools	\$10,000	\$0		\$10,000
Supplies/Materials	\$372,000	\$0		\$372,000
DNR IDP	\$0	\$0		\$0
Total	\$1,192,000	\$0		\$1,192,000

Personnel

Position	FTE	Over # of years	LSOHC Request	Anticipated Leverage	Leverage Source	Total
Seasonal technician	2.00	4.00	\$114,000	\$0		\$114,000
Total	2.00	4.00	\$114,000	\$0		\$114,000

Capital Equipment

Item Name	LSOHC Request	Anticipated Leverage	Leverage Source	Total
Two airboats w/ trailers	\$140,000	\$0		\$140,000
Boat, trailer, mudmotor	\$20,000	\$0		\$20,000
Harvester barge	\$80,000	\$0		\$80,000
Total	\$240,000	\$0		\$240,000

Amount of Request: \$1,192,000
 Amount of Leverage: \$0
 Leverage as a percent of the Request: 0.00%
 DSS + Personnel: \$170,000
 As a % of the total request: 14.26%
 Easement Stewardship: \$0
 As a % of the Easement Acquisition: -%

How did you determine which portions of the Direct Support Services of your shared support services is direct to this program:

DNR calculates direct support services costs that are directly related to and necessary for each request based on the type of work being done and which division it's being done by.

Does the amount in the contract line include R/E work?

One hundred percent of the amount in the contract line is for work needed to restore Big Rice Lake. \$100,000 and 80,000 and is to contract with Fond du Lac and Bois Fortes, respectively, to provide equipment and assist in removing vegetation that is preventing wild rice; \$40,000 is contract work to modify the Big Rice Lake access to make it usable by the equipment needed for this project; \$20,000 is for the design and modification at the lake outlet to lower water levels, and \$50,000 is for work related to wild rice seeding.

Does the amount in the travel line include equipment/vehicle rental? - Yes

Explain the amount in the travel line outside of traditional travel costs of mileage, food, and lodging:

Besides mileage, food, and lodging, the funding requested for Travel includes such items as fuel for a boat and anticipated maintenance for the airboats (a "fleet" expense in the DNR system).

Describe and explain leverage source and confirmation of funds:

Not Listed

Does this proposal have the ability to be scalable? - Yes

Tell us how this project would be scaled and how administrative costs are affected, describe the "economy of scale" and how outputs would change with reduced funding, if applicable:

This project will take four years as planned. It could be scaled and done in phases, with the project authors coming back for a second phase of funding to complete the project.

Output Tables

Table 1a. Acres by Resource Type

Type	Wetlands	Prairies	Forest	Habitats	Total
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	2,072	0	0	0	2,072
Total	2,072	0	0	0	2,072

Table 2. Total Requested Funding by Resource Type

Type	Wetlands	Prairies	Forest	Habitats	Total
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	\$1,192,000	\$0	\$0	\$0	\$1,192,000
Total	\$1,192,000	\$0	\$0	\$0	\$1,192,000

Table 3. Acres within each Ecological Section

Type	Metro/Urban	Forest/Prairie	SE Forest	Prairie	Northern Forest	Total
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	0	2,072	2,072
Total	0	0	0	0	2,072	2,072

Table 4. Total Requested Funding within each Ecological Section

Type	Metro/Urban	Forest/Prairie	SE Forest	Prairie	Northern Forest	Total
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	\$0	\$1,192,000	\$1,192,000
Total	\$0	\$0	\$0	\$0	\$1,192,000	\$1,192,000

Table 5. Average Cost per Acre by Resource Type

Type	Wetlands	Prairies	Forest	Habitats
Restore	\$0	\$0	\$0	\$0
Protect in Fee with State PILT Liability	\$0	\$0	\$0	\$0
Protect in Fee W/O State PILT Liability	\$0	\$0	\$0	\$0
Protect in Easement	\$0	\$0	\$0	\$0
Enhance	\$575	\$0	\$0	\$0

Table 6. Average Cost per Acre by Ecological Section

Type	Metro/Urban	Forest/Prairie	SE Forest	Prairie	Northern Forest
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	\$0	\$0	\$0	\$0	\$575

Target Lake/Stream/River Feet or Miles

0

I have read and understand Section 15 of the Constitution of the State of Minnesota, Minnesota Statute 97A.056, and the Call for Funding Request. I certify I am authorized to submit this proposal and to the best of my knowledge the information provided is true and accurate.

Parcel List

Explain the process used to select, rank and prioritize the parcels:

The Big Rice Lake wild rice enhancement proposal is a collaborative effort between the US Forest Service, 1854 Treaty Authority, Bois Forte and Fond du Lac Tribal Bands, and the MN DNR. Cooperative efforts between these partners to assess habitat conditions, trial management techniques, and document results have led to this proposal as the best opportunity to enhance this significant wild rice lake.

Section 1 - Restore / Enhance Parcel List

St. Louis

Name	TRDS	Acres	Est Cost	Existing Protection?
Big Rice Lake	06017211	2,072	\$1,204,000	Yes

Section 2 - Protect Parcel List

No parcels with an activity type protect.

Section 2a - Protect Parcel with Bldgs

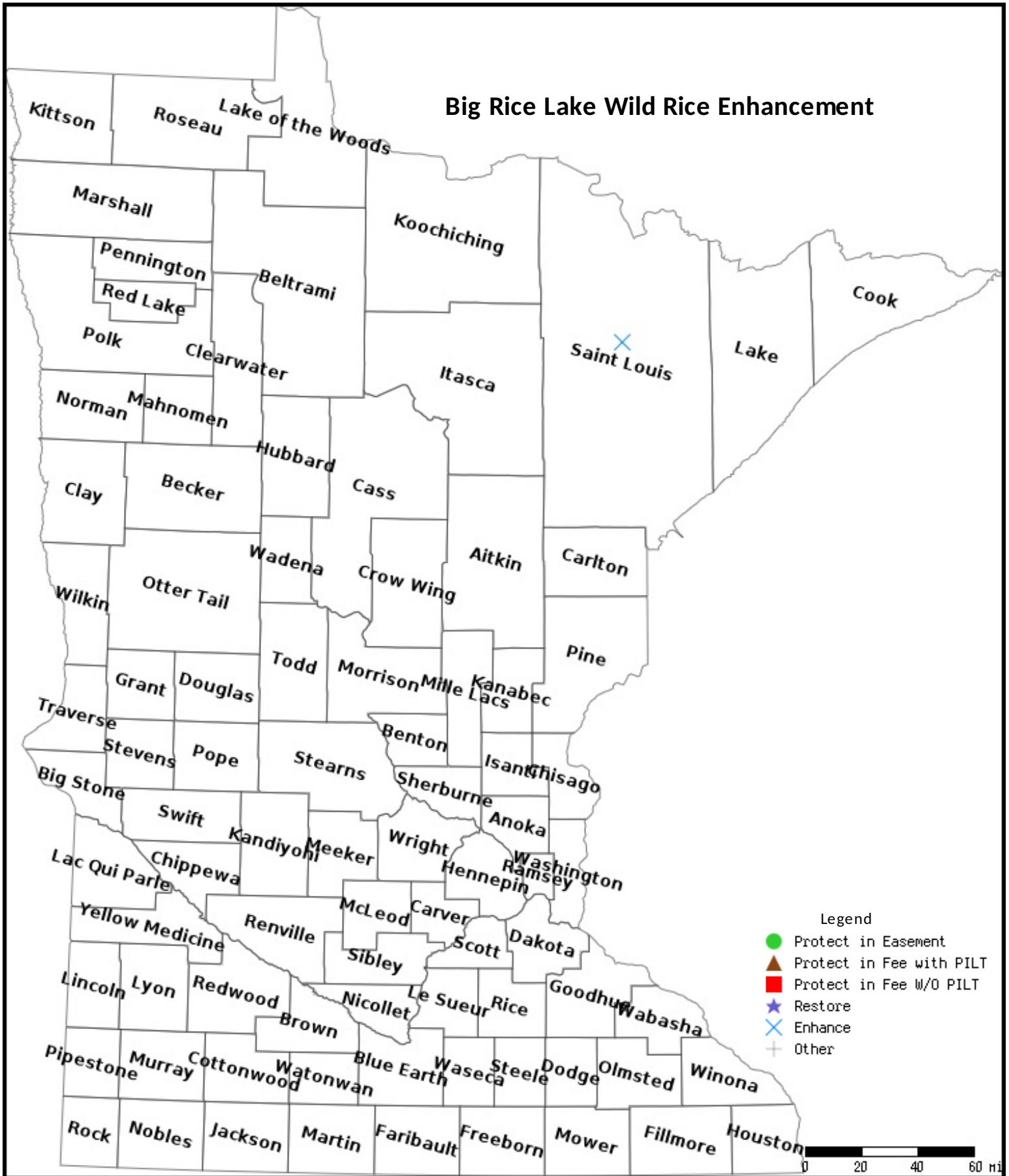
No parcels with an activity type protect and has buildings.

Section 3 - Other Parcel Activity

No parcels with an other activity type.

Parcel Map

Big Rice Lake Wild Rice Enhancement



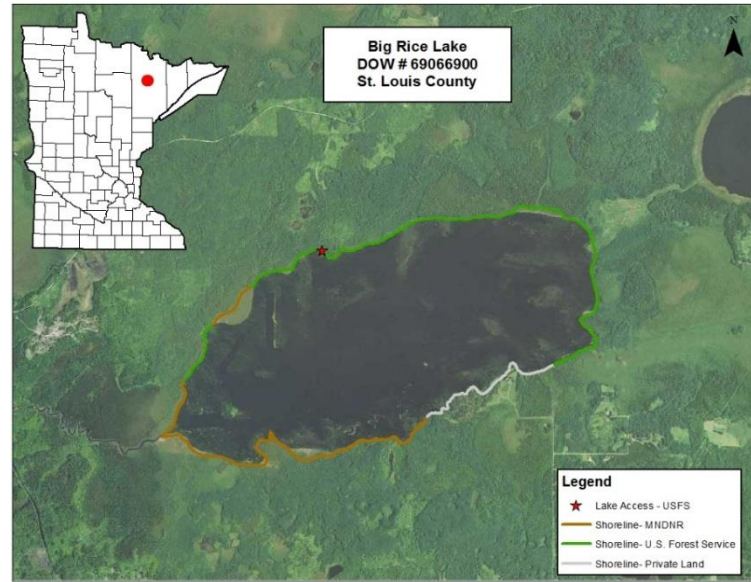
Data Generated From Parcel List

Big Rice Lake Wild Rice Enhancement

FY 2020/ ML 2019 Request for Funding- LSOHC

Background:

Big Rice Lake is a 2,072 acre, shallow, wild rice lake in St. Louis County. Big Rice historically was one of the best wild rice producing lakes in northeastern Minnesota. There is a long history of use by Native Americans and a strong user group of waterfowl hunters and wild rice harvesters today. In recent years, wild rice abundance has greatly declined and perennial species, like pickerelweed, have drastically increased (see photos below). Changes in long-term water level fluctuations have led to more stable water levels and alterations in hydrology have promoted conditions for perennial plant species to thrive. Wild rice does best with disturbance and variable water levels over time.



Abundant wild rice in 2000. 1854 Treaty Authority.

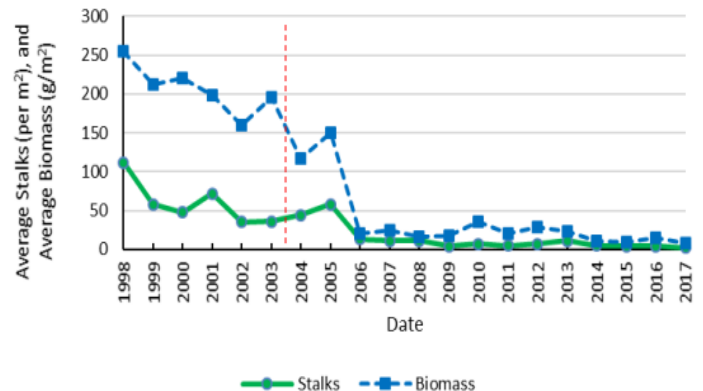


Abundant pickerelweed in 2017. MN DNR.

Proposed project:

Vegetation Management- The DNR, working with the Fond Du Lac Band of Lake Superior Chippewa, has determined that in order to reduce pickerelweed effectively, it needs to be cut 2 times during the growing season for 2 years in a row. The shearing is slow and requires airboats or harvester barges. In order to affect larger portions of the lake we need more equipment and manpower. This proposal includes the purchase of 2 airboats and a harvester barge as well as hiring technicians to operate the boats with the goal of treating 1000 acres. This work will also include contracting with Bois Forte and Fond Du Lac tribal resources and equipment to complete work on the lake. Ideally, the natural wild rice seed present in Big Rice will re-establish, but if the seed is no longer viable and present to the degree necessary, additional wild rice seeding will be completed after a thorough evaluation of potential seed sources.

Big Rice Lake Wild Rice Biomass Index. 1854 Treaty Authority.



*Red line indicates modification in survey methods

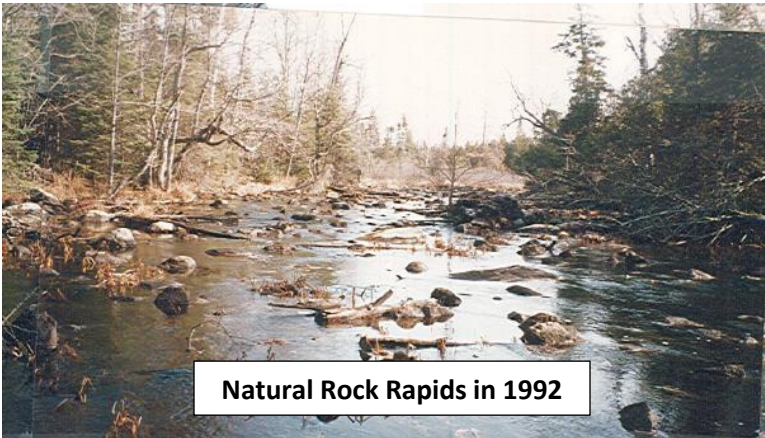
Access Improvement- Due to the required large equipment for the vegetation work, access improvement is needed to reshape the landing and clear boulders from the navigational corridor improving depths for launching. The US Forest Service access (the only public access) is located on the north side of the lake and will be the site of access improvement. This work will be completed during year 1, prior to any vegetation work being completed.



Fond du Lac airboat cutting pickerelweed in 2012



Rice re-established after pickerelweed cutting in 2015



Natural Rock Rapids in 1992

Hydrology and Water Level Control- A rock weir was constructed in 1995 at the site of a natural rock rapids 1.3 miles downstream of the. Over the years, sedimentation, manual manipulation, and overall inefficiencies with the weir have caused lake levels to stabilize. The outlet will be restored to the original rock rapids outlet characteristics. Removing the weir will improve flow and sediment transport, and give managers better control of outlet management through utilizing natural water level fluctuations from beaver dams and allowing for more water level variability over time.

Project Partners:

This project proposal will be completed through a partnership with the U.S. Forest Service, 1854 Treaty Authority, Bois Forte Band of Chippewa, Fond du Lac Band of Lake Superior Chippewa, and Minnesota Department of Natural Resources (lead agency).



Rock Weir Structure in 2016

