



Environment and Natural Resources Trust Fund

2021 Request for Proposal

General Information

Proposal ID: 2021-007

Proposal Title: South Central Minnesota Rock Berm Fish Barriers

Project Manager Information

Name: Scott Christenson

Organization: State Line Lake Restoration Inc

Office Telephone: () -

Email: scott93christenson@gmail.com

Project Basic Information

Project Summary: Install 5 fish barriers to enhance State Line Lake during Activity 1. Monitoring effectiveness of each rock berm fish barrier site and responses to lake health in Activity 2.

Funds Requested: \$855,000

Proposed Project Completion: 2024-06-30

LCCMR Funding Category: Methods to Protect, Restore, and Enhance Land, Water, and Habitat (F)

Project Location

What is the best scale for describing where your work will take place?

Region(s): SE

What is the best scale to describe the area impacted by your work?

Region(s): SE

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.

Minnesota waters need a cost-effective and universal fish barrier for management of invasive fish species. State Line Lake, located in Freeborn County, is one of those water bodies. Ducks Unlimited (DU) and the Minnesota Department of Natural Resources (MNDNR), in partnership with State Line Lake Restoration Inc. and Freeborn County, replaced an aging fixed crest dam with a variable crest dam in 2014 and installed a velocity type fish barrier downstream. Common Carp have persisted in the lake despite reclamation and winterkills, due in part to deep-water drainage ponds and ditches-that act as refuge. Through investigating oxygen levels in waters connected to the lake, we have found several sites suitable for overwintering carp. All sites are subject to back flow conditions, eliminating the possibility of installing electric or velocity type barriers.

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.

Utilizing a new fish barrier, berms made of smooth field stone, we plan to accomplish excluding carp and other aquatic invasive species from entering these winter refuge areas. These rock berm fish barriers are ideal in conditions of low flow, no flow and back flow regimes; all of which describe conditions faced throughout State Line Lake watershed and the State of Minnesota. Rock berm barriers have been in place throughout the State of Iowa since 2012 and have indicated success in carp exclusion. By incorporating the same barrier design, we aim to produce not only a reduced carp population and better habitat in State Line Lake, but also a basis for implementation throughout the State of Minnesota.

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?

Reducing common carp biomass to <100 pounds per acres in Water Quality Designated State Line Lake. Preserving the integrity of connected waters by construction of 5 fish barriers. A summary report of the project will be produced to inform other Resource Managers on rock berm fish barriers.

Activities and Milestones

Activity 1: Enhancement of State Line Lake

Activity Budget: \$725,259

Activity Description:

Activity 1 will design and construct 5 rock berm fish barriers identified as carp winter refuge by MNDNR Wildlife staff and volunteer monitoring observations made. Tasks include permitting, design, engineering and construction of the 5 fish barrier sites.

Activity Milestones:

Description	Completion Date
Construction Materials	2024-06-30
Engineering Services	2024-06-30
Construction Services	2024-06-30

Activity 2: Project Monitoring

Activity Budget: \$129,741

Activity Description:

Activity 2 will focus entirely on monitoring the biological and physical conditions up and downstream of the Project locations. Data will be collected to develop a common carp population and biomass estimate primarily through the use of a boat electrofishing catch per unit effort (CPUE) model. This will provide an estimate on the number of individual carp per acre as well as carp biomass per acre. Methodology will include completing an electrofishing survey of the shoreline over three (3) separate survey periods in late summer/early fall in each year (2022-2024). Both pre-construction of barriers and post-construction to determine the efficacy of the barrier by evaluating carp biomass density, size structure, age structure, and level of recruitment.

Physical conditions will be monitored via flow dynamic assessments including; operation and maintenance of remote water level data loggers, development of discharge rating curves, topographical analysis and vegetation assessments. Monitoring each barrier for these flow dynamics is crucial in evaluating the overall design of the barriers and inform changes such as grade of rock used or the general size of the berm needed.

Activity Milestones:

Description	Completion Date
Flow dynamics assessment pre-construction	2022-12-31
Carp biomass density, size structure, age structure, and level of recruitment pre-construction	2022-12-31
Project Summary Report	2024-06-30
Flow dynamics assessment post-construction	2024-06-30
Carp biomass density, size structure, age structure, and level of recruitment post-construction	2024-06-30

Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Jeanine Vorland	MNDNR	Area Wildlife Manager Technical Support	No
Craig Soupir	MNDNR	Area Fisheries Supervisor Technical Support	No
Tom Jensen	Freeborn County	County Administrator	No
Paul Henschel	City of Emmons	Mayor of City of Emmons	No
Mike Hawkins	Iowa Department of Natural Resources	Fisheries Supervisor, Iowa Great Lakes. Provide Technical Assistance and expertise to the project goals and objectives. Mike has implemented 7 rock berm fish barriers in the Iowa Great Lakes Region and has been crucial to the understanding and implementation in Minnesota.	No
Mark Gulick	Iowa Department of Natural Resources	Northwest District Wildlife District Supervisor. Mark has been instrumental in collaborating with SLLR Inc in this new form of fish barrier installation.	No

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?

The South Central Minnesota Rock Berm Fish Barrier Project aims to protect long-term biological integrity and hydraulic stability State Line Lake and upper watershed. This project is intended to work in a complimentary manner to DNR Fisheries and Lake Management Plans. Implementation of Lake Level Management Plans by MNDNR will ensure this stability to meet Water Quality Standards set in the Management Plan. Maintenance of Project sites will be the responsibility of SLLR Inc.

Project Manager and Organization Qualifications

Project Manager Name: Scott Christenson

Job Title: Board Member

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

Scott Christenson serves as a volunteer Board Member with State Line Lake Restoration Inc. He has six years of natural resource management experience in a variety of private and public entities, also holding a Bachelor's of Science in Biological Sciences from South Dakota State University. He works as Technical Specialist for the Shell Rock River Watershed District (SRRWD). Scott's responsibilities include project management, program management, grant management and leading the SRRWD Common Carp Management Study since 2017. The Carp Management Study focuses on a lakes drainage area and connecting water bodies. Instruments are placed to determine frequency and timing of carp movement into connected waters. This data informs practicable efforts to reduce carp migration into shallow lakes and wetlands. Reduction in carp biomass through large scale netting efforts in Albert Lea and Fountain Lakes has been resultant of implementation of Objectives in the Carp Management Study. Duplicating the efforts to State Line Lake is a similar task with similar workings as previous projects completed by Scott.

Organization: State Line Lake Restoration Inc

Organization Description:

The mission of State Line Lake Restoration Inc. is to protect, conserve and enhance natural resources to bolster recreational opportunities and environmental awareness. SLLR Inc. was founded by a grassroots team of concerned citizens regarding the health of State Line Lake. An enhancement of critical infrastructure and subsequent restoration practices provided years of abundant recreational opportunities.

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	\$ Amount
Personnel								
Project Technician		Manage day to day operation and maintenance of field equipment; coordinate project activities with consulting engineer; construction supervision			0%	3,240		\$48,600
							Sub Total	\$48,600
Contracts and Services								
TBD	Professional or Technical Service Contract	Engineering analysis and design of rock berm fish barriers.				3,240		\$125,000
TBD	Professional or Technical Service Contract	Construction services for rock berm fish barrier implementation.				600		\$520,000
TBD	Professional or Technical Service Contract	Common carp biomass and population estimation, modeling and Management Plan.				600		\$77,000
TBD	Professional or Technical Service Contract	Temporary construction/access easements for five project sites.				300		\$25,000
							Sub Total	\$747,000
Equipment, Tools, and Supplies								
	Equipment	12 water level data loggers and material for site installation; 2 tipping bucket rain gages; Personal Protective Equipment such as waders, gloves, eye and ear protection.	Remote sensing at project locations to determine rock berm fish barrier efficacy. Data collection is only possible via continuous logging equipment specific to each project site.					\$25,700

							Sub Total	\$25,700
Capital Expenditures								
		One Panasonic Toughbook Field Laptop	Collect and analyze raw data from field remote sensing at each project location.					\$6,600
							Sub Total	\$6,600
Acquisitions and Stewardship								
	Conservation Easement Acquisition	Acres: 10 Parcels: 5						\$25,000
							Sub Total	\$25,000
Travel In Minnesota								
	Miles/ Meals/ Lodging	12 project site visits annually as well as 4 annual meetings with consulting engineer; 10 project site visits with consulting environmental scientists; Construction supervision site visits TBD but estimated at 4 visits per site during time of construction.	Project technician will install operate and maintain field data logging equipment which will require bi-weekly trips to project sites from April-September. Project technician will meet 4 times annually with consulting engineer staff					\$2,100
							Sub Total	\$2,100
Travel Outside Minnesota								
							Sub Total	-
Printing and Publication								
							Sub Total	-
Other Expenses								
							Sub Total	-

							Grand Total	\$855,000
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Classified Staff or Generally Ineligible Expenses

Category/Name	Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request
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Non ENRTF Funds

Category	Specific Source	Use	Status	Amount
State				
			State Sub Total	-
Non-State				
Cash	State Line Lake Restoration Inc.	Supplemental funds for use including public outreach and education about the Project.	Secured	\$5,000
			Non State Sub Total	\$5,000
			Funds Total	\$5,000

Attachments

Required Attachments

Visual Component

File: [ef5d4327-f87.pdf](#)

Alternate Text for Visual Component

Map showing locations of five proposed fish barriers on State Line Lake in Freeborn County, MN.

Financial Capacity

File: [1a16930e-b93.pdf](#)

Board Resolution or Letter

Title	File
Board Resolution	357f6be0-e8a.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

South Central Minnesota Rock Berm Fish Barriers
LCCMR 2021

Created by: Scott Christenson

