

**Environment and Natural Resources Trust Fund
2018 Request for Proposals (RFP)**

Project Title:

ENRTF ID: 144-D

Accelerated Watershed Approach to Invasive Carp Management

Category: D. Aquatic and Terrestrial Invasive Species

Total Project Budget: \$ 342,796

Proposed Project Time Period for the Funding Requested: 3 years, July 2018 to June 2021

Summary:

This project will take an accelerated watershed approach to invasive carp management that tests new, innovative techniques and ultimately restores and protects multiple, connected waterbodies within an important chain-of-lakes system.

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Sponsoring Organization: Prior Lake-Spring Lake Watershed District

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Location

Region: Metro

County Name: Scott

City / Township:

Alternate Text for Visual:

Accelerated Watershed Approach to Invasive Carp Management

_____ Funding Priorities	_____ Multiple Benefits	_____ Outcomes	_____ Knowledge Base
_____ Extent of Impact	_____ Innovation	_____ Scientific/Tech Basis	_____ Urgency
_____ Capacity Readiness	_____ Leverage	_____ TOTAL	_____ %



PROJECT TITLE: Accelerated Watershed Approach to Invasive Carp Management

I. PROJECT STATEMENT

The **overall goal** of this project is to expand upon an existing carp project within the watershed by taking an accelerated watershed approach to invasive carp management that tests new, innovative techniques and ultimately restores and protects multiple, connected waterbodies within a chain-of-lakes system all while testing and promoting carp management practices that can be implemented throughout the state. With these funds, the Prior Lake-Spring Lake Watershed District (PLSLWD) will:

- Track carp as they travel throughout the watershed to identify patterns that can be exploited in order to reduce population/recruitment success.
- Complete fish surveys to gather baseline information and to determine project success.
- Put past LCCMR and University studies to action by field testing new carp management strategies such as:
 - Installing novel carp barriers that have less impact on native game fish and require less maintenance
 - Using sound deterrents and positive reinforcement training to herd carp to desired areas
 - Stocking spawning areas with bluegill or other egg predator species to reduce carp recruitment
- Develop an internet based spatial data tool to communicate and retrieve data from local, volunteer citizen scientists and to share information with local, regional, and state-wide partners.

Lower Prior, Upper Prior and Spring Lakes are important recreational resources in the Twin Cities that outlet through a channel to the Minnesota River. At nearly 2,000 surface acres combined, these large lakes are high priorities for the PLSLWD and are considered Priority Lakes by the Metropolitan Council. While Lower Prior Lake has remained off the MPCA impaired waters list, Upper Prior and Spring Lakes are impaired due to excess nutrients, which can affect waterfowl habitat, aquatic native species and game fish populations. Studies of these lakes have identified carp management as a way to significantly improve water quality. Common carp, *Cyprinus carpio*, are one of the most damaging and widespread invasive fish in Minnesota. Carp have damaging bottom-feeding habits that uproot native vegetation and disturb the sediment, releasing nutrients back into the lake.

Partially funded by a MPCA grant (2015-2018), PLSLWD’s current Carp Management Project has tracked, monitored, and removed carp from Upper Prior and Spring Lakes. The project has proven that carp exploit the use of connected, upstream waters in the watershed to spawn. This LCCMR project builds on these previous efforts by taking a comprehensive approach, addressing the carp problem on a watershed scale and using innovative new ways to block and remove carp in the watershed system as a whole, rather than its parts.

The **direct outcome** of this project will be measurable water quality improvements, improved native fisheries, increased density of native plants, and enhanced waterfowl habitat. A comprehensive 10-year carp management plan for the Prior Lake Watershed will be created with clear action steps and a timeline to continue carp management into the future. This project will also develop a citizen scientist program comprised of local volunteers that will provide vital information for the project and will build a long lasting and action based conservation ethic in the area long after LCCMR project funds are expended.

II. PROJECT ACTIVITIES AND OUTCOMES

Activity 1: Implement new, innovative IPM strategies

Budget: \$181,830

This project will implement new, alternative IPM strategies for carp. In addition, streams and ditches will be investigated to explore experimental fish trap designs as part of a common carp IPM approach.

Outcome	Completion Date
1. Install two novel carp barriers that effectively block carp and allow for better movement of native game fish and require less maintenance.	May 2020



Environment and Natural Resources Trust Fund (ENRTF)

2018 Main Proposal

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2. With guidance from the U of M and MN DNR studies, stock strategic ponds and wetlands with bluegill or other egg predator species to prevent carp recruitment.	<i>September 2020</i>
3. Use sound deterrent speakers and positive reinforcement training to herd carp to desired area for removal events as part of an IPM approach.	<i>May 2021</i>
4. Develop a comprehensive 10-year carp management plan for the Prior Lake Watershed with clear action steps and a timeline to continue carp management into the future.	<i>May 2021</i>

Activity 2: Develop citizen monitoring program and online data sharing application **Budget: \$ 20,800**

Create an internet-based, spatial data acquisition tool to communicate and retrieve data from a network of local, volunteer citizen scientists that will be trained on monitoring techniques. Share data obtained from the project’s successes and challenges to project partners, the U of M, and statewide carp managers.

Outcome	Completion Date
1. Develop an interactive online application that disseminates project data and gathers input from citizen scientists, allowing the information to be shared with partners.	<i>February 2021</i>
2. Hold four volunteer training sessions on the use of telemetry, marking fish and reading marks, and use of online application discussed in outcome 1.	<i>May 2021</i>
3. Complete quality control assurances on data to be incorporated into reports & studies.	<i>May 2021</i>

Activity 3: Target, survey & track key species throughout ten connected waterbodies. **Budget: \$ 214,054**

Complete fish surveys and track carp populations in waterbodies connected to Prior and Spring Lakes. Analyze carp and bluegill populations to help quantify the relationship between bluegill abundance (predator species) and carp recruitment success/failure. Use information to inform and guide Activity 1.

Outcome	Completion Date
1. Survey fish populations and track carp in ten connected waterbodies.	<i>June 2021</i>
2. Determine biomass densities, predator abundance, and population modeling.	<i>June 2021</i>
3. Identify key migration routes of carp and potential barrier locations.	<i>January 2021</i>

III. PROJECT STRATEGY

A. Project Team/Partners

Prior Lake Spring Lake Watershed District (PLSLWD) – Maggie Karschnia and Kathryn Keller-Miller – providing area expertise, carp management assistance, and project management (receiving funds) (cash match) (in-kind)

City of Prior Lake – Pete Young and Greg Skluzacek – providing area expertise, access to City owned areas for carp management, boat rental and storing seine nets (in-kind)

Shakopee Mdewakanton Sioux Community – Scott Walz – providing area expertise, carp management of Artic Lake and disposal of carp at SMSC’s Organic Recycling Facility (cash match) (in-kind)

WSB & Associates – PLSLWD’s consultant (competitively selected)– providing expertise, fish survey work, carp tracking, coordination with U of M, permit acquisition, and project management (receiving funds)

Prior Lake Association & Spring Lake Association – providing local support and funding (cash match)

B. Project Impact and Long-Term Strategy

This project is an essential phase of a carp management scheme that is being developed in the PLSLWD. Funds from LCCMR would implement new, innovative techniques to control common carp within the greater Prior Lake Watershed. This project will inform and improve long-term carp management schemes throughout Minnesota.

C. Timeline Requirements

This is a 3-year project to accommodate three seasons of data collection (before, during, after) and two seasons of installing and testing new innovative IPM strategies and initiating a citizen science program.

2018 Detailed Project Budget

Project Title: Accelerated Watershed Approach to Invasive Carp Management

IV. TOTAL ENRTF REQUEST BUDGET: 3 years

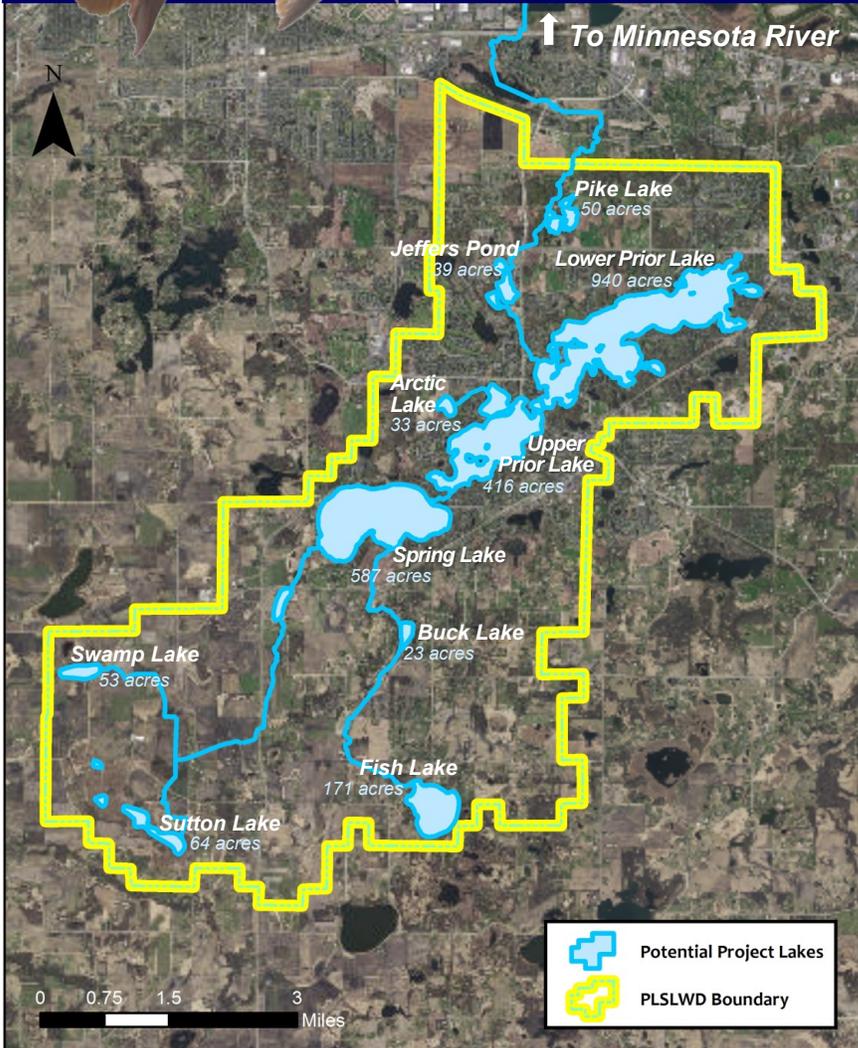
BUDGET ITEM	AMOUNT
Professional/Technical/Service Contracts:	\$ -
WSB & Associates, Inc. (competitively selected for District-wide carp management programs): providing expertise, fish survey work, carp tracking, coordination with U of M, permit acquisition, and project management	165886
EOR, Inc. (District Engineer): providing watershed modeling information to inform carp barrier placement and design and to help assess and determine potential spawning areas	3960
Commercial fisherman TBD: to seine (net) carp for marking and removals	55000
Seine nets to catch carp in AIS infested waters and areas with obstructions (\$18,000 each)	36000
Fabricator: design and install innovative, specialty carp barriers	8000
Equipment/Tools/Supplies:	\$ -
Radio tags to track carp (\$190 each)	9120
Electrofishing Boat rental (\$500 each)	18000
PIT Tagging Equipment: PIT tags & surgical supplies	1200
PIT Tag Monitoring Station (\$3,020 each)	9060
Trap and fyke nets/gear	12000
Fabricated specialty carp barriers	9570
Underwater, mobile speaker systems for herding carp to seine areas	15000
TOTAL ENVIRONMENT AND NATURAL RESOURCES TRUST FUND \$ REQUEST =	\$ 342,796

V. OTHER FUNDS

SOURCE OF FUNDS	AMOUNT	Status
Other Non-State \$		
Prior Lake-Spring Lake Watershed District for WSB carp management work	\$ 50,000	<i>Secured</i>
Prior Lake Association for WSB carp management on Prior Lake	\$ 1,500	<i>Pending</i>
Spring Lake Association for WSB carp management on Spring Lake	\$ 1,500	<i>Pending</i>
In-kind Services To Be Applied To Project During Project Period:		
Prior Lake-Spring Lake Watershed District: staff time	\$ 16,158	<i>Secured</i>
City of Prior Lake: staff time, boat rental and storage of nets	\$ 3,250	<i>Secured</i>
SMSC: staff time, composting carp at Organic Recycling Facility	\$ 1,480	<i>Secured</i>
Past and Current ENRTF Appropriation:	N/A	N/A
Other Funding History:		
MPCA Clean Water Partnership Grant	\$ 67,323	
MnDNR Conservation Partners Legacy Grant	\$ 18,156	



Accelerated Watershed Approach to INVASIVE CARP MANAGEMENT



Activity 1: IMPLEMENT INNOVATIVE STRATEGIES



Bluegill



Drum-style carp barrier

- Innovative carp barriers
- Stocking egg predator species in spawning areas
- Sound deterrent speakers to herd carp to desired removal areas



Mobile underwater speaker

Activity 2: CREATE INTERACTIVE CITIZEN MAPPING TOOL



- Educational training sessions with local volunteers
- Interactive online application for gathering data

Activity 3: TARGET, SURVEY & TRACK KEY SPECIES



ATS Radio-tag



Passive Integrated Transponder Tag



ENRTF ID: 144-D

PROJECT PARTNERS: PRIOR LAKE - SPRING LAKE
WATERSHED DISTRICT





PROJECT MANAGER QUALIFICATIONS

Maggie Karschnia, Water Resources Project Manager

Maggie Karschnia has been the project manager at the Prior Lake-Spring Lake Watershed District for the past two and a half years and specifically led the carp management program and acquired two small state grants to help aid in accelerating the program. Maggie has a strong project management background from her work protecting critical shoreline and wetlands across the state as the Wetlands & Grasslands Program Manager for the Minnesota Land Trust. She is equally comfortable managing projects and supervising contractors herself as she is working with a variety of partners to get projects completed. Maggie has a B.S. in Conservation from the University of Wisconsin – River Falls and an M.A. in Natural Science and Environmental Education from Hamline University.

ORGANIZATION DESCRIPTION

The Prior Lake-Spring Lake Watershed District (PLSLWD) was established on March 4, 1970 by order of the Minnesota Water Resources Board (MWRB) under the authority of the Minnesota Watershed Act (Minnesota Statutes, Chapter 112). The order was in response to a petition filed by resident landowners within the watershed on June 24, 1969. This citizen petition sought establishment of the District for the purposes of wisely managing and conserving the waters and natural resources of the watershed.

The PLSLWD is approximately 42 square miles in size and is located in north central Scott County, Minnesota, encompassing parts of the cities of Prior Lake, Shakopee, and Savage and parts of Sand Creek and Spring Lake Townships. In addition, a portion of the Shakopee Mdewakanton Sioux Community tribal lands are located within the District.

The PLSLWD is administered by a five-person Board of Managers (Board) appointed by the Scott County Commissioners. All of the District's policies, goals, and accomplishments are directed by the citizens who serve on the Board.

Our Mission Statement:

Our mission is to manage and preserve the water resources of the Prior Lake-Spring Lake Watershed District to the best of our ability using input from our communities, sound engineering practices, and our ability to efficiently fund beneficial projects which transcend political jurisdictions.