



Environment and Natural Resources Trust Fund

2022 Request for Proposal

General Information

Proposal ID: 2022-205

Proposal Title: Lake of the Woods Angler Biosolids Feasibility Study

Project Manager Information

Name: Anthony Pirkl

Organization: Lake of the Woods County

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Project Basic Information

Project Summary: Feasibility study for handling human excrement generated on Lake of the Woods in the winter ice fishing season in a safe, clean, and environmentally friendly manner.

Funds Requested: \$195,000

Proposed Project Completion: June 30 2024

LCCMR Funding Category: Small Projects (H)

Secondary 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?

Statewide

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

Statewide

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.

Lake of the Woods had 2.7 million angling hours between December 12, 2019 to March 24, 2020, and this was higher 2020-2021 due to the popularity and COVID-19 pushing more people to recreate outside.

This is causing anglers to excrete human waste on the lake. The most common way to handle this waste is by putting it in a garbage bag and bringing it to a local municipal solid waste collection system for transfer to a landfill, or excreting directly onto the ice surface or into a hole in the ice.

Handling this pathogen-laden excrement in garbage bags poses a health threat to resort workers and the county solid waste staff. Alternatively, when the excrement is applied directly on the lake ice, this negatively impacts the water quality and the fishery. A Total Maximum Daily Load (TMDL) study for Lake of the Woods has shown that the lake is impaired for nutrients based upon phosphorus concentrations and algal indicators above water quality standards.

This study will identify solutions for this problem before it does irreversible damage to a human (illness via fecal contamination) and/or the fishery via additional loading to legacy sediments/phosphorus.

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.

Lake of the Woods County is looking for funding to conduct a feasibility study to explore options to handle the human excrement generated on the lake during the winter months. This study will look at all options, both on a large scale for multiple resorts and businesses to use, and for single applications such as people staying in their own fish house. This will include interviews to collect baseline data, examination of retrofitting existing lagoons and sewage system to handle this waste as well as other waste handling systems, and opinions of cost.

Following identification of a preferred alternative, pilot testing will be conducted to verify the future approach. The results of this study can be used by other communities in the State of Minnesota on how to handle human excrement for ice anglers in a safe, clean, and environmentally friendly manner.

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?

This project will develop solutions to help protect resort and solid waste workers, along with protecting the water quality of Lake of the Woods and the economic engine of the fishery. The outcomes of this study will provide a way to handle human excrement generated during the ice fishing season in a safe, clean, and environmentally friendly manner. The findings of this study will also be able to be applied and used by other ice fishing resort communities in Minnesota, such as Red Lake, Millie Lacs Lake, Leech Lake, and others.

Activities and Milestones

Activity 1: Engagement, Assessment, and Communication of Ice Angler Waste Management Practices and Willingness to Modify Practices

Activity Budget: \$35,000

Activity Description:

Develop representative survey questions to determine current ice angler excrement practices and determine willingness to change behaviors and/or willingness to pay for enhanced services to protect the fishery and environment. Promote this survey and gather survey data from ice anglers through digital survey, on-site surveys with ice anglers, and focus groups with resort owners and operators. Hold resort stakeholder meetings and individual meetings to get input on the potential changes acceptable to the resorts and gathering of concepts for treatment/handling alternatives. Provide a technical memorandum to summarize the relevant regulations related to wastewater systems, landfill systems, ability of local wastewater systems to accept additional human waste, and identification of other relevant potential permitting requirements. Have a final meeting to present the technical memorandum and to summarize the data analysis from the ice angler and resort surveys and engagement as well as other publicly available data (DNR ice-hours estimates, etc) to inform the basis of planning for the alternatives analysis in

Activity Milestones:

Description	Completion Date
Development and preparation of survey questions, survey methods, and survey implementation approach.	September 30 2022
Regulatory and Permitting Assessment.	January 31 2023
Ice Angler Survey Implementation.	March 31 2023
Local Resort Public Information and Engagement Meetings.	March 31 2023
Data summary, data analysis, and survey report.	April 30 2023

Activity 2: Ice Angler Waste Handling Feasibility Assessment.

Activity Budget: \$60,000

Activity Description:

Using the technical memorandum, quantify the estimated ice angler excrement waste stream and potential 20-year increase and determination of cost and non-cost scoring criteria for the subsequent alternatives analysis. Summarize all potential alternatives including a feasibility and practicality analysis to narrow the list to three alternatives for further analysis. With the narrowed down options conduct an engineer feasibility analysis including detailed description of the three alternatives, capital costs, operating costs, and implementation factors (permitting, etc). Share these results at a stakeholder meeting with public officials, resorts owners, and anglers to recommended an alternative for pilot testing in Activity 3

Activity Milestones:

Description	Completion Date
Technical Criteria Development	June 30 2023
Development of alternatives	July 31 2023
Stakeholder Meeting	September 30 2023
Analysis of alternatives	October 31 2023

Activity 3: Pilot Testing of Recommended Alternative

Activity Budget: \$100,000

Activity Description:

With the selected alternative in Activity 2 implement a plan for the pilot testing and assessment criteria for pilot results. Implementation and data gatherings of the pilot test in the winter of 2023-2024. Because the recommended alternative will not be known until the conclusion of Activity 2, this task will be dependent upon the characteristics of the recommended alternative. Hold a Technical memorandum and stakeholder informational meeting to summarize the results of the pilot testing and recommendations for future actions and implementation.

Activity Milestones:

Description	Completion Date
Pilot preparation	November 30 2023
Pilot test implementation and data gathering	March 31 2024
Pilot Report and Recommendations	June 30 2024

Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
AE2S	AE2S	Engineering Consulting Firm specializing in water and waste water treatment.	Yes

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?

Lake of the Woods County currently assesses each resort a solid waste fee. Additionally, there is a regional sanitary district that is assessing the majority of the fishing resorts. Between these two taxing entities, along with user fees for single users, the end product or system will have multiple funding mechanisms.

Project Manager and Organization Qualifications

Project Manager Name: Anthony Pirkl

Job Title: Lake of the Woods County Public Works Director

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

Anthony Pirkl is the public works director for Lake of the Woods County. He is in charge of the Highway Department, Solid Waste Department, and the Parks and Recreation Department. He is a licensed engineer with the State of Minnesota. In his current role he manages over 20 employees, and total budget over 6 million dollars. In the summer he manages up to 10 construction projects funded by multiple sources.

Organization: Lake of the Woods County

Organization Description:

Lake of the Woods County is a county in the northwestern part of Minnesota. As of the 2010 United States Census, the population was 4,045, making it the second-least populous county in Minnesota. Its county seat is Baudette.

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	\$ Amount
Personnel								
							Sub Total	-
Contracts and Services								
TBD	Professional or Technical Service Contract	A consultant will be hired to preform the surveys and doing the feasibility study and engineering analysis. They will also be conducting the pilot study.				4		\$195,000
							Sub Total	\$195,000
Equipment, Tools, and Supplies								
							Sub Total	-
Capital Expenditures								
							Sub Total	-
Acquisitions and Stewardship								
							Sub Total	-
Travel In Minnesota								
							Sub Total	-
Travel Outside Minnesota								
							Sub Total	-
Printing and Publication								

							Sub Total	-
Other Expenses								
							Sub Total	-
							Grand Total	\$195,000

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				
In-Kind	Local tax payer dollars from Lake of the Woods County.	The time from the Project Manager, Anthony Pirkl, and time from other public works department staff to help conduct surveys and analysis. No money from this grant will go towards Lake of the Woods County Staff time. All money will be used for professional contracts.	Secured	\$55,000
			Non State Sub Total	\$55,000
			Funds Total	\$55,000

Attachments

Required Attachments

Visual Component

File: [0fee8ab2-418.pdf](#)

Alternate Text for Visual Component

A photo of human sludge bags from 1 resort for 1 week of fishing. There is over 50 resorts in the county that operate 16 week of ice fishing....

Board Resolution or Letter

Title	File
Lake of the Woods County Board Support	0cbe7275-1a6.pdf

Optional Attachments

Support Letter or Other

Title	File
Lake of the Woods County Keep it Clean Committee	eaef9d48-3fc.pdf

Administrative Use

Does your project include restoration or acquisition of land rights?

No

Does your project have potential for royalties, copyrights, patents, or sale of products and assets?

No

Do you understand and acknowledge IP and revenue-return and sharing requirements in 116P.10?

N/A

Do you wish to request reinvestment of any revenues into your project instead of returning revenue to the ENRTF?

N/A

Does your project include original, hypothesis-driven research?

Yes

Does the organization have a fiscal agent for this project?

No

1 weeks worth of human bio-solid bags from 1 resort



