Environment and Natural Resources Trust Fund
2011-2012 Request for Proposals (RFP)

LCCMR ID: 049-B

Project Title: Knowlton Creek Peak Flow and Erosion Alleviation

Category: B. Water Resources

Total Project Budget: $ $2,200,000

Proposed Project Time Period for the Funding Requested: 3 yrs, July 2011 - June 2014

Other Non-State Funds: $ 0

Summary:

A water retention, infiltration, and diversion system will be engineered to reduce runoff quantity to natural levels, eliminate sediment, and cool water that flows into Knowlton Creek.

Name: John Lindgren

Sponsoring Organization: DNR

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Duluth MN 55804

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Web Address

Location

Region: NE

Ecological Section: Northern Superior Uplands (212L)

County Name: St. Louis

City / Township:

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

2011-2012 LCCMR MAIN PROPOSAL
PROJECT TITLE: Knowlton Creek Peak Flow and Erosion Alleviation

I. PROJECT STATEMENT

The Knowlton Creek Fishery Restoration and Enhancement Project is the next priority action in a planned and sanctioned (MDNR, WDNR, MPCA, USFWS, USEPA) process to move the St. Louis River estuary towards delisting as a Great Lakes Area of Concern (AOC). Knowlton Creek has been negatively impacted by urban development and the creation of a downhill ski resort. A series of habitat improvement actions will be implemented along Knowlton Creek, a designated trout stream within the City of Duluth. These actions will result in the ability of Knowlton Creek to once again function as a cold-water trout fishery and protect a St. Louis Estuary wetland complex. These actions include the following items:

1. Restore instream fish habitat. Portions of the Knowlton Creek channel are highly degraded due to historic land use, unnaturally high peak flows, increased water temperatures, and soil erosion. Increased habitat for brook trout and wildlife will be accomplished by diverting added water, capturing sediments, reducing runoff temperatures, and reconstructing an estimated 3,200 linear feet of channel.
2. Enhance fish and wildlife movement corridor between St. Louis Bay and Magney Snively Natural Area. Although road and trail crossings can provide recreational access they also constrict the river environment and can impede or block movement of fish and wildlife when inadequately designed. There are eighteen crossings (culverts, bridges and low water crossings) of Knowlton Creek and its tributaries that will be assessed for upgrades, or decommissioning, as well as improving angler access.
3. Revegetate riparian and streambank areas. Human activities and the invasion of woody non-native plant species has reduced the overall extent and quality of the riparian corridor along Knowlton Creek. An estimated 30 acres of floodplain restoration will enhance the wildlife corridor and improve allochthonous input into the creek.

Urban and recreational development has increased the spring runoff volume discharged to Knowlton Creek to more than 120% of the stream's natural discharge causing increased erosion and channel degradation. Increased sediments in the creek eventually settle in a St. Louis River wetland complex located by Tallus Island. In response to years of sedimentation, the Tallus Island Restoration project has begun and will restore a 25 acre shallow water complex that will benefit numerous fish and waterfowl species. Another problem is increased runoff during summer events which causes increased water temperatures detrimental to a cold water brook trout fishery. The proposed project will begin to address these concerns.

A water retention, infiltration, and diversion system will be engineered and constructed to alleviate the above stated problems. The goals of the proposed project are to return natural flow regimes to the lower portion of Knowlton Creek, reduce runoff temperatures, and reduce sedimentation to help restore a coldwater fishery and protect a restored St. Louis Estuary wetland/shallow water complex. This is the first task that needs to be accomplished before other actions outlined in the overall enhancement project can be tackled.

II. DESCRIPTION OF PROJECT ACTIVITIES

Activity 1: Restoration of Knowlton Creek Natural Flow Regimes and Erosion Reduction
Budget: $ 2,200,000

Snowmelt adds an additional 63.4 million gallons of water, 20.8% above natural levels, annually to the Knowlton Creek watershed. It is presumed this additional water has increased

the discharge to Knowlton Creek to above that which it is able to transport naturally, resulting in increased sedimentation, active channel erosion and habitat degradation. Replacement of forest with grass and impervious surfaces on the steep slopes also increases runoff, erosion, and water temperatures during rain events. A water retention, infiltration, and diversion system will be engineered to reduce runoff quantity to natural levels, eliminate sediment, and cool water that flows into Knowlton Creek. The Army Corps of Engineers will be modeling current and historical hydrologic conditions in the Knowlton Creek Watershed this summer (2010). This will provide the project with baseline data on which to base goals and compare results. Physical and biological monitoring will be done the two spring/summers following completion of the project.

Outcome	Completion Date
1. Mitigation of water inputs	*Dec. 2012*
2. Erosion reduction	*Dec. 2012*
3. Monitoring and Evaluation	*June 2014*

III. PROJECT STRATEGY

A. Project Team/Partners

This project received priority ranking from the St. Louis River Alliance (SLRA) Habitat Workgroup which includes the Minnesota Department of Natural Resources (MN DNR), Fond du Lac Reservation, Minnesota Pollution Control Agency, The Nature Conservancy, US Fish and Wildlife Service, Minnesota Sea Grant, Natural Resources Research Institute, US Environmental Protection Agency, Western Lake Superior Sanitary District, Wisconsin Department of Natural Resources, West Wisconsin Land Trust, and concerned citizens. These agencies and organizations are committed to delisting the St. Louis Estuary as an AOC. Each organization will provide guidance, data, and ideas as needed or applicable for the proposed project. The key partners for the Knowlton Creek Peak Flow and Erosion Alleviation project include the MN DNR, the SLRA, the Spirit Mountain Authority, The Army Corps of Engineers, The Minnesota Land Trust, City of Duluth, and SEH environmental consultants.

B. Timeline Requirements

On the ground work for this project will be completed in 18 months. If funding is received, the project will begin on July 1, 2011 and finish on December 31, 2012. The first six months will be used to finalize designs, obtain the needed permits, contract the work, and oversee mapping project. One full year (January through December) will be needed to accomplish the on the ground work. Monitoring and evaluation will be done during the spring/summers of 2013 and 2014. A final report will be written.

C. Long-Term Strategy and Future Funding Needs

The proposed task is one aspect of a larger project and is critical because it needs to be completed before other portions of the project can begin. Other aspects of the larger project include in stream restoration, removal of fish/wildlife barriers, riparian plantings, easement acquirement, and development of a public trail. Funding for these other tasks will be requested from the Clean Water Legacy Fund, Lessard-Sams Outdoor Heritage Funds, Great Lakes Restoration Initiative, and U.S. Fish and Wildlife Service Grants.

There are 60 projects identified in the SLRA habitat action plan. The total costs of implementing all the projects are in the hundreds of millions. We anticipate requesting funds every year from LCCMR for the various projects.

2011-2012 Detailed Project Budget

Knowlton Creek Peak Flow and Erosion Alleviation

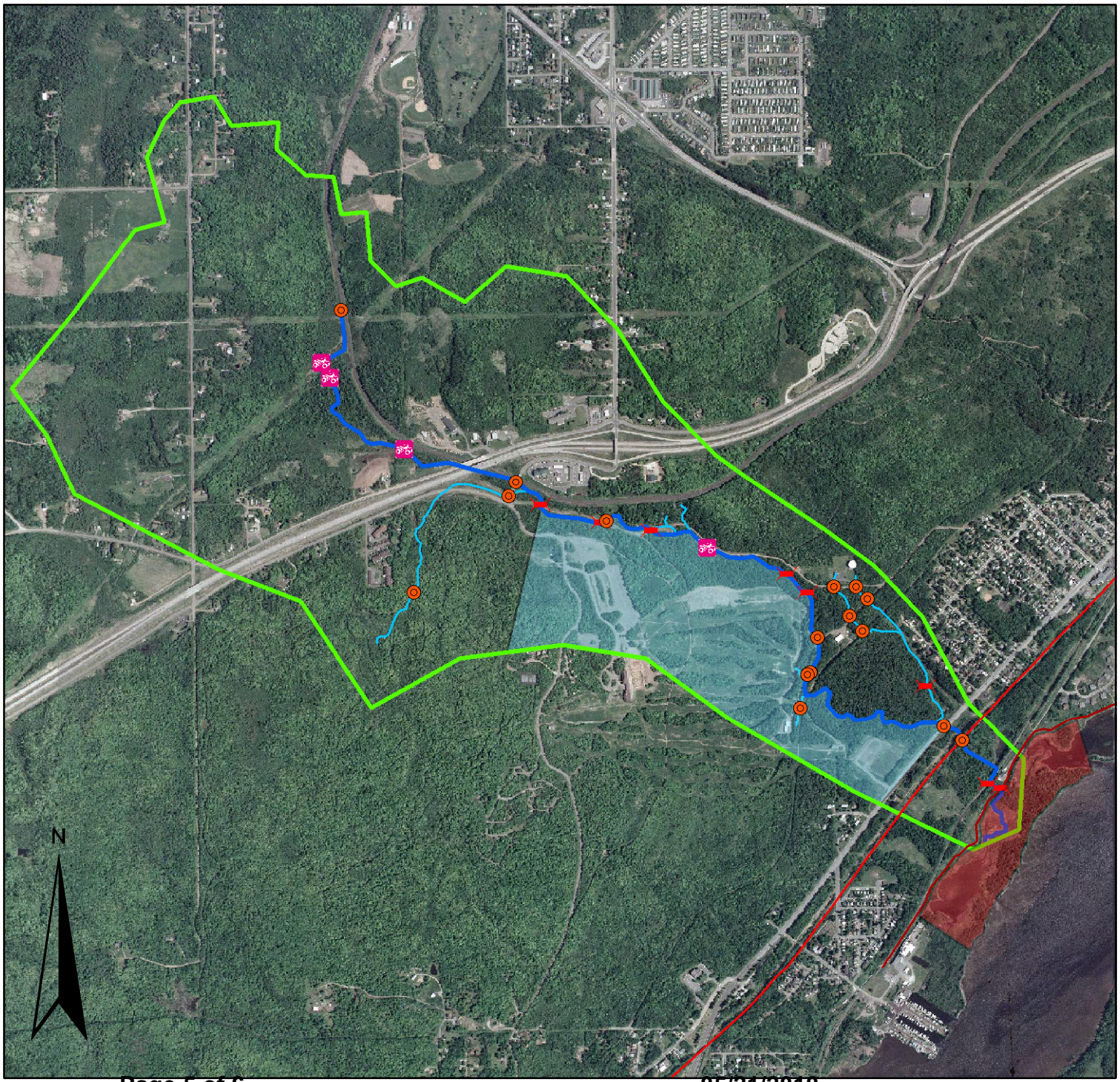
IV. TOTAL TRUST FUND REQUEST BUDGET *(3 years)*

BUDGET ITEM *(See list of Eligible & Non-Eligible Costs, p. 13)*	**AMOUNT**
Personnel: N/A	$ -
Contracts: MN DNR will regrant to a non-profit (St. Louis River Alliance or Minnesota Land Trust) Non-profit conservation organization - Will sub contract the following services Engineering Design On the ground work Monitoring and Evaluation	$ 2,200,000
Equipment/Tools/Supplies: N/A	$ -
Acquisition (Fee Title or Permanent Easements): N/A	$ -
Travel: N/A	$ -
Additional Budget Items: N/A	$ -
TOTAL ENVIRONMENT & NATURAL RESOURCES TRUST FUND $ REQUEST	$ 2,200,000

V. OTHER FUNDS

SOURCE OF FUNDS	**AMOUNT**	**Status**
Other Non-State $ Being Applied to Project During Project Period:		
Great Lakes Restoration Initiative U.S.	Undefined	*Pending*
Fish and Wildlife Service Grants	Undefined	*Pending*
Other State $ Being Applied to Project During Project Period:		
Clean Water Legacy Funds	Undefined	*Pending*
Lessard-Sams Outdoor Heritage Funds	Undefined	*Pending*
In-kind Services During Project Period: DNR Fisheries (Regranting, oversight, critical review, technical input)	$ 25,000	
Remaining $ from Current ENRTF Appropriation (if applicable): *N/A*	$ -	
Funding History: Tallus Island Wetland/Shallow Water Restoration	$ 5,000,000	

Knowlton Creek Watershed Restoration Project Area



- Knowlton Creek
- Knowlton Tributaries
- Knowlton Watershed
- ATV Crossing
- Bridge
- Culvert
- Western Waterfront Trail
- Munger State Trail
- 2011 LCCMR Proposed Project Area
- Tallus Island Restoration Area

St. Louis Estuary

05/21/2010

LCCMR ID: 049-B

John P. Lindgren

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Minnesota Department of Natural Resources
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Education:
B.S. Aquatic Biology, Bemidji State University (1984)
M.S. Fisheries Management, South Dakota State University (1991)

Relevant Work Experience:
Fisheries Specialist – Duluth Area Fisheries (1991-2009)
St. Louis River Area of Concern (AOC) Program Coordinator (2010)

John Lindgren has addressed all fisheries related issues within the St. Louis River estuary from 1991 through 2009. Mr. Lindgren has been actively involved with both the "remediation" and "natural resource damage assessment" phases of the Superfund process in the estuary. He has also provided primary Minnesota Department of Natural Resources (MDNR) input during the development of the strategies to address issues related to the delisting process for the St. Louis River AOC.

Service/Appointments:
Lake Superior Technical Committee – Lake Sturgeon Workgroup
St. Louis River Alliance – Habitat Workgroup
Great Lakes Dredging Team

Selected Relevant Grants and Activities:

1) Clough Island Preservation and Restoration Project. USFWS – National Coastal Wetlands Conservation Grant Program. $1,000,000. Primary Grant Writer. 2004.
2) St. Louis River Lake Sturgeon Spawning Habitat Enhancement Project. National Fish and Wildlife Foundation. $75,000. Project Coordinator. 2007-2009.
3) Represented MDNR and provided substantial technical input during the writing of the Lower St. Louis River Habitat Plan.
4) Developed and listed as the primary contact for 23 of 47 projects identified in the Habitat Plans – Strategies Implementation Worksheets.
5) Currently provides coordination in the process to leverage Minnesota "Dedicated Funding" against Federal funding sources such as the Great Lakes Restoration Initiative (GLRI).
6) Currently provides coordination between Minnesota Pollution Control Agency (MPCA) and MDNR. The first substantial outcome of coordinated MPCA/MDNR activities was the selection of the "40th Avenue West Complex Remediation to Restoration Project

Selected Relevant Publications:

Schram, S. T., J. Lindgren and L. M. Evrard. 1999. Reintroduction of Lake Sturgeon in the St. Louis River, Western Lake Superior. North American Journal of Fisheries Management 19:815-823

Lindgren, J. P., P. W. Ongstad and J. R. Spurrier. 1995. The St. Louis Bay Fishery 1986-1994. Minnesota Department of Natural Resources, Study 4 Report