

**Environment and Natural Resources Trust Fund
2012-2013 Request for Proposals (RFP)**

Project Title:

ENRTF ID: 101-E2

Toward a Free-Flowing Minnesota: Valuing Dam Removal

Topic Area: E2. NR Info Collection/Analysis

Total Project Budget: \$ 295,000

Proposed Project Time Period for the Funding Requested: 1.5 yrs. July 2013 - June 2015

Other Non-State Funds: \$ 0

Summary:

"Toward a Free-Flowing Minnesota" will increase and improve effective river restoration by developing a valuation tool that assesses the range of ecological and economic impacts of dam removals.

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Sponsoring Organization: American Rivers

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Location

Region: Statewide

County Name: Statewide

City / Township:

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



Environment and Natural Resources Trust Fund (ENRTF)

2012-2013 Main Proposal

PROJECT TITLE: Toward a Free-Flowing Minnesota: Valuing Dam Removal

I. PROJECT STATEMENT

Removing dams is a highly effective means of restoring rivers, and has grown in practice in Minnesota and nationally for the past two decades. However, accurately valuing the benefits and costs of dam removal projects is complicated by insufficient ecological and economic information and a traditionally narrow focus on a small number of fish species. Dam removal projects provide broad ecological benefits including fish passage restoration, water quality improvements, nutrient processing, and native habitat restoration. In addition, dam removals eliminate public safety liabilities, on-going financial burdens, and create opportunities for community revitalization and recreation. With increased frequency of extreme weather events, it is critical that river restoration projects are implemented with an eye toward increasing the natural resilience of both human and ecological communities.

The MN DNR Dam Safety Office has a list of more than 100 dams in need of repair, rehabilitation, modification or removal, a list which is only growing as the state’s dams continue to age. River restoration needs are also increasing as MN DNR seeks to address poor habitat, water quality problems, improve the fate of species of concern, and restore connectivity to aquatic systems. This must all be achieved with a limited number of staff and limited funding. Selective dam removal is a solution to addressing both needs.

GOAL and OUTCOMES: The goal of this project is to increase effective river restoration by developing a valuation tool that assesses the range of ecological and economic impacts of dam removal alternatives. This will improve decision-making and implementation of dam removals, thereby enhancing public safety, recreational opportunities, fisheries, water quality, and aquatic habitats throughout the state. The analysis will enable wise investment of funds in river restoration projects and dramatically increase leveraging of state dollars with federal and private contributions.

HOW: American Rivers will work with a leading ecosystem valuation firm, Industrial Economics, to collect existing ecological/economic data at completed or proposed dam removal sites across the state, and develop a tool for comparing potential dam removal-related investments (e.g., modifications or full removals). The results of this analysis can be applied to the list of projects maintained by MN DNR Dam Safety and Stream Habitat programs as well as to prospective projects identified in watershed and restoration plans. American Rivers’ staff will then conduct an analysis of state regulations, permitting procedures, public outreach processes, project costs and ecological benefits accrued in order to identify specific recommendations for programmatic and project-level restoration activities.

II. DESCRIPTION OF PROJECT ACTIVITIES

Activity 1: Ecological data collection **Budget:** \$45,000

Outcome	(* Assumes start date of July 1, 2013)	Completion Date
1. Existing ecological data will be reviewed & collected.		February 2014

This activity will include compilation of existing ecological data related to water chemistry, benthic invertebrates, habitat condition, and fisheries populations as well as cost data for specific projects. A literature review will be included to capture general data that can be combined with site-specific data.

Activity 2: Ecological analysis & draft report **Budget:** \$95,000

Outcome	Completion Date
1. Ecological cost-benefit analysis and draft report on dam removal alternatives.	August 2014

This activity will involve the development of an ecological valuation analysis utilizing data collected in Activity 1. The analysis will be developed with methods similar to those utilized for natural resource

damage assessment cases and will include quantification of changes in functional parameters of a river resulting from various dam removal scenarios (e.g., partial removal versus full removal).

Activity 3: Economic data collection and review

Budget: \$40,000

Outcome	Completion Date
1. Collection and review of existing economic data for use in cost-benefit analysis.	May 2014

This activity collects data on changes in economic values associated with dam removal activities. These may include property values, recreation values, existence values, and other socioeconomic impacts.

Activity 4: Economic cost-benefit analysis & final report

Budget: \$115,000

Outcome	Completion Date
1. Economic cost-benefit analysis and draft report on dam removal alternatives.	November 2014
2. Final report on economic & ecological costs and benefits associated with dam removal alternatives in MN, and evaluation of programmatic recommendations.	December 2014

This activity will incorporate the economic analysis from Activity 3 into the valuation analysis. The economic analysis will include quantification of changes in market values (e.g., property), use values (e.g., recreation), and non-use values (e.g., existence) held by the public as a result of various dam removal scenarios (e.g., partial removal versus full removal). A final report will combine results from both the ecological (Activity 2) and economic (Activity 4) portions of the valuation analysis, along with recommendations for programmatic approaches to removing dams in Minnesota.

III. PROJECT STRATEGY

A. Project Team/Partners

American Rivers (AR) is the leading organization working to protect and restore the nation’s rivers and streams. The AR Restoration Program is staffed by individuals with expertise in geomorphology, engineering, ecology, biochemistry, policy analysis, and public planning. We have helped establish dam removal programs in several states, operated state and federal grant programs to fund dam removals, trained dam removal project managers and designers, worked in partnership with state agencies to improve policies that affect project implementation, and have directly managed dozens of projects. Our Upper Midwest Restoration Program Director, Sara Strassman, will manage this project.

Industrial Economics, Inc. is a leader in the field of natural resource valuation to support public policy decision-making, including programmatic cost-benefit analyses and project-specific ecological and economic analysis. In the context of dam removal, their expertise has been applied to assess the ecological changes and human use values of maintaining in-stream flows, the benefits of protecting and improving stream habitat, and the economic balancing of competing uses for scarce water resources. Their analyses have included projects with MN DNR, Minnesota Forest Resources Council, MN Pollution Control Agency, the University of Minnesota, and others.

B. Timeline Requirements

The project timeline is 18 months, which includes collecting ecological and economic data; evaluating programmatic approaches to MN dam removals; and developing a valuation analysis and report.

C. Long-Term Strategy and Future Funding Needs

This proposal supports future implementation of effective river restoration through dam removal. The research undertaken in this project will help cultivate implementation projects that can utilize the cost-benefit results during conceptual development. This will greatly streamline the scope of scientific analysis and improve public outreach associated with dam removal projects. American Rivers is committed to generating and implementing on-the ground restoration projects in Minnesota as a future post-project outcome.

2012-2013 Detailed Project Budget - American Rivers
Toward a Free-Flowing Minnesota: Valuing Dam Removal

IV. TOTAL ENRTF REQUEST BUDGET 1.5 years

<u>BUDGET ITEM</u>	<u>AMOUNT</u>
Personnel:	\$ -
Sara Strassman (Project Manager) Director, River Restoration, American Rivers-Upper Midwest. 19% of FTE over 18 months; 65% toward salary, 35% toward benefits	\$ 25,000
Brian Graber, Director, River Restoration, American Rivers-National. 8% of FTE over 18 months; 65% toward salary, 35% toward benefits	\$ 10,000
Contracts:	\$ -
Industrial Economics, Inc. for valuation analysis of river restoration in Minnesota	\$ 260,000
Equipment/Tools/Supplies: N/A	\$ -
Acquisition (Fee Title or Permanent Easements): N/A	\$ -
Travel: N/A	\$ -
Additional Budget Items: N/A	\$ -
TOTAL ENVIRONMENT AND NATURAL RESOURCES TRUST FUND \$ REQUEST =	\$ 295,000

V. OTHER FUNDS

<u>SOURCE OF FUNDS</u>	<u>AMOUNT</u>	<u>Status</u>
Other Non-State \$ Being Applied to Project During Project Period: N/A	\$ -	
Other State \$ Being Applied to Project During Project Period: N/A	\$ -	
In-kind Services During Project Period: N/A	\$ -	
Remaining \$ from Current ENRTF Appropriation (if applicable): N/A	\$ -	
Funding History: Whitney and Betty MacMillan	\$ 50,000	secured



American Rivers and Project Manager Qualifications

American Rivers is the leading organization working to protect and restore the nation's rivers and streams. Rivers connect us to each other, nature, and future generations. Since 1973, American Rivers has fought to preserve these connections, helping protect and restore more than 150,000 miles of rivers through advocacy efforts, on-the-ground projects, and the annual release of *America's Most Endangered Rivers*[™]. Headquartered in Washington, DC, American Rivers has offices across the country and more than 100,000 supporters, members, and volunteers nationwide.

The American Rivers **Restoration Program** is staffed by individuals with expertise in geomorphology, engineering, ecology, biochemistry, policy analysis, and public planning. We have helped establish dam removal programs in several states, operated state and federal grant programs to fund dam removals, trained dam removal project managers and designers, worked in partnership with state agencies to improve policies that affect project implementation, and have directly managed dozens of projects.

Sara Strassman, Upper Midwest Restoration Program Director, will manage this project for American Rivers. Sara is a river restoration project manager and Certified Floodplain Manager with particular expertise in dam removal planning. She develops budgets, manages contracts, hires consultants, reviews design plans, advises communities, and compiles data for dam removal projects in Minnesota, Wisconsin and Iowa. She previously managed the Free-Flowing Pennsylvania Program, which granted more than \$1 million to dam removal projects and leveraged more than \$4 million in matching funds to support more than 60 dam removal projects.

Prior to joining American Rivers, Sara researched the political, social and economic feasibility of a large dam removal project as part of her graduate research at the University of Michigan. She also taught undergraduate biology courses and worked on a data collection team for river researchers at the School of Natural Resources & Environment. At Michigan State University, Sara worked for the Forestry Department on seedling recruitment studies, dendroremediation, and soil chemistry analysis. Sara holds a Master's degree in Natural Resource Policy from the University of Michigan School of Natural Resources & Environment and a Bachelor's degree in Forestry Conservation from Michigan State University.

Brian Graber will assist with project management and provide scientific oversight for this project. Brian is a Director of the River Restoration Program for American Rivers. He is a fluvial geomorphologist and water resources engineer and has worked on all aspects of more than 40 completed dam removal projects from restoration design to community outreach. He instructs courses and workshops around the country on various aspects of dam removal including an annual University of Wisconsin short course, "Succeeding with a Dam Removal Project". He has co-authored several publications on various aspects of river restoration and dam removal including "Dam Removal Success Stories" and has published journal articles on both the ecological impacts of dams and community involvement strategies at restoration projects. Brian holds Master's degrees in Civil Engineering and Geography, both from the University of Wisconsin-Madison. He obtained his Bachelor's degree in Geography and Mathematics at Dartmouth College.

