

Program Title: Sand Hill River Dams Modification For Fish Passage and Habitat Connectivity

**Request for Funding Form
Lessard-Sams Outdoor Heritage Council
Fiscal Year 2011**

Program or Project Title: #28 Sand Hill River Dams Modifications for Fish Passage and Habitat Connectivity

Date: 10/12/09

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Funds Requested (\$000s)	Council Funding Request	Out-Year Projections of Needs		
	FY 2011	FY 2012	FY 2013	FY 2014
Outdoor Heritage Fund	\$1,937,000	0	0	0

A. Summary

Our project will reconnect Red River of the North and 22 miles of stream habitat in lower Sand Hill River with 50 miles of upstream habitat in Sand Hill River, which includes rare lake sturgeon and walleye spawning habitat found in the beach ridges formed by glacial Lake Agassiz. The project will also stabilize one mile of channel within the degraded stream segment where the passage barriers are located. This will be done by modifying four dams (locally referred to as "drop-structures") identified as fish passage barriers into rock-arch rapids and installing several vortex weirs.

B. Background Information

1. What is the problem or opportunity being addressed?

Four dams on Sand Hill River have been identified by DNR fisheries biologists as barriers to fish passage. Several species, including channel catfish, smallmouth bass, walleye and sauger have been shown to be present downstream of the dams but not upstream of them. In addition, a number of these species have been shown to make large, yearly spawning migrations from the Red River up tributary streams, such as Sand Hill River, to access the rare habitat found in the stream segments that flow through glacial Lake Agassiz beach ridge areas. The structures targeted in this project prevent fish from making this seasonal spawning run and from repopulating resident habitats located upstream from the structures. Also, the stream channel below the downstream-most dam is unstable resulting in degraded habitat conditions.

Initially, there were six fish passage barriers located on this stream segment. The Sand Hill River Watershed District (SHRWD), in cooperation with the Minnesota Department of Natural Resources (DNR), developed the SHRWD Fish Passage Master Plan to restore upstream fish migration in the Sand Hill River by modifying these six structures. To date, two of the six structures have been modified but the project was put on hold due to lack of funding. This is an opportunity to complete the restoration project.

2. What action will be taken?

- The four dams will be converted into rock-arch-rapids using rock of various sizes, similar to what has been done to numerous dams throughout Minnesota.
- Nine rock weirs will be placed downstream from the lowest dam to stabilize the stream channel.

3. Who will take action and when?

The Sand Hill River Watershed District is prepared to initiate the project upon notification of funding. Final design specifications will be completed in cooperation with the MN DNR. Necessary permits will be obtained, which is anticipated to take a minimum of time because the MN DNR, US Army Corp of Engineers and other agencies have cooperated on the project since its inception. Construction can begin the summer of 2010 once the permits are received.

4. How will you coordinate this program with the other Constitutional Funding?

Other Constitutional funding is not necessary for this project.

5. What specific habitat changes will occur if this item is funded? Be specific about and list multiple benefits if they exist.

- Fish habitat will be restored through reconnection of fragmented habitats that cannot currently be used and stream channel restoration. This project will restore fish migration pathways between 50 miles of important instream fish habitat found upstream from the fish passage barriers in Sand Hill River to the downstream segment of Sand Hill River, and to the mainstem of Red River of the North.
- Approximately 1.75 mile of stream channel will be stabilized.

6. When do you expect to see these habitat changes?

Based on similar projects conducted throughout Minnesota, including several located in the Red River basin, habitat connectivity will occur as soon as construction is complete and fish populations are expected to respond immediately.

7. Will your Outdoor Heritage Fund dollar request complete the planned accomplishments?

YES **NO**
If not, how will you finance completion?

8. How will you pay for the maintenance of the accomplishments?

The Sand Hill River Watershed District will be responsible for maintenance. The District has led this project through the collaborative effort of its project team, which consists of private landowners and representatives of various state, federal and local agencies. The Watershed District is authorized by law to complete long term maintenance of this project (Minnesota Statutes 103D).

9. How does this action directly restore, enhance, or protect prairies, wetlands, forests or habitat for fish, game, and wildlife?

This project directly restores fish habitat through connecting fragmented habitats. Important spawning habitat found in the beach ridge area and other fish habitat upstream of the dams are currently not accessible but will be immediately after passage has been restored through the four dams. It will also restore instream habitat by stabilizing a mile segment of stream channel.

10. If you are restoring or enhancing property, is the activity on permanently protected land?

YES **NO**
If yes briefly describe the kind of protection.

Restoration will occur entirely within public waters. This stream segment is a part of a flood control and major drainage project implemented by the US Army Corps of Engineers in 1955 and there is permanent easement ranging from 200 to 400 feet along each side of the stream.

11. How will you ensure transparency and provide information about your work and use of Outdoor Heritage Fund dollars.

This project was developed by the Sand Hill River Watershed District's Project Team, which consists of private landowners and representatives of various state, federal and local agencies. The project is listed on the District's website ([.sandhillwatershed.](http://www.sandhillwatershed.org)) and project progress will be reported in the Red River Watershed Management Board's monthly newsletter and website (www.rwmb.org).

12. Why will this strategy work?

This strategy will work because stream surveys by the MN DNR have shown the four dams are responsible for preventing fish movement upstream. Also, dam modification to allow fish passage has been proven successful on similar projects throughout Minnesota, including several in the Red River basin.

13. Who might make decisions that assist or work against achieving the expected impact program?

Local landowners and various local, state and federal agencies have been involved in the project's development since the start and the project has been partially completed. No individual or agency resistance is expected.

14. If this is acquisition of land, has the local government formally approved the acquisition?

NA, this is not a land acquisition.

_____ **YES**

_____ **NO**

15. If this is fee simple acquisition of land, is the land free of any other permanent protection such as a conservation easement?

NA

_____ **YES**

_____ **NO**

16. If this is an easement acquisition, will the eased land be open for public use?

NA, this is not an easement acquisition.

_____ **YES**

_____ **NO**

If Yes what kind of use?

17. If easement acquisition, will the easement be a permanent conservation easement as described in MS 2009, Chapter 84C.01, specifically protecting the natural resource values of real property forever?

NA

_____ **YES**

_____ **NO**

18. If you are proposing funding for a new or ongoing program how long into the future do you expect this program to operate?

NA, this is a single, specific project

_____ Years

19. Which planning sections will you work in? Check all that apply in the list below.

- _____ Northern Forest
- _____ Forest/Prairie Transition
- _____ Southeast Forest
- X Prairie
- _____ Metropolitan Urbanizing Area

20. Does the request address an urgent conservation opportunity that will be lost if not immediately funded?

_____ YES X NO
If yes, please explain.

21. Does the request restore and/or enhance habitat on existing state-owned Wildlife or Aquatic Management Areas or Scientific and Natural Areas?

_____ YES X NO
If Yes, list the names of the AMAs, WMAs and/or SNAs and the acres to be restored and/or enhanced.

22. Is this request based on assessment through a science based strategic planning and evaluation model similar to the United States Fish and Wildlife Service's Strategic Habitat Conservation model?

_____ YES X NO
If yes explain the model briefly.

23. Explain the scientific foundation for your project, and the benefits it will produce.

Fish sampling conducted in 1995, 2003 and 2005 by MN DNR Fisheries personnel definitively demonstrated that the four dams are acting as barriers to fish passage. The fish community composition upstream from the dams is substantially different than below the dams. In particular, larger game fish species such as walleye, sauger, channel

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catfish and smallmouth bass are present downstream from the dams but are not found upstream. Modifying dams into rock-arch- rapids has been shown to be an effective strategy to restore fish passage through a dam site and rock weirs have been proven to be an effective stream channel stabilization tool.

24. How do you set priorities? (Be sure to list the criteria you use and the weight you give each one.)

The Watershed District initiates projects based on priority water management and natural resource problems identified in the District's 10 year comprehensive plan, which can be found on our website. The District has nearly completed the plan's current revision and this project is identified in it as a priority.

C. Relationship to the *Minnesota Conservation and Preservation Plan* and Other Published Resource Management Plans

This project is consistent with a number of resource management plans.

- The Minnesota Conservation and Preservation Plan specifically recommends removing or altering dams to reconnect habitats and allow for fish passage.
- Dam removal and channel restoration in the Red River basin is mentioned specifically within the Lessard-Sams Outdoor Heritage Council's Prairie Section: Preliminary Goals and Objectives, 25 Year Targets.
- The four dams targeted by this project have been specifically identified as barriers to fish passage and the MN DNR's 2002, Restoration of Extirpated Lake Sturgeon in the Red River of the North Watershed identifies dams positioned on rivers and streams as major contributors to the extirpation of lake sturgeon in the Red River of the North watershed.
- The Red River of the North Fisheries Management Plan, 2008, a cooperative management agreement between the MN DNR, North Dakota Game and Fish Department, Province of Manitoba, CA, and South Dakota Game Fish and Parks Department highlights dam removal/modification as desirable to reconnect stream habitats between Red River of the North and tributary streams.
- The Environmental Assessment for Fish passage in the Red River of the North Basin, Minnesota, 2005, prepared by the U.S. Fish and Wildlife Service, lists the actions outlined in this project proposal (installation of rock-arch riffles below the Sand Hill River drop structures) as the preferred action alternative for these fish passage barriers.

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D. Budget

Budget Item	Fiscal Year 11	Fiscal Year 12	Fiscal Year 13
Personnel			
Contracts	1,822,800		
Equipment/Tools/Supplies			
Fee Acquisition			
Easement Acquisition			
Easement Stewardship			
Professional Services	109,300		
Travel			
Additional Budget Items	5,000		
TOTAL	1,937,100		

E. Personnel Details *In the space below list the names, titles and anticipated program funds to be paid by this recommendation. If you will need to fill a position just list the title and amount.*

Title	Name	Amount.
Sand Hill River Watershed District Administrator.	Dan Wilkens	\$5,000
Contract Engineering		\$109,300

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F. All Leverage In the table below list the sources and amounts of leverage you anticipate by fiscal year you anticipate receiving it. Include state and non-state leverage.

Source of Non-State Leverage	Fiscal Year 11	Fiscal Year 12	Fiscal Year 13
To date, the Minnesota DNR has contributed \$500,000 to the completed portion of this project along with numerous hours of personnel time to project design.			
The Sand Hill River Watershed District, acting as project lead, has contributed numerous hours toward the completed portion of this project and funds for project design and preliminary engineering.			
To date, local, state, and federal agency staff have contributed many hours of in-kind support toward the development and implementation of this project.			
TOTAL			

G. Outcomes:

- 1) *In the first table below, quantify the outcomes you plan to achieve with the recommended funds.*
- 2) *In the second table show list the sections where outcomes will occur.*
- 3) *In the third table, allocate your recommended funds to each cell with outcomes listed in table 1.*
- 4) *In the fourth table show the leverage to be applied to each cell with outcomes listed in table 1. and*
- 5) *If you have any outcomes listed in the “protect” row in table 1, account for them according to the type of acquisition and PILT status in table 5*

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Table 1 Accomplish- ments	Wetlands	Prairies	Forests	Habitats for Fish, Game and Wildlife
Restore				<i>Restore fish passage to 50 miles of spawning, nursery, and resident fish habitat that is currently inaccessible.</i>
Protect				
Enhance				

Table 2 Sections Impacted and Impact Quantifier	Wetlands	Prairies	Forests	Habitats for Fish, Game and Wildlife
Restore				<i>Prairie</i>
Protect				
Enhance				

Table 3 Recommend Fund Allocation	Wetlands	Prairies	Forests	Habitats for Fish, Game and Wildlife
Restore				\$1,937,000
Protect				
Enhance				

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Table 4 Leverage \$	Wetlands	Prairies	Forests	Habitats for Fish, Game and Wildlife
Restore				
Protect				
Enhance				

Table 5 Acquisition Data	Wetlands	Prairies	Forests	Habitats for Fish, Game and Wildlife
Acquired in Fee with State PILT Liability				
Acquired in Fee without State PILT Liability				
Permanent Easement				

H. Accomplishment Time Table Using the headings below, include a clear statement of how much of what is being accomplished and when. Attach a map showing where accomplishments are anticipated. Accomplishments should clearly restore, enhance or protect forests, wetlands, prairies and habitat for fish, game and wildlife.

Milestone	Date	Measure
Fish passage and habitat connectivity restored through modified dams	August 1, 2010	4 dams
Stream channel restoration vortex weirs installed	October 1, 2010	9 weirs

I. Relationship to Your Current Budget

Use this section to put the OHF request into financial context. What percent of your current fiscal year base budget is this request? Provide the current fiscal year base budget and the percent this request from the OHF represents. You need to show how this funding will supplement your current base budget and not replace your customary or established patterns of funding

The Sand Hill River Watershed District is a unit of local government, a political subdivision of the State. The Watershed District's FY2009 base budget is \$154,000. This funding request represents approximately 10 times our FY2009 base budget. This grant will not affect the

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current budget and will not replace our customary or established patterns of funding as we budget for these types of projects on a yearly basis. The District has experience managing large construction projects including securing necessary funding and project administration.

J. How Will the Habitat Improvements Be Sustained?

Dams modified to rock-arch-rapids and vortex weirs have been shown to be very stable over time. The Sand Hill River Watershed District is the project sponsor and long term project maintenance is authorized through established District construction and maintenance funds.

K. Attach a list of your projects listing their county location and edit the map of Minnesota on the next page to show each project as a symbol.

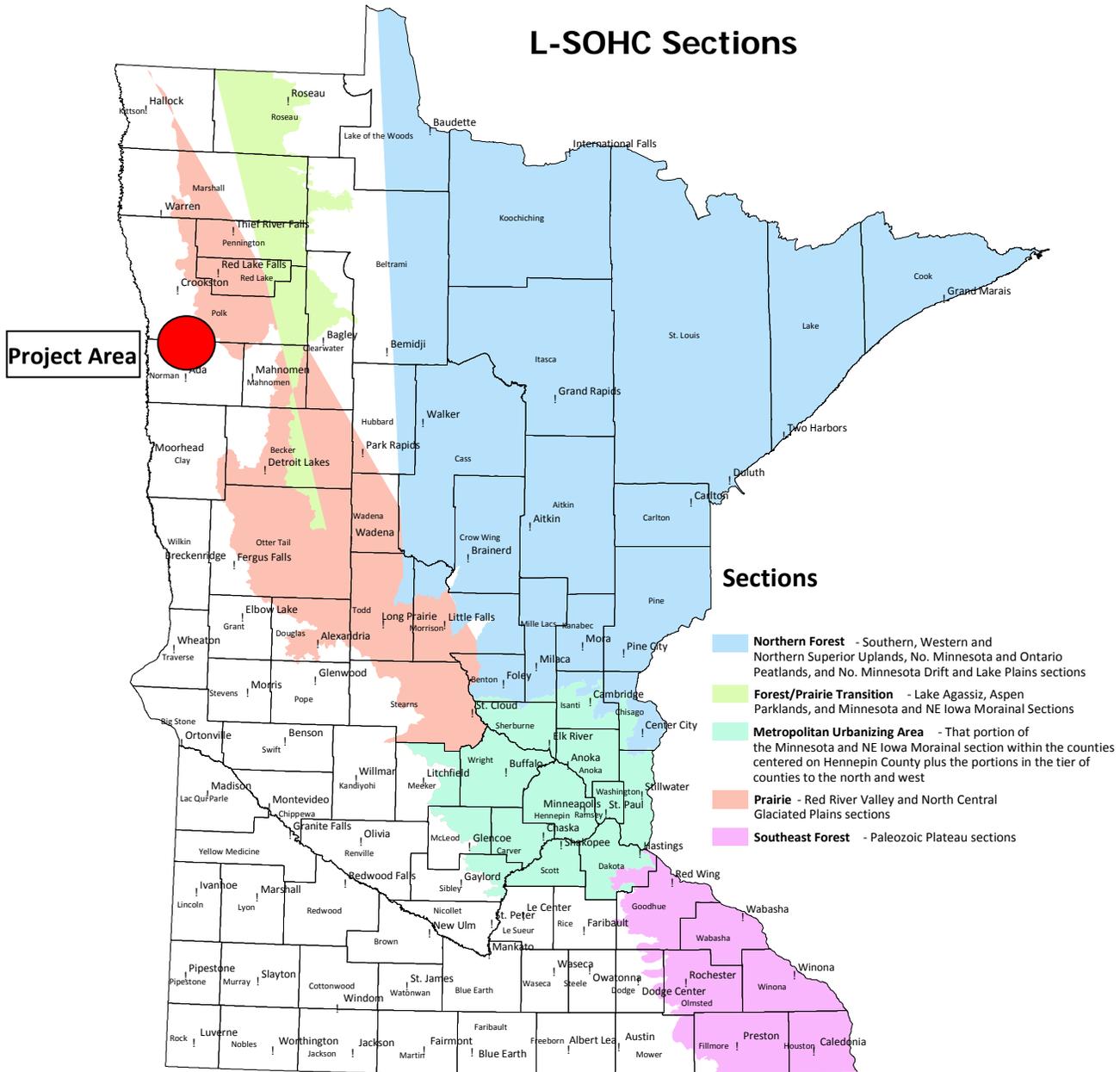
Double left click to bring up the map editor. Symbols should be on the left side of the pop-up banner at the top of your screen or at the bottom left depending on your software.

If you can't bring up the interactive map editor follow these instructions:

1. Make a paper copy of the map,
2. By hand place symbols on the map corresponding to the location of the projects in your proposal,
3. Scan the marked map to a pdf, and
4. Insert the marked pdf map as the last page in your submission.

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L-SOHC Sections



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