Environment and Natural Resources Trust Fund
2014 Request for Proposals (RFP)

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Project Title:

Structured Decision Making for Mille Lacs Fisheries Management

Category: B. Water Resources

Total Project Budget: $ 299,000

Proposed Project Time Period for the Funding Requested: 2 Years, July 2014 - June 2016

Other Non-State Funds: $ 0

Summary:

This project will use Structured Decision Making to incorporate both biological and social dimensions into a revised Mille Lacs management process to address issues related primarily to fisheries conversation.

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Sponsoring Organization: MN DNR

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Location

Region: Northeast

County Name: Mille Lacs

City / Township:

MP: 0613-2-244-proposa
Budget: 0613-2-244-bud
Qual: 0613-2-244-qualifi
Map: 0613-2-244-map-2
Resolution:
List:

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

PROJECT TITLE: Structured Decision Making for Mille Lacs Fisheries Management

I. PROJECT STATEMENT

Mille Lacs Lake is one of the most popular walleye fishing lakes in Minnesota. Sustained annual yields of walleye are likely in the range of 400,000 lbs per year. With its relatively proximity to the Twin Cities metropolitan area, it also supports the highest levels of sport fishing effort of any lake in Minnesota. The contribution of the Mille Lacs fisheries to local economies is clearly of singular importance. Active management of all fisheries activities started in Mille Lacs around 1996-97, as needed and mandated by the U.S. Judicial system to accommodate harvests of fish by eight Chippewa Bands exercising rights protected by the 1837 Treaty. Recently, clear declines in walleye abundance have been documented, with several competing hypotheses to explain these trends. Technical solutions will certainly be complex, with both biological and social dimensions; and there will also be several candidate management responses that could effectively reverse these trends. The primary goal of this project will be to revise all aspects of the Mille Lacs management process to address issues related primarily to fisheries conversation, but will likely also need to include other aspects of the management system. The primary methodology we propose is *Structured Decision Making*. SDM will help us choose the best alternatives for modifying the fisheries management procedures for all users of the Mille Lacs fisheries resources.

II. DESCRIPTION OF PROJECT ACTIVITIES

Activity 1: Apply SDM to guide the revision of the Mille Lacs management procedure. **Budget: $202,865**

Structured decision making will be applied to guide a comprehensive revision of the Mille Lacs management procedure. Staff at the Quantitative Fisheries Center (QFC) at Michigan State University have extensive experience in applying SDM to complex fisheries management problems in the Great Lakes and elsewhere. The SDM process will be designed to objectively and inclusively determine appropriate changes in all aspects of the management procedure, including the appropriate methods for estimating safe harvest, choice of fishing regulations, as well as a system for dealing with allocation overruns.

Outcome	Completion Date
1. Determine the components of the management procedure to be revised.	9/1/2014
2. Assemble the SDM working group including State and Tribal representation, and determine rules of engagement.	11/1/2014
3. Determine process of stakeholder engagement and communication.	2/1/2015
4. Conduct SDM with a sequence of deliberation (working group meetings) and analysis.	2/1/2016
5. Document and present recommended changes to management procedures, including the process for future revision if needed.	6/15/2016

Activity 2: Future adaptation to potential AIS impacts and changes in system productivity. **Budget: $96,942**

One of the greatest threats and sources of uncertainty for the future of the Mille Lacs fisheries is from invasive species. QFC staff have considerable experience working with the research community on the Great Lakes to understand how invaders may impact fishery productivity. A synthesis of current information on Mille Lacs along with more recent scientific information from other sources will help us determine potential ways to adapt the Mille Lacs management procedure to future change. The activity will involve engagement of other experts in a workshop format to brainstorm possible AIS/system change effects, and develop a plan for analysis/research and future incorporation in the next iteration of the SDM process (see below in *Long Term Strategy*)

Outcome	Completion Date
1. Determine the empirical basis for our understanding of invasive species in Mille Lacs.	8/1/2015
2. Synthesize current information from Mille Lacs utilizing workshops to include outside experts on AIS impacts on fisheries, and develop initial options for adaptation.	12/1/2015
3. Discuss the outcomes in step 2 with the Mille Lacs Fisheries Technical Committee.	2/1/2016
4. Deliver a final report that encompasses the best professional opinion on potential future adaptations to the Mille Lacs management system.	6/15/2016

III. PROJECT STRATEGY

A. Project Team/Partners

Dr. Donald Pereira will serve as project manager. Don is the Fisheries Research and Policy Manager with the MN DNR and has been actively engaged in Mille Lacs research and management starting in 1991 (prior to the onset of the Tribal fisheries program). Assisting with project management at a technical level will be Patrick Schmalz. Patrick is a Research Scientist 2 with the MN DNR and is one of the key technical staff overseeing the development of the primary model for estimating walleye harvest levels. Dr. Michael Jones will be our key partner who will oversee execution of the SDM process. Dr. Jones is currently department head as well as co-director of the Quantitative Fisheries Center at MI State University. He will supervise QFC staff that will likely consist primarily of one or two post-doctoral positions that will focus some of their time on this project. Other primary partners will be key members of the Mille Lacs Fisheries Technical Committee, and thus will include both State and Tribal representatives. Finally, a number of outside experts will be selected to participate in the workshops to determine the most likely future impacts from aquatic invasive species. The larger community of Great Lakes scientists provides a rich talent pool to choose from for this task.

B. Timeline Requirements

The process of Structured Decision Making is flexible enough that it can be applied to problems ranging from simple to complex. A complex problem such as proposed here will require a series of meetings (approximately one for each of five to six steps), with considerable analytical work required for the latter steps. Thus, a two year timeline is most appropriate for this project. Starting in July of 2013, we will likely have an independent contract with QFC staff to provide independent review of complex analytical work currently underway by the Mille Lacs modeling group. This will help orient the QFC staff to some core parts of the problem before the project we propose here begins. Also, QFC staff (specifically, co-director Dr. James Bence) have provided prior expert review from 2000 to 2003 on earlier versions of the Mille Lacs walleye management system. Thus, QFC staff has a strong record of research on this as well as related problems in the Great Lakes basin.

C. Long-Term Strategy and Future Funding Needs

The long-term strategy will be to reiterate the SDM process as required by future system change. SDM applied iteratively can essentially be similar to adaptive management, especially if new knowledge from the first round of changes in the management process is used to inform further changes or adaptations. In the case of Mille Lacs, one of the biggest sources of uncertainty is the ultimate impact and changes that may be caused by key aquatic invaders, notably zebra mussels and spiny water flea. While activity #2 as described above will help us think of ways to adapt to such strong change, ultimately our experience with the system will be critical in determining how to adapt. System changes from aquatic invaders can be complex and difficult to tease apart from other changes and background noise. It may therefore be necessary to consider additional support in the future for research that focuses on impacts of aquatic invasive species. As an additional benefit, such research will have high probability of providing new knowledge that may help us manage this urgent problem in other lake ecosystems.

2014 Detailed Project Budget

Project Title: Structured Decision Making for Mille Lacs Fisheries Management

IV. TOTAL ENRTF REQUEST BUDGET, two years

BUDGET ITEM	AMOUNT
Personnel: All personnel costs will be covered in contracts.	$ -
Contracts: A sole source contract will be established with the Quantitative Fisheries Center at MI State University. Details include: post-doctoral salary, including benefits and indirect costs paid to MI State Univerisity, 3/4 time for two years; partial salary support for Dr. Michael Jones, for facilitation and project oversight; travel support for MI State staff, for up to 10 meetings in MN over two years	$ 280,000
Contracts: Annual work plan contracts will be used to provide support for up to 5 scientists with expertise in understanding impacts of invasive species.	$ 10,000
Professional Services: Direct and necessary services required to support this appropriation	807
Equipment/Tools/Supplies:	$ -
Travel: Note: travel support for experts for the AIS workshop will covered in contracts.	$ -
Additional Budget Items: Funds use for conducting local meetings: for room rental, food and beverage, etc. Approximately 8 to 10 meetings over two years, up to 30 attendees at some meetings.	$ 9,000
Additional Budget Items:	
TOTAL ENVIRONMENT AND NATURAL RESOURCES TRUST FUND $ REQUEST =	**$ 299,000**

V. OTHER FUNDS

SOURCE OF FUNDS	AMOUNT	Status
Other Non-State $ Being Applied to Project During Project Period:	na	
Other State $ Being Applied to Project During Project Period:	na	
In-kind Services During Project Period: (details in the following two lines)	**$ 455,000**	
Participation of State personnel. Approximately eight DNR Fisheries staff will either participate directly in the SDM process, or provide time in other ways to support the project.	$ 291,200	Secured
Participation of Tribal personnel. The Great Lakes Indian Fish and Wildlife Commission, Fond du Lac Band, and the Mille Lacs Band have permanent staff plus an oustide consultant that will either participate directly in the SDM process, or provide time in other ways.	$ 163,800	Pending
Remaining $ from Current ENRTF Appropriation (if applicable):	na	
Funding History:	na	

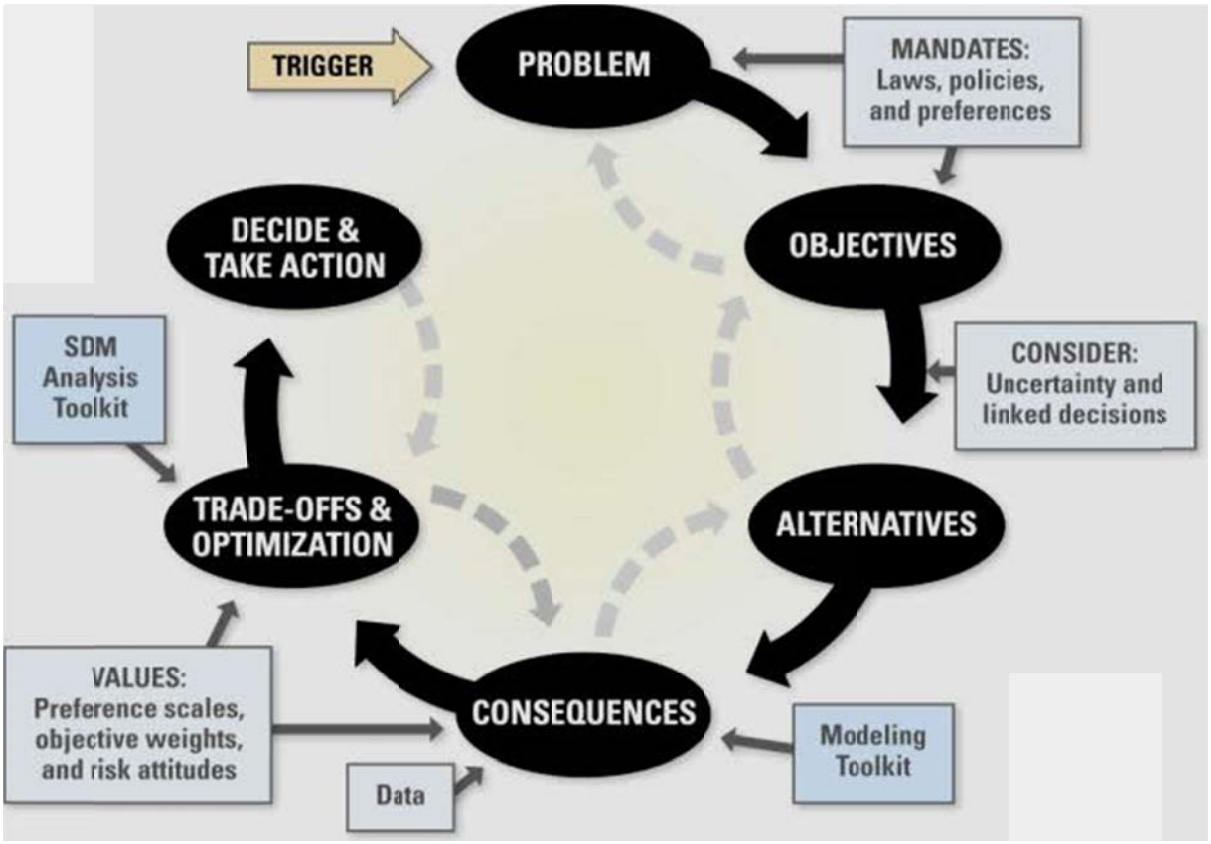

Figure 1. Basic concepts used in Structured Decisions Making process.

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Project Manager Qualifications

Donald Pereira is the Fisheries Research and Policy Manger for the MN Department of Natural Resources' Division of Fish and Wildlife. In this capacity he has provided policy technical support for Tribal fisheries projects including Mille Lacs and the Red Lakes.

He has a Ph.D. from the University Of Minnesota and has recently received a week of intensive training in Structured Decision Making (SDM) from USGS experts. He also has collaborated on Great Lakes issues with staff from the Quantitative Fisheries Center at Michigan State University. He recently has applied the SDM process to a complex fisheries problem in Duluth, MN.

Organization Description

The Minnesota Department of Natural Resources' overall mission is to work with citizens to conserve and manage the state's natural resources, to provide outdoor recreation opportunities, and to provide for commercial uses of natural resources in a way that creates a sustainable quality of life.