

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

Project Title:

ENRTF ID: 010-A

Developing Public Fishing Tournaments to Control Expanding Bass

Topic Area: A. Fisheries & Wildlife Research

Total Project Budget: \$ 243,978

Proposed Project Time Period for the Funding Requested: 3 yrs, July 2013 - June 2016

Other Non-State Funds: \$ 0

Summary:

Bass threaten cold-water fisheries in ~16 Minnesota counties. We will work with the DNR to develop a prototype bass tournament that controls bass, engages the public and requires few resources.

Name: Paul Venturelli

Sponsoring Organization: U of MN

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Location

Region: NE

County Name: St. Louis

City / Township: Duluth and area

<input type="checkbox"/> Funding Priorities	<input type="checkbox"/> Multiple Benefits	<input type="checkbox"/> Outcomes	<input type="checkbox"/> Knowledge Base
<input type="checkbox"/> Extent of Impact	<input type="checkbox"/> Innovation	<input type="checkbox"/> Scientific/Tech Basis	<input type="checkbox"/> Urgency
<input type="checkbox"/> Capacity Readiness	<input type="checkbox"/> Leverage	<input type="checkbox"/> Employment	<input type="checkbox"/> TOTAL <input type="checkbox"/> %



Environment and Natural Resources Trust Fund (ENRTF) 2012-2013 Main Proposal

PROJECT TITLE: Developing public fishing tournaments to control expanding bass

I. PROJECT STATEMENT

Expanding populations of largemouth and smallmouth bass are a threat to cold-water fisheries in hundreds of lakes and trout streams in NE and SE Minnesota (Fig. 1). Expansion is due to a warming trend as well as intentional and accidental introduction by anglers. Impacts on cold-water fishes such as walleye and trout are through predation and competition.

Currently, there is no proven method for protecting cold-water fisheries from bass. Minnesota’s cold-water anglers are concerned about bass and want action, but partial bass culls often exacerbate the problem because the remaining bass flourish due to low competition.

We are seeking ENRTF funding to develop an effective and efficient control method that combines sound science with public involvement. We know that 1) male bass guard their nests from predators in spring, 2) nests fail when males are temporarily removed (typically after 24 hours), and 3) culling bass can exacerbate the problem. Our control method induces nest failure through catch-and-*delayed*-release (Fig. 1). We are developing this method through computer models and small-lake experiments in Ontario and New York (see Long-term strategy); however, we need to adapt it to larger systems.

We will develop and monitor a prototype “bass control tournament” in Fish Lake Reservoir, a 3258 acre lake in St. Louis County that is losing its walleye to bass (Fig. 1). The proposed work is part of a DNR-led stakeholder effort that has strong support from the Fish Lake Advisory Committee, Minnesota Bass Anglers Sportsman Society (MN BASS) and businesses.

In just 3 years and at a reasonable expense, we will develop a control method that can be rolled out in any system in which bass are an issue (Fig. 1). Tournaments will not eradicate bass, but they will minimize the impact of bass on cold-water species; they will be cost-effective, require few DNR resources, and result in the following benefits:

- establish a trophy bass fishery (i.e., few, large bass)
- minimize impacts on cold-water fisheries
- create opportunities for tourism and business
- public involvement and education

II. DESCRIPTION OF PROJECT ACTIVITIES

Activity 1: Develop a revenue-neutral, prototype fishing tournament in Fish Lake Reservoir that uses induced nest failure to control expanding bass **Budget: \$0**

In partnership with MN BASS and local businesses, we will organize and promote the tournament from July to April of each year. MN BASS has extensive tournament experience, the necessary equipment and capital, and numerous business and media contacts. To maximize nest failure, the main tournament in Fish Lake will occur over a weekend in early May followed for two weeks by an informal tournament.

Tournaments will be revenue-neutral; revenue from the main tournament (via sponsorship and registration fees) will serve as the purse for the informal tournament. We will design tournament rules to maximize nest failure and data capture. We will also use MN BASS media contacts and the tournament itself to **educate the public** about expanding bass and aquatic invasive species. MN BASS is firmly committed to this effort; after 2016 they will run the tournament in consultation with MN DNR. Similar tournaments can then be established in other MN lakes in which bass are or become an issue (e.g., Driftless Area streams, Boundary Water lakes).

Outcome	Completion Date
1. First spring bass tournament organized and promoted	April 2014
2. First spring bass tournament held	May 2014
3. Two subsequent spring bass tournaments organized and promoted	April 2016
4. Two subsequent tournaments held (recurring tournament established)	May 2016
5. Increased public awareness regarding expanding bass and invasive species	June 2016

Activity 2: Hire one graduate student and three field assistants to conduct before-and-after monitoring of bass and walleye through in-kind DNR support **Budget:** \$243,978

We will **monitor bass and walleye populations** to determine the extent to which the tournaments limited bass reproduction, selected for larger bass, and reduce competitive and predatory pressure on walleye. We will use index netting and individually tagged fish to estimate abundance and size structure, and diet analysis to assess competition and predation. We will also collect data (e.g., nest locations) from tournament angles. **The DNR has committed to providing in-kind support** in the way of boats, nets, tags, and sample processing; we will hire one graduate student and 3 summer field assistants to help with data collection.

Outcome	Completion Date
1. Initial pre-tournament data collection	August 2013
3. First springtime (tournament) data collection	May 2014
2. First post-tournament data collection	August 2014
3. Two subsequent years of tournament and post-tournament data collection	July 2016

III. PROJECT STRATEGY

A. Project Team/Partners

i) To be funded by the ENRTF (each for 3 years)

Grace Loppnow (UMN-Twin Cities Dept. of Fisheries, Wildlife, and Conservation Biology, Ph.D. student, Project Leader, and holder of a National Science Foundation Integrative Graduate Education and Research Traineeship to study introduced species)

3 summer field assistants for Loppnow (to be determined)

ii) Contributing through other sources (all partners are confirmed)

Cornell University Dept. of Natural Resources (Dr. Clifford Kraft, collaborator for small lake experiments)

Fond du Lac Band Resource Management Division (Brian Borkholder, Inland Fisheries Biologist)

Ontario Ministry of Natural Resources (Dr. Mark Ridgway, collaborator for small lake experiments)

Local businesses and media (to be determined)

MN DNR Division of Fish and Wildlife (Dr. Don Pereira, Fisheries Research Manager, advisor to

Loppnow and primary DNR contact; Deserae Hendrickson, Duluth Area Fisheries Supervisor and local DNR contact; Mike McInerny, DNR Research Scientist and bass expert; Patrick Schmalz, Fish Lake Fisheries Scientist)

MN Bass Anglers Sportsman Society (MN-BASS) (Doug Pirila, Director-North Region, tournament advisor)

USGS (Dr. Bruce Vondracek, advisor to Loppnow)

UMN-Duluth Dept. of Biology (Dr. Tom Hrabik, advisor to Loppnow)

UMN-Twin Cities Department of Fisheries, Wildlife, and Conservation Biology (Dr. Paul Venturelli, Principal Investigator and advisor to Loppnow; Dr. Ray Newman, advisor to Loppnow)

B. Timeline Requirements: We require 3 years of funding to establish a recurring fishing tournament and verify that nest failure is working.

C. Long-Term Strategy and Future Funding Needs: This bass tournament is the final phase in a 3-part project to develop a general method for controlling bass. In Part I we are using a bass population model to evaluate alternative scenarios of nest failure and release (to be completed August 2012). In Phase II we are collaborating with other researchers to test and refine the method in 3 small lakes in Ontario and New York (spring 2012 to fall 2015). In Phase III we will apply what we have learned at a larger scale. This tournament will be the prototype for a “pre-packaged” control method that can be applied wherever bass threaten Minnesota’s cold-water fisheries.

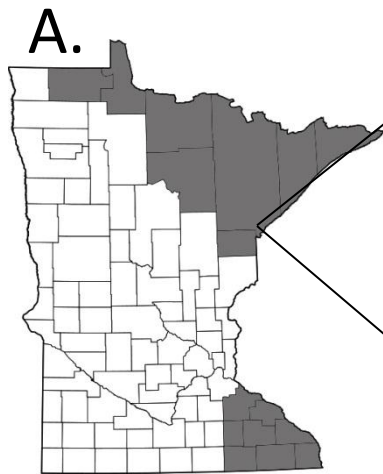
2012-2013 Detailed Project Budget

IV. TOTAL ENRTF REQUEST BUDGET 3 years

BUDGET ITEM <i>(See list of Eligible and Non-Eligible Costs, p. 11)</i>	AMOUNT
Personnel (PhD student): One student @ 50% time for 3 full years. This student will act as project leader. Salary \$20,186 plus \$17,304 benefits (18.49% health insurance, plus tuition). Inflationary increases of 3% for years 2 and 3.	\$ 115,879
Personnel (field assistant): 3 for 3 summers (May-August inclusive); 40 hours per week for 16 weeks at \$12.00 per hour plus 7% for benefits. This assistants will work with the project leader (and sometimes the DNR) during each summer. Inflationary increases of 3% for years 2 and 3.	\$ 76,199
Travel: UMN fleet rental (8 weeks per year for three years at \$220/week plus mileage which is estimated at 250/week at \$0.17/mile), accomodations for 50 nights per year for three years at \$20 per night for four people - PhD students and assistants - to camp or stay in dorms), and meals (50 days per year for three years for 4 people at \$56 per day, which is the UMN's per diem rate for Duluth as of April 2012)	\$ 51,900
TOTAL ENVIRONMENT AND NATURAL RESOURCES TRUST FUND \$ REQUEST =	\$ 243,978

V. OTHER FUNDS

SOURCE OF FUNDS	AMOUNT	Status
In-kind Services During Project Period (estimated DNR and MN BASS): \$1,000 (weighscale for tournament), \$1,000 (misc. tournament supplies), \$4,000 (14' boat w/ trailer and engine), \$60,000 (electrofishing boat w/ trailer and engine), \$4,000 (fuel for boats for 3 years), \$300 (3 landing nets), \$3,000 (3 trap nets), \$1,000 (6 gill nets), \$600 (tagging equipment), \$1,000 (two fish cribs), \$1,000 (misc. field supplies), \$5,000 (genetic analysis), \$13,500 (additional field assistant), \$20,000 (additional travel)	\$ 115,400	Secured
In-kind Services During Project Period (actual Paul Venturelli): 1% cost share for Paul Venturelli	\$ 2,844	Secured
Funding History: \$81,000 (salary, benefits and fringe for Grace Loppnow, September 2011 - August 2013 paid for by a National Science Foundation Integrative Graduate Education and Research Traineeship) plus \$5,176 (actual and anticipated cost of field work for summer 2012 paid through Paul Venturelli's start-up funds) plus \$5,622 (anticipated cost of field work for spring 2013 paid through Paul Venturelli's start-up funds)	\$ 91,798	



B. Fish Lake Reservoir (St. Louis County)



C. Bass and walleye catch rates during Fish Lake summer tournaments

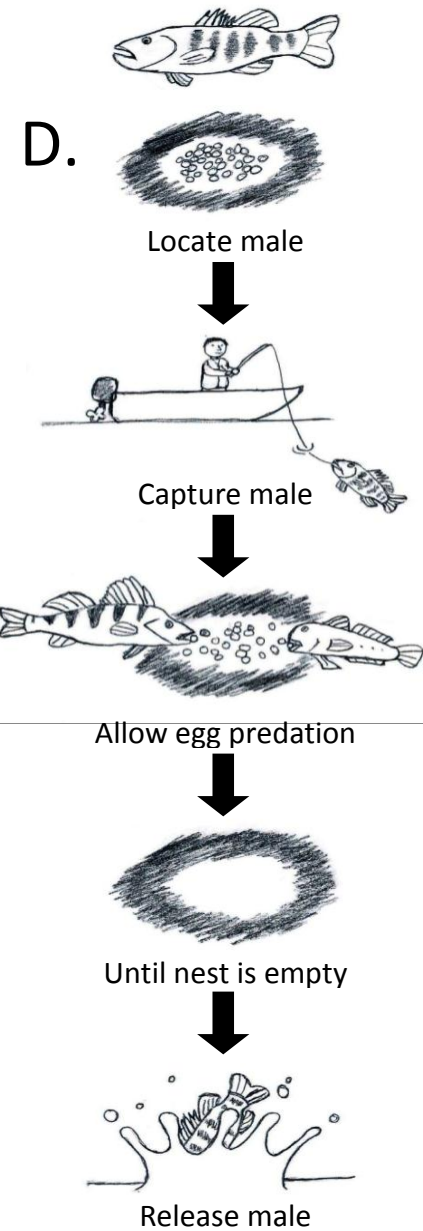
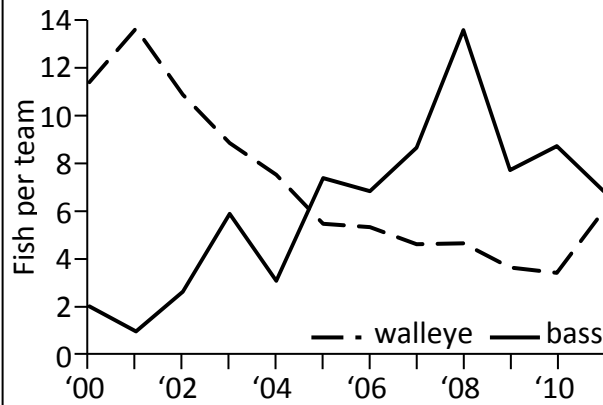


Figure 1.

A. Counties in which expanding bass populations are likely to impact cold-water fisheries;
B. Fish Lake Reservoir;
C. Summer tournament data (2000-2011) showing an increase in bass and decline of walleye;
D. A schematic showing bass control via induced nest failure, which involves capturing nest-guarding males, holding these males in pens for ~24 hours to allow for egg predation, and then returning them to the lake so that smaller bass do not flourish.

PROJECT MANAGER QUALIFICATIONS AND RESPONSIBILITIES

Paul Anthony Venturelli, Assistant Professor
Department of Fisheries, Wildlife, and Conservation Biology,
University of Minnesota, Twin Cities (2011 to present)

Education

B.S.	York University	Environmental Science	2000
M.S.	University of Alberta	Environmental Biology and Ecology	2003
Ph.D.	University of Toronto	Ecology and Evolutionary Biology	2009

Project Management Experience

Review of North American fishing regulations, UMN (2012-present)
Natural mortality estimates of numerous shark species, UMN (2012-present)
Use of food and temperature to explain walleye growth in lakes, UMN (2012-present)
Induced nest failure to control black bass, UMN (2011-present)
Threshold temperature estimates for predicting fish growth, UMN (2011-present)
Coastal river food web modeling, Louisiana State University (2009-present)
Endangered species modeling, Fisheries and Oceans Canada (2009)
Walleye life history and population dynamics, University of Toronto (2004-2009)
Northern pike growth and diet, University of Alberta (2000-2003)

Number of Personnel Managed to Date: 16 (currently 6 at the University of Minnesota)

Responsibilities pertaining to the proposed project:

Developing and planning the project;
Hiring personnel;
Arranging for travel and accommodation;
Communicate regularly with Grace Loppnow, graduate student and project leader;
Liaising with project partners to coordinate activities and in-kind support;
Ensuring that the project is on-time and on-budget;
Ensuring data quality and overseeing statistical analyses; and
Assisting in the preparation of progress reports and final reports

ORGANIZATION DESCRIPTION

The University of Minnesota is one of the largest and most recognized public research universities in the United States. Its mission is to 1) “**conduct high-quality research, scholarship, and artistic activity that benefit students, scholars, and communities across the state, the nation, and the world**”; 2) “**share that knowledge, understanding, and creativity by providing a broad range of educational programs ... and prepare graduate, professional, and undergraduate students...for active roles in a multiracial and multicultural world**”; and 3) extend, apply, and **exchange knowledge between the University and society** by applying scholarly expertise to community problems, by helping organizations and individuals respond to their changing environments, and by making the knowledge and resources created and preserved at the University accessible to the citizens of the state, the nation, and the world.