

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

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**Project Title:**

**ENRTF ID: 106-D**

Accelerated Effort to Understand and Control Zebra Mussels

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**Category:** D. Aquatic and Terrestrial Invasive Species

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**Total Project Budget: \$** 5,180,800

**Proposed Project Time Period for the Funding Requested:** 3 Years, July 2014 - June 2017

**Summary:**

This project will expand partnerships between state, tribal, and local units of government to address the spread of AIS and increase our understanding of how zebra mussels impact our lakes.

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**Location**

**Region:** Statewide

**County Name:** Statewide

**City / Township:**

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<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"/> %



**PROJECT TITLE:** Accelerated effort to understand and control zebra mussels

**I. PROJECT STATEMENT**

This project addresses the Water Resources, Environmental Education, and Aquatic and Terrestrial Invasive Species priorities outlined in the Environment and Natural Resources Trust Fund (ENRTF) 2014 Request for Proposal.

Aquatic invasive species (AIS) are causing significant economic losses and dramatic ecological changes throughout the state. Invasive species impact our lakes, and rivers, and the economies that depend on these resources. In short, they are a threat to the Minnesota way of life (Figure 1).

Zebra mussels, for example, have spread to some of our more productive fisheries lakes and yet the impacts of zebra mussels on Minnesota’s fish communities are currently not understood. Research in other regions of United States suggests that zebra mussels could have significant impacts on the productivity of a lakes and feeding behavior of fish, including important game species such as walleyes.

This project will expand the partnerships between the state, tribal, and local units of government to increase prevention efforts addressing the spread of zebra mussels and increase our understanding of how zebra mussels impact our lakes and river systems. The project goals will be met through:

- 1) AIS grants to tribal and local governments with a delegation agreement under Minnesota Statutes, section 84D.105, subdivision 2, paragraph (g), for education, inspection, and decontamination activities at public water access, and other sites,
- 2) Improvements to public water accesses to facilitate AIS prevention, and
- 3) Quantify, using stable isotope sampling, potential shifts in foodweb dynamics in response to zebra mussel invasion

**II. DESCRIPTION OF PROJECT ACTIVITIES**

**Activity 1:** AIS prevention plan development assistance and grants to tribal and local units of government for implementation of AIS prevention infrastructure and actions. **Budget: \$ 3,862,400**

**Description:** Assist tribal and local units of government in the development and design of AIS prevention infrastructure and actions plans. Provide statewide grants for tribal and local units of government for implementation of AIS prevention infrastructure and actions based on plan development.

<b>Outcome</b>	<b>Completion Date</b>
1. Conduct up to 8 inter-jurisdictional meetings designed to introduce tribal and local units of government to the grant program and the plan requirements associated with the program.	July 30, 2015
2. Assist up to 5 tribal or local units of government with AIS prevention plan development	Oct 30, 2016
3. Provide grants to up to 30 tribal or local units of government for AIS prevention activities and infrastructure	June 30, 2017

**Activity 2:** AIS prevention improvements to public water access sites **Budget: \$ 773,200**

**Description:** Design and build AIS prevention best management practice implementation at DNR administered water accesses to direct and allow removal/disposal of invasive species.

<b>Outcome</b>	<b>Completion Date</b>
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**Environment and Natural Resources Trust Fund (ENRTF)**

**2014 Main Proposal**

**Project Title:** Accelerated effort to understand and control zebra mussels

1. Upgrade up to 5 DNR administered access sites for installation of AIS prevention best management practices.	July 30, 2016
2. Up to 5 installations of AIS prevention best management practice structures and activities.	June 30, 2017

**Activity :** Stable Isotope Sampling

**Budget:** \$545,200

**Description:** Quantify potential shifts in foodweb dynamics in response to zebra mussel invasion using carbon and nitrogen stable isotope sampling. Stable isotope analysis provides an accurate measure of how food webs change over time and space within and across systems on broader, more integrated scales than traditional diet analysis.

<b>Outcome</b>	<b>Completion Date</b>
1. Field sampling to collect fish tissue, phytoplankton, zooplankton, benthic invertebrate and water chemistry samples	October 30, 2016
2. Laboratory analysis of water chemistry, phytoplankton, zooplankton, benthic invertebrate, and fish tissue samples	January 30, 2017
3. Analysis, quantification, and comparison of trophic position of keystone aquatic species among lakes at different stages of zebra mussel infestation	June 30, 2017

**III. PROJECT STRATEGY**

**A. Project Team/Partners**

Partners receiving money and contributing resources on this project include DNR - Division of Ecological and Water Resources, Invasive Species Unit (Ann Pierce) grant program development and implementation, Division of Parks and Trails development and installation of AIS prevention best management practice implementation, Division of Fisheries and Wildlife, Section of Fisheries, Research Unit (Don Pereria) research on zebra mussels, and Division of Enforcement implementation of AIS prevention plans.

**B. Timeline Requirements**

Three years is requested to provide multiple field seasons for research and development activities. Hire 2 program managers and one grant coordinator by September 1 2014. Develop promotional materials and conduct inter-jurisdictional meetings by July 30, 2015. Work with interested tribal or local units of government to develop plans by October 30 2016. Grant program implementation beginning January 2015. Design of AIS prevention best management practice implementation activities by July 2015. Upgrade selected DNR administered assess sites for instillation of AIS prevention best management practice by October 2016. Install AIS prevention best management practice implementation at DNR administered access sites by June 2017. Research components focused on impacts of zebra mussel on trophic structure dynamics will need 3 field seasons to collect sufficient data and analysis.

**C. Long-Term Strategy and Future Funding Needs**

This effort will support the development and initial infrastructure of programs aimed at preventing the spread of AIS and understanding impacts of zebra mussel on fish population dynamics. Infrastructure development is costly but once the initial startup costs are met the tribal and local unit of government will be able to more fully participate in AIS prevention efforts. Basic understanding of the impacts of zebra mussels on trophic dynamics of our water resources is essential for resource management activities. This work will provide us with key baseline information to help us move forward with fisheries management in the face of zebra mussel invasion.

## 2014 Detailed Project Budget

**Project Title:** Accelerated effort to understand and control zebra mussels

### IV. TOTAL ENRTF REQUEST BUDGET 3 years

<b>BUDGET ITEM</b> (See "Guidance on Allowable Expenses", p. 13)	<b>AMOUNT</b>
<b>Personnel:</b> ~ 3 FTE for direct project activities as unclassified staff paid primarily through project funds, including ~ 15-20% fringe benefits as per state union contracts: 2 FTE for tribal and local unit of government AIS Prevention program development and management (400K), 1 FTE for tribal and local unit of government grant program coordination (200K), 1 FTE for increased AIS enforcement (200K), 2 FTE unclassified for data collection (160k)and ~ 3 interns (90K) for field work.	\$ 1,050,000
<b>Contracts:</b> Professional and Technical Services contracts sought for improvements to public water accesses for AIS inspections and prevention activities (\$750,000) and isotope analysis (\$100,000). Contractors will be sought through state contact and/or request for bid process.	\$ 850,000
<b>Professional and Technical Services: Direct and Necessary services required to support this appropriation.</b>	\$ 180,800
<b>Equipment/Tools/Supplies:</b> <i>In this column, list out general descriptions of item(s) or item type(s) and their purpose - one row per item/item type.</i>	\$ -
<b>Acquisition (Fee Title or Permanent Easements):</b> <i>In this column, indicate proposed number of acres and name of organization or entity who will hold title.</i>	\$ -
<b>Travel:</b> DNR fleet charges (for operation of cars, & special fieldwork equipment) & instate travel costs (as per state contracts)	\$ 94,000
<b>Additional Budget Items:</b> <i>Grants to tribal and local units of governments (3M), printing cost for promotional materials \$6,000</i>	\$ 3,006,000
<b>TOTAL ENVIRONMENT AND NATURAL RESOURCES TRUST FUND \$ REQUEST =</b>	<b>\$ 5,180,800</b>

### V. OTHER FUNDS

<b>SOURCE OF FUNDS</b>	<b>AMOUNT</b>	<b>Status</b>
<b>Other Non-State \$ Being Applied to Project During Project Period:NA</b>	\$ -	
<b>Other State \$ Being Applied to Project During Project Period: NA</b>	\$ -	
<b>In-kind Services During Project Period:NA</b>	\$ -	
<b>Remaining \$ from Current ENRTF Appropriation (if applicable): NA</b>	\$ -	
<b>Funding History:NA</b>	\$ -	



Figure 1. Zebra mussel (*Dreissena polymorpha*)-- Zebra mussels can cause problems for lakeshore residents, recreationists, and harm our natural resources. Zebra mussels may attach to motors, possibly clog cooling water areas, and native mussels.

Ann Pierce:

Ann Pierce is the supervisor of the Invasive Species Unit with the Division of Ecological and Water Resources at the MNDNR. Previously Ann supervised the Conservation Management and Rare Resources Unit that houses the Scientific Natural Areas Program, the State Wildlife Action Plan Program, and a policy group covering Endangered and Threatened Species and ecosystems. She has worked for the MNDNR for over 17 years. Ann received her M.S. from the University of Wisconsin and her Ph.D. from the University of Minnesota in Conservation Biology focusing on Ecosystem Ecology.