



US Army Corps  
of Engineers  
St. Paul District

# Information Paper

## St. Croix River: Endangered Mussel Conservation – Zebra Mussel Control



*Zebra mussels covering native mussels*

### Contact

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### Location/Description

Zebra mussels (*Dreissena polymorpha*) in the Upper Mississippi River are a significant threat to the continued survival of the endangered Higgins' eye pearlymussel (*Lampsilis higginsii*) and winged mapleleaf (*Quadrula fragosa*). Management of zebra mussels may include measures to manage dispersal of zebra mussels, reduce/manage zebra mussels already present, and prevent future spread of zebra mussels and/or other exotics. Alternatives to be studied will include large- and small-scale alterations of the habitat conditions, closing portions of the system to recreational and/or commercial traffic, cleaning/coating technologies, barriers to prevent transport of zebra mussels, relocation of winged mapleleaf, juvenile seeding of winged mapleleaf, and modification of reservoir operations to improve winged mapleleaf habitat.

The St. Paul District and Engineer Research and Development Center are conducting the study in cooperation with the U.S. Fish and Wildlife Service; U.S. Geological Survey; National Park Service; Departments of Natural Resources from Minnesota, Wisconsin, and Iowa; and Great Lakes Indian Fish and Wildlife Commission. Recommended management

alternatives outside the Corps' existing authorities would need to be implemented by others.

### Status

A feasibility study for the management of zebra mussels in the St. Croix River and connecting Mississippi River pools began in 2006. A preliminary risk-based model will evaluate the most likely pathway for further zebra mussel invasion, estimate long-term population characteristics, and identify sensitive areas and potential ecological consequences. The model was refined in 2008 to develop and evaluate potential management actions, such as controlling dispersal in the St. Croix River basin and managing existing zebra mussel populations. A decision support model is being developed to determine triggers and criteria for relocation and/or artificial propagation of winged mapleleaf mussels if zebra mussel control is only partially effective and/or determined to be not feasible. A January 2009 workshop positions the team to formulate alternatives. Three public meetings were conducted in the St. Croix River basin in September 2009 to seek input to assist in developing and evaluating management alternatives for zebra mussels and winged mapleleaf. Mussel surveys and evaluation of suitable sites for relocation of winged mapleleaf are ongoing.

### Authority

The study is being conducted under the authority of Section 216 of the Flood Control Act of 1970 and in conformance with the final biological opinion for the operation and maintenance of the Upper Mississippi River 9-foot navigation channel. The approved Section 905(b) reconnaissance report recommended a \$2.2 million feasibility study at full Federal expense to investigate zebra mussel control measures in the Upper Mississippi and Illinois waterways, including the St. Croix River.

### Fiscal Years 2006-2011

Through fiscal year 2009	\$1,051,000
Fiscal year 2010	\$350,000
Balance to complete	\$859,000
Total estimated cost (100% Federal)	\$2,260,000