

Fish and Wildlife News
Great Lakes -Big Rivers Fishery Program
La Crosse FRO Mussel Conservation Activities

When did your office begin involvement in this area of conservation?

- ! Mussel conservation efforts were initiated by the La Crosse FRO in FY 1993 with participation in a cooperative monitoring program for zebra mussels in portions of the St. Croix River (a national scenic riverway) that has continued to the present.

What specific activities were/are involved; who participates and in what capacity?

- ! Biweekly deployment and retrieval of multi-plate samplers from spring through fall for early detection of zebra mussels, as well as outreach activities at marinas and landings to inform the public about zebra mussel issues (e.g., transmission, control, ecological impacts, economic costs); Dave Wedan (maintenance worker) performs these duties.
- ! Week-long scuba dive inspections conducted three times a year during the peak recreational boating season to detect the presence of zebra mussels on native mussels and on submerged surfaces of moored vessels, bridge pilings, and other underwater structures along the lower St. Croix River; Scott Yess (fishery biologist) shares dive coordination responsibilities with National Park Service representatives and is an active dive team member.
- ! Participation in meetings of the St. Croix River Zebra Mussel Task Force, an interagency group of natural resource managers with a mandate to respond to St. Croix River zebra mussel issues in a coordinated manner; Pam Thiel (project leader) and Scott Yess are the La Crosse FRO representatives on this task force.

What other mussel conservation efforts have La Crosse FRO staff participated in?

- ! Evaluation of facilities at the Genoa NFH to serve as a native mussel refugia (FY 1995-97); partners included Wisconsin Department of Natural Resources, Minnesota Department of Natural Resources, Iowa Department of Natural Resources, and U.S. Geological Survey
- ! Propagation of the federally endangered Higgins' eye pearl mussel at the Genoa NFH (FY 2000-present); partners include National Fish and Wildlife Foundation, U.S. Army Corps of Engineers, Wisconsin Department of Natural Resources, Minnesota Department of Natural Resources, Iowa Department of Natural Resources

- ! Identification of suitable host fish for glochidia of the federally endangered winged mapleleaf mussel (FY 2001-02); partners include Wisconsin Department of Natural Resources, Minnesota Department of Natural Resources, U.S. Geological Survey, Macalaster College, University of Minnesota, and Southwest Missouri State University
- ! Production, distribution, and exhibition of informational materials (e.g., poster displays, narrated slide shows on compact disk, web site pages, live mussel displays) during outreach opportunities that are designed to educate the public about America's freshwater mussel resources and the Service's mussel conservation activities (FY 2000-present)

When and why did mussel conservation become an issue for the La Crosse FRO?

- ! Service concern for the conservation of native mussels in the Upper Mississippi River basin long predates the origin of this fishery field office in 1981, as well as the Service's more recent inception of two Upper Mississippi River ecosystem teams in the late 1990s. For example, the U.S. Bureau of Fisheries, a predecessor agency of the Service, maintained a biological station in Fairport, Iowa where scientific staff members studied the natural life histories of several native mussel species and developed methods to artificially propagate some of these in the early 1900s. Among other findings, these investigators concluded that the Higgins' eye pearlymussel, a species that was never considered abundant in the Upper Mississippi River or its tributaries, had become increasingly rare around the start of the twentieth century. Due to a combination of factors that included (1) passage of the Endangered Species Act in 1973, (2) a scarcity of records of additional live Higgins' eye specimens encountered in the preceding 50 years, and (3) a significant decrease in the geographical range of this species, this mussel was promptly considered for endangered species status and received this designation in 1976. In 1982, an interagency task force issued a recovery plan for the Higgins' eye mussel that included biocriteria to measure the success of recovery efforts over a 10-year period. But in 1991, the exotic zebra mussel was found in the Upper Mississippi River. This aquatic nuisance species has since spread rapidly throughout much of the Upper Mississippi River System where it has colonized suitable substrates including mussel beds where populations of many native species like the Higgins' eye have recently suffered precipitous declines. Perceiving the added threat that zebra mussels would pose to the recovery of both the Higgins' eye pearlymussel and the winged mapleleaf mussel (another federally endangered species found only in portions of the St. Croix River), the La Crosse FRO became actively involved in mussel conservation issues in 1993 when staff members first participated in the newly created St. Croix River Zebra

Mussel Task Force. Since then, nearly all La Crosse FRO employees (permanent and temporary) have actively participated in one or more cooperative projects with representatives from other natural resource agencies and non-government organizations to help conserve freshwater mussels. These efforts have included: (1) monitoring for zebra mussels in the St. Croix River; (2) evaluating the suitability of a national fish hatchery to serve as a native mussel refugia; (3) propagating Higgins' eye pearlymussels to help restore declining populations; and (4) identifying potential host fish for the winged mapleleaf. In addition, La Crosse FRO staff produce, exhibit, and distribute a variety of informational materials during outreach opportunities that are designed to educate the public about America's freshwater mussel resources and the Service's mussel conservation activities.

Mussel conservation successes for the La Crosse FRO and project partners

- ! Zebra mussels have yet to become well established in most portions of the lower St. Croix River**
- ! Ability to artificially propagate thousands of Higgins' eye pearlymussel glochidia and juveniles was successfully demonstrated in two successive years**
- ! Equipment and methods were developed and used to successfully introduce thousands of propagated Higgins' eye pearlymussel glochidia and juveniles to portions of rivers in three states that are within this species' historic range and are currently not infested with zebra mussels**
- ! Apparently limited overwinter survival of propagated Higgins' eye pearlymussel juveniles at certain river sites suggests a degree of short-term success for this restoration project**
- ! Initial successes of Higgins' eye propagation and restoration work has helped promote related work for the winged mapleleaf**
- ! Increased public awareness of native mussel resources and aquatic nuisance species issues**

Major factors limiting mussel conservation

- ! **Nonindigenous species - *zebra mussels now pose the greatest threat to native mussels***
- ! **Barriers to fish passage - *selective dam removals may benefit certain native mussels***
- ! **Degraded water quality - *nonpoint source contributions are now the most serious***
- ! **Excessive sedimentation - *improved land management practices are needed***
- ! **Lack of awareness - *general public is largely unaware of the importance of native mussels and factors that threaten native mussel survival***
- ! **Lack of support - *lack of public awareness translates into inadequate funding to achieve mussel conservation goals in a timely manner***

How must the Service adapt to these threats; who must take leadership roles?

- ! **Region 3 representatives must work with the U.S. Army Corps of Engineers on the Biological Opinion requirements for Higgins' eye and winged mapleleaf mussels**
- ! **Field office (Fisheries, Refuges, Ecological Services) staff must increase educational outreach activities to inform public how to prevent the spread of zebra mussels and other aquatic nuisance species to inland waters**
- ! **Fisheries staff and non-Service partners must continue to develop and refine mussel propagation techniques to aid in restoring endangered mussel species to portions of their historic range that are not infested with zebra mussels**
- ! **Fisheries staff and non-Service partners must initiate similar mussel propagation capabilities for state-listed species (and federal-listed threatened species) to prevent them from becoming a federal-listed endangered species**
- ! **In all of these cases, the Service should take a leadership role as the agency responsible for administering the Endangered Species Act and for conserving fish and wildlife; however, this is no small task and the Service must seek and acknowledge the assistance of qualified partners including the Corps of Engineers, U.S. Geological Survey, state natural resource agencies, and academia**

Future mussel conservation roles for the La Crosse FRO

- ! Maintain involvement in all existing mussel conservation projects**
- ! Continue to serve on Upper Mississippi River System native/zebra mussel task forces and committees**
- ! Continue to serve as a catalyst for project development and to serve as a liaison with existing and potential partners (both within and outside of the Service) to develop and submit new mussel conservation funding proposals**
- ! Conduct research to help identify a suitable fish host(s) for the winged mapleleaf**
- ! Develop an Internet webpage on native mussels that will emphasize the serious impacts of zebra mussels and the Service's Biological Opinion for the Higgins' eye and winged mapleleaf mussels**

What is the desired outcome of our collaborative conservation efforts, who will be the benefactors of successful conservation, and why?

- ! The desired outcome of our collaborative efforts is to develop techniques and implement procedures to prevent the extinction of two federally endangered mussel species, the Higgins' eye pearl mussel and the winged mapleleaf, by restoring their populations to levels adequate to permit de-listing.**
- ! The health and functioning of several river ecosystems in the region will benefit from the conservation of these mussel species by the maintenance or restoration of biological diversity and integrity.**
- ! The public will also benefit from the conservation of these mussel species by ensuring that current and future generations of Americans will have the opportunity to see and experience these members of our nations' most imperiled group of animals living in their natural environment.**

US Fish & Wildlife Service Timeline of UMR Mussel Conservation Milestones

