



U.S. Fish and Wildlife Service – Midwest Region Sea Lamprey Management Program

The Mission of the U.S. Fish & Wildlife Service is working with others to conserve, protect and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people.

Operation of the Pere Marquette River Electrical Barrier

The Pere Marquette River electrical sea lamprey barrier, located in Scottville, Michigan (pictured at right) has been used as an alternative control method to reduce sea lamprey populations in the river and Lake Michigan. The **U.S. Fish and Wildlife Service** (Service) has worked in partnership with the **Great Lakes Fishery Commission** (Commission) and the **Michigan Department of Natural Resources** (Department) to operate the barrier each year to block spawning-phase sea lamprey and collect fishery data in the river. An interagency **Barrier Task Force** makes recommendations to the Commission for operation and maintenance of all sea lamprey barriers in the Great Lakes, including the electrical barrier in the Pere Marquette River.



OPERATIONS (2000-2009): The Pere Marquette electrical barrier was first operated as an electrical field and fishway during 2000. The operating season for the barrier has varied over the years with startup occurring in March or April and ending in June or July. The barrier was not 100% effective in blocking sea lampreys due to sea lamprey migration prior to and after activation of the electrical field, and sporadic environmental and mechanical issues. Even with these issues, the barrier did reduce the upstream larval sea lamprey population compared to the pre-barrier time period (Figure 1). However, the river upstream of the barrier continued to require lampricide treatments to eliminate the remaining production of sea lampreys. In addition to the issues discussed above, the electrode bed and associated physical structures of the barrier have deteriorated during ten years of operation and would need to be replaced for continued use.

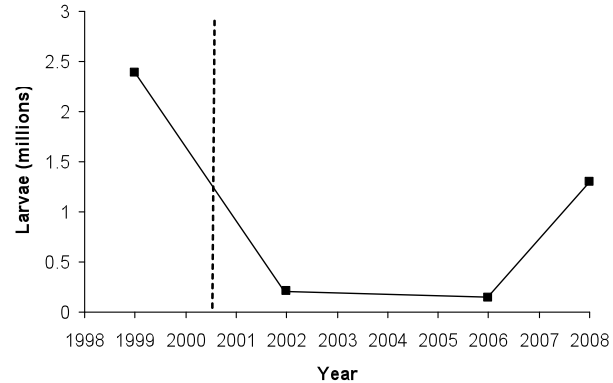


Figure 1. Sea lamprey larval population upstream of the Pere Marquette River electrical barrier from 1999 to 2008. Vertical dashed line indicates when the electrical barrier would have first affected larval estimates.

OPERATIONS 2010: Based on information available at the end of 2009, the Commission directed the control agents *“to develop and implement plans for termination of operation (of the Pere Marquette barrier) prior to the 2010 field season which include communication with the Michigan Department of Natural Resources and the public.”* This decision reflects the annual cost of operating the weir, its deteriorating condition, the high cost of reconstruction (more than \$500,000) and the barrier’s inconsistent effectiveness in controlling sea lampreys.

FUTURE CONTROL EFFORT: Lampricide applications will continue in the Pere Marquette River as the primary method for controlling sea lamprey populations.

Lampricide applications will be guided by the distribution, size and abundance of sea lamprey larvae in the system as revealed by routine field surveys. Assessment of spawning-phase sea lampreys and harvest of male sea lampreys for ongoing alternative control efforts (in the St. Marys River) will continue in the Pere Marquette River using other traps and nets placed at strategic locations during the spawning run. A detailed Sea Lamprey Management Plan is being formulated for Lake Michigan

(and each of the other Great Lakes) and should be completed by 2011. This plan will lay out a comprehensive strategy for controlling sea lampreys and the techniques that will be applied in the Pere Marquette River.



Sea lamprey mouth and wound

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