Aquatic Invasive Species Education Series 2012

Controlling Sea Lamprey in Lake Ontario Tributaries: A First for New York State

by New York Sea Grant Launch Steward Julia Gilbert

Example of a low head barrier. Photo: M. Siefkes, Great Lakes Fisheries Commission

In an effort to control sea lampreys, the Great Lakes Fisheries Commission constructed the first-ever fixed-crest, low-head barrier in New York. It is located in Orwell Brook, off Hog Back Road in the town of Altmar in Oswego County.

The barrier, on private land and not publicly accessible, is a concrete dam with a center slot seasonally blocked with aluminum stop blocks that create a 14-inch-high vertical barrier that sea lampreys cannot penetrate to reach upriver spawning areas. Atlantic salmon, steelhead, and other species, however, can jump over the barrier to get upstream.

In Lake Ontario, sea lampreys have been causing problems for not only host fish, i.e., the fish they prey on lake trout, whitefish and salmon, but for anglers of those prized sport fish. If you have ever been fishing in Lake Ontario and caught a beautiful brown trout with a red circle on its side, you have seen a sea lamprey wound.

The sea lamprey is a parasitic, slender fish native to the northern U.S. coastal regions along the Atlantic Ocean. According to New York Sea Grant "*Invasive Species of Lake Erie and Ontario*" fact sheet authors Helen Domske and Chuck O'Neill, it is believed construction of the Erie Canal in the mid-1800s made it possible for sea lamprey to travel from the Atlantic Ocean to the Great Lakes.

Sea lamprey attached to a fish. Photo: M.Gaden, Great Lakes Fisheries Commission

The statements and views expressed in this publication are those of the New York Sea Grant Launch Stewards who are student authors. Fall 2012

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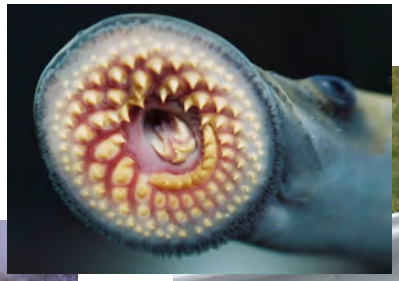
Right and clockwise: Sea lamprey mouth, wounded salmon; photos: M. Gaden, Great Lakes Fisheries Commission; adult and juvenile sea lamprey, photo: T. Lawrence, Great Lakes Fisheries Commission



Sea lampreys feed by latching onto host fish with suction mouths; their sharp teeth and toothed tongue bore a hole through the host fish's skin for sucking out the blood and other bodily fluids. Their saliva keeps the host fish's blood from clotting, preventing the wound from healing.

Studies by the New York State Department of Environmental Conservation (NYSDEC) on the Great Lakes have shown that an attack by a sea lamprey results in the death of six out of seven prey fish, directly from the loss of bodily fluids or from the secondary infection that occurs at the wound site. Other NYSDEC studies have shown that a single adult sea lamprey can kill up to 40 pounds of fish in one year.

Fish that survive attack are extremely weakened and more vulnerable to future attacks from other lamprey or capture by more powerful predators. Lampreys, according to the United States Geological Survey (USGS), are responsible for a rapid decline in the number of lake trout in the later 1940s and 1950s and a factor in the extinction of lake trout from Lake Ontario.

NYSDEC Great Lakes Fisheries Supervisor Steve LaPan, Cape Vincent Fisheries Station, says the new barrier at Orwell Brook "only operates as a dam when it is sea lamprey spawning season." When spawning season is complete for the lamprey, the stop blocks are removed which allows for relatively unhindered movement of aquatic organisms.

To learn more about sea lamprey control methods, including other types of barriers, traps, and the chemical compound 3-trifluoromethyl-4-nitrophenol (TFM), visit the Great Lakes Fisheries Commission Web site at www.glfc.org/sealamp/.

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