Could a lamprey attached to a fish in Black Lake be a sea lamprey?

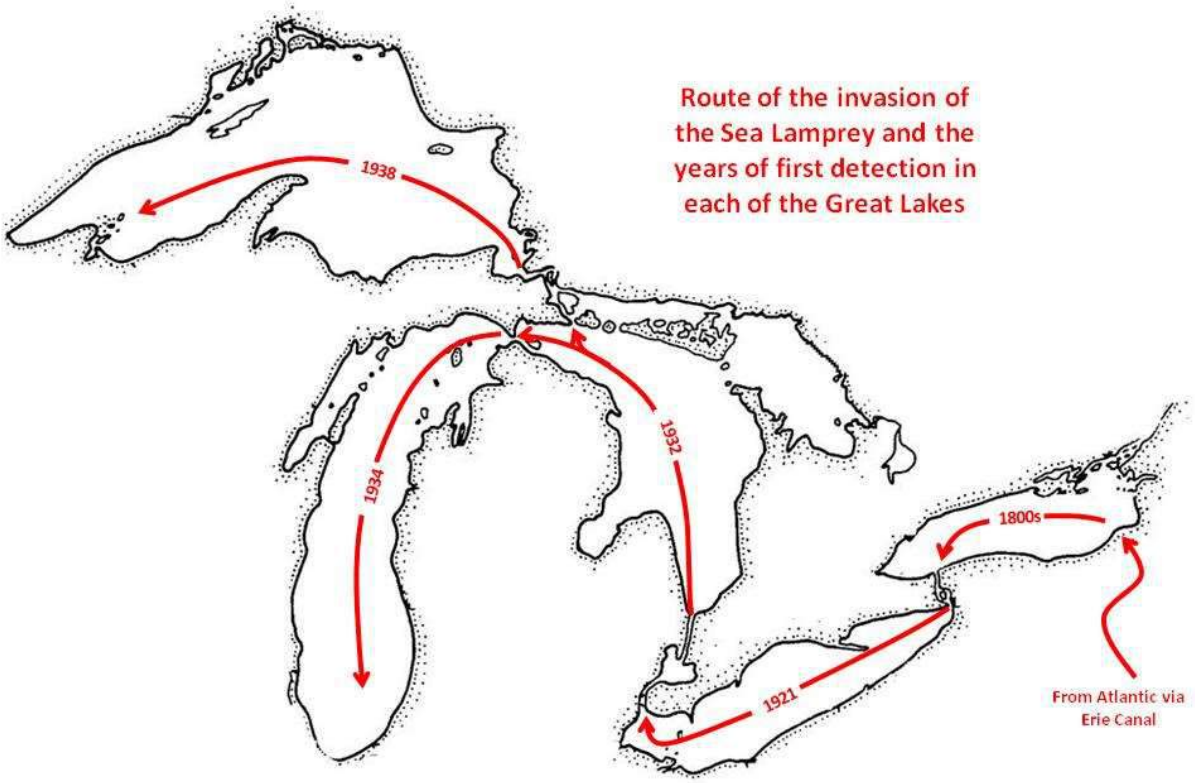
Introduction

Questions about lampreys and whether they are found in Black lake arise every year. If a lamprey is found, is it a native or the invasive and destructive sea lamprey? How did lampreys get here, and how can we tell them apart? What should we do if we find one?

Background

Lampreys are a group of ancient, jawless, cartilaginous fish that have changed little over the past 400 million years based on the fossil record. Lampreys, like other ancient fish such as sharks, lack bones and instead have a spine and other structures made of cartilage. Most notably, they lack a hinged jaw like modern fish and instead have a cartilaginous oral disc. Lampreys have a larval phase that is blind; the larvae live burrowed in stream sediments, harmlessly filter feeding for a number of years before metamorphosing to the juvenile or adult form. Some species have a parasitic juvenile phase while others mate and die soon after metamorphosis. There are 38 living species worldwide, but there are only four species of lampreys native to the Great Lakes: the chestnut, silver, American brook, and northern brook lampreys.

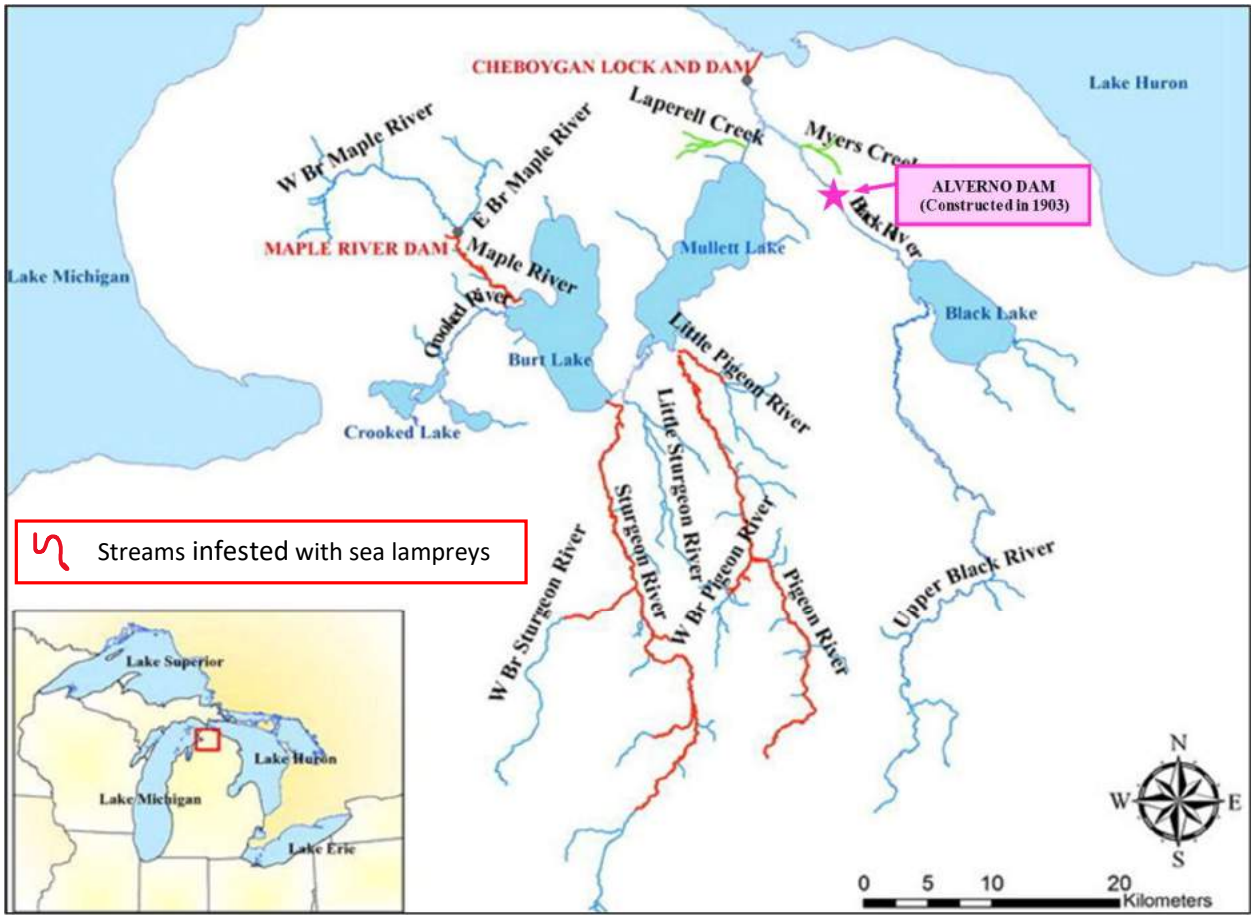
A fifth species in the Great Lakes is the invasive sea lamprey, whose native range is the North Atlantic and its tributaries in both North America and Europe. The sea lamprey most likely entered the Great Lakes through the Hudson River, moving into Lake Ontario after completion of the Erie Canal in the 1800s. Completion of the Welland Canal around Niagara Falls provided access to the rest of the Great Lakes. Once past Niagara Falls they spread rapidly, with sea lampreys observed across all of the Great Lakes by 1938.



Native Lampreys in Black Lake

Two native species are found in the Black River system: the silver lamprey and the American brook lamprey. Of those, only the silver lamprey has a parasitic phase and feeds on fish. Although it has a parasitic phase, the silver lamprey only reaches a foot in length at most and does not appear to cause much fish mortality. If you do much fishing in Black Lake, you will occasionally find a lamprey attached to a fish as you land it. That lamprey will almost certainly be a silver lamprey.

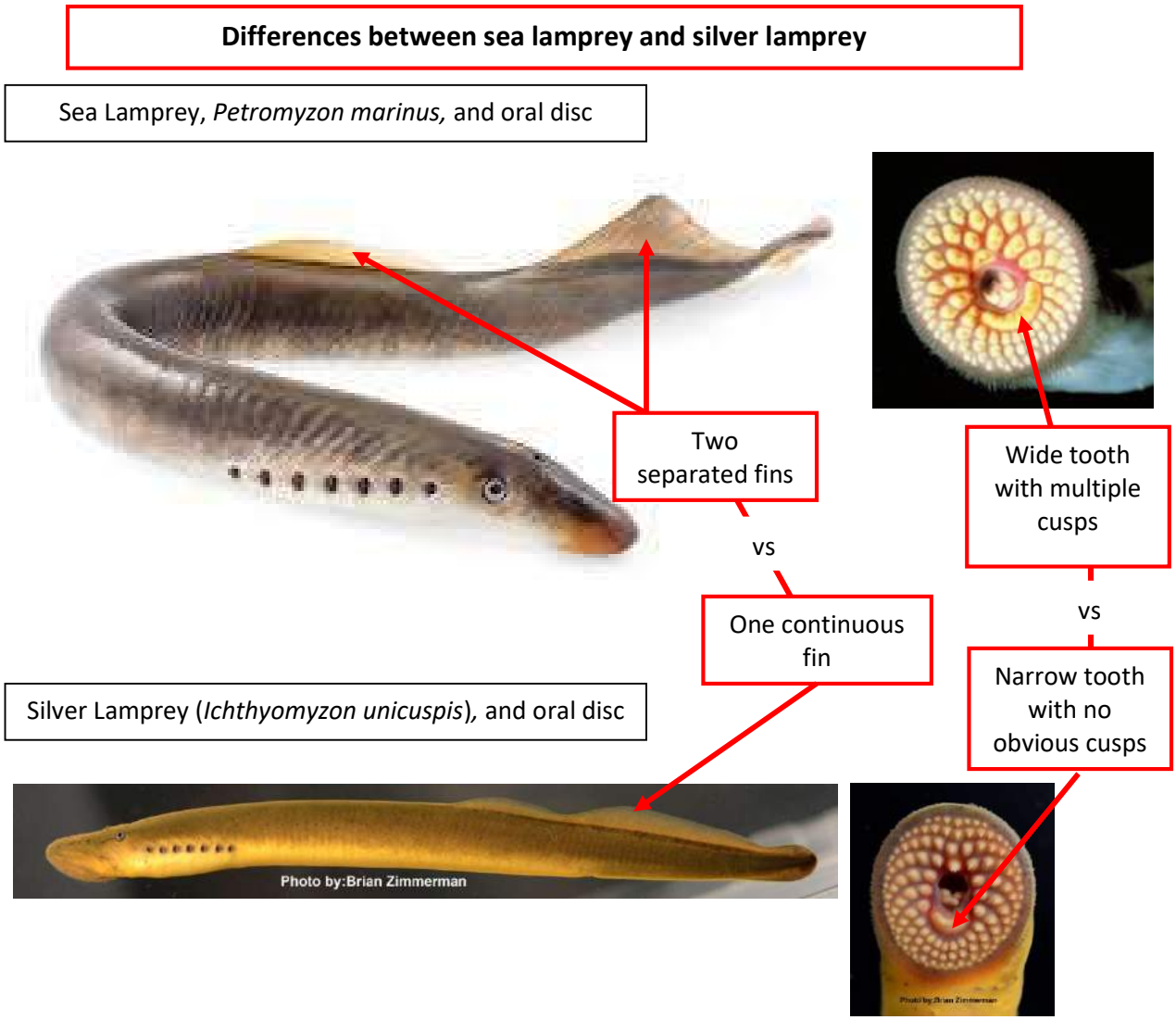
I know of no instances of a sea lamprey being found above the Alverno dam. The Alverno dam was constructed in 1903, long before sea lampreys were detected in Lake Huron (1932). However, the lock in Cheboygan, and possibly more porous earlier versions of the dam there, did allow sea lamprey into the Cheboygan River and ultimately into Mullett and Burt lakes and their tributaries, which require periodic treatment with lampricide. A recent telemetry study conducted at the lock and dam in Cheboygan by the Hammond Bay Biological Station suggested that movement upstream is either rare or not taking place. Follow-up studies showed that reproduction in Burt and Mullett tributaries is from a small landlocked population. The map below shows the location of the Alverno dam and the streams currently infested with sea lamprey larvae (in red). That landlocked population is currently being targeted with releases of sterilized males taken from Lake Huron tributaries with the potential for eradication there.



Differences between sea lamprey and silver lamprey

If a sea lamprey were found in Black Lake, that would be a very important observation and should be reported. The sea lamprey and silver lamprey appear somewhat similar but can be easily distinguished by two key features.

- The sea lamprey has two distinct and separate dorsal fins, while the silver lamprey has one continuous fin.
- The oral discs also have an obvious difference. Just below the tongue in the center is a wide crescent-shaped tooth. On the sea lamprey, that tooth is wide with multiple cusps; on the silver lamprey, it is much narrower with no obvious cusps.



What to do if you think you have a sea lamprey

Should you collect a lamprey that you believe is a sea lamprey, please keep and freeze it. Call Roger Bergstedt on the lake at 989-733-8337 or Nick Johnson at the Hammond Bay Biological Station at 989-734-4768.

For additional information see:

Sorensen, P. W., and R. A. Bergstedt. 2010. Sea lamprey. Pages 619–623 in D. Simberloff and M. Rejmánek, editors. Encyclopedia of Invasive Introduced Species. University of California Press, Berkley.

Article written by Roger Bergstedt, former Research Fishery Biologist and Station Chief at the Hammond Bay Biological Station, United States Geological Survey.