



Sea Lamprey — A Great Lakes Invader

Sea lampreys (*Petromyzon marinus*) attach themselves to gamefish, and are so destructive that under some conditions only one of seven fish attacked by a sea lamprey will survive.



The sea lamprey is a marine invader from the Atlantic Ocean that entered the Great Lakes through the ship canals and locks built to bypass obstacles like Niagara Falls. An unintended consequence of these canals has been the introduction of invasive species. The sea lamprey was one of the first to invade the Great Lakes. Sea lampreys are a primitive, jawless fish native to the Atlantic Ocean. Although sea lampreys resemble eels, lampreys do not have jaws and possess only cartilage. Lampreys have a large sucking disk for a mouth and a well developed sense of smell. The mouth is filled with sharp teeth that surround a file-like tongue. These fish first appeared in Lake Ontario in the 1830's through manmade locks and ship canals. After improvements to the Welland Canal in 1919, lampreys spread into Lake Erie and eventually spread throughout all of the Great Lakes. Today, they are visible in all five of the Great Lakes and cause severe damage to lake trout and other critical fish. Sea lampreys attach to fish with their sucking disk and sharp teeth. They attach to their prey and suck out the

fish's body fluids, often killing the fish. In fact, under some conditions, only one out of every seven fish attacked by a sea lamprey will survive. In this way, lampreys have had an enormous negative impact on Great Lakes fishery.

Sea lampreys were a major cause of the collapse of lake trout, whitefish and chub populations in the Great Lakes during the 1940's and 1950's. Today, lamprey consumption of host blood, primarily from lake trout in the Great Lakes, and the resulting lamprey growth are highest in early autumn due to temperature changes and appetite growth of the lamprey. Our research suggests that lake trout mortality is proportional to the number of observed sea lamprey marks. Therefore, it is evident that the sea lamprey has had a profound effect on the population and lifespan of Great Lakes fish.

Studying exotic fish such as sea lamprey helps us to understand the decline of the lake trout, a previously abundant fish. Before the emergence of the lamprey in the Great Lakes, the U.S. and Canadian harvests were at 15 million pounds of lake trout per year. Within 20 years this abundance fell to a record low. During the time of highest sea lamprey abundance, up to 85% of large Great Lakes fish exhibited sea lamprey wounds.

Sea lamprey build nests, lay eggs and hatch in gravel areas of tributary streams. A chemical called TFM was developed in the 1950's and has been relatively successful in reducing the numbers of sea lamprey by killing the young lamprey in the streams where they hatch. Of the 5,747 stream and tributaries of the Great Lakes, 433 are known to produce sea lampreys and about 250 are treated on a regular cycle. The Great Lakes Science Center's, Hammond Bay Biological Station in Millersburg, Michigan treats approximately 60-70 streams a year for sea lamprey with the hope of controlling this exotic species and protecting our native lake trout.

