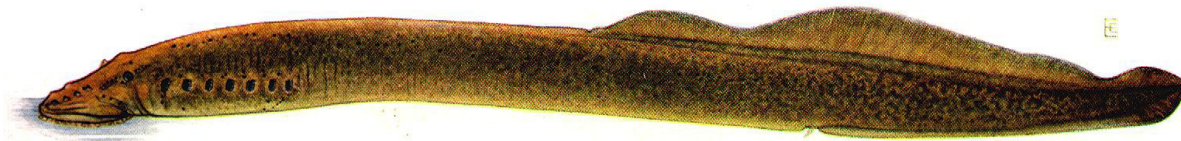


Aquatic Species at Risk



The Silver Lamprey (Great Lakes - Upper St. Lawrence populations)... a *Species at Risk* in Canada

COSEWIC Status - SPECIAL CONCERN May 2011
SARA Status - UNDER CONSIDERATION



Ichthyomyzon unicuspis
Illustration © E. Edmondson, NYSDEC

The Silver Lamprey (Great Lakes - Upper St. Lawrence population) has been identified by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as a species of Special Concern. It is currently being considered

for listing under the federal *Species at Risk Act*. Federally, protection is currently afforded through the *Fisheries Act*. If listed under the *Species at Risk Act*, a management plan must be developed for this species.

General description

The Silver Lamprey is one of eleven species of lamprey in Canada. There are two separately recognized populations of Silver Lamprey in Canada: i) the Great Lakes - Upper St. Lawrence populations; and ii) the Saskatchewan - Nelson River populations. The Silver Lamprey has the following characteristics:

- Jawless, eel-shaped fish with a sucking disc mouth and lack of paired fins;
- Seven pairs of gill openings;
- Newly metamorphosed juveniles may be as small as 9 cm; while spawning-sized adults range between 31 and 39 cm in length;
- Prior to spawning, adults exhibit a light yellow-tan colour on the ventral side (under side), that darkens into blue or blue-gray towards the dorsal side (back side);
- Larvae appear wormlike, and do not have eyes or teeth. Rather than a disc mouth, they have an oral hood; and,
- Lifespan ranges from six to eight years, with most of its life spent as larvae; adults die shortly after spawning.



Fisheries and Oceans
Canada

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Canada

Canada

Distribution

Silver Lamprey are found in fresh waters in eastern North America, with a range extending from Manitoba to Tennessee in the west, and from Quebec and Vermont in the east. In Canada, it is separated into two populations: the Great Lakes and Upper St. Lawrence populations; and the Saskatchewan-Nelson River populations. Silver Lamprey from the Great Lakes and Upper St. Lawrence population have been documented in 41 streams and nine lakes including Lake Ontario, Lake Huron, Lake Superior, Lake Erie, Lake St. Clair, Lake Nipissing, Lake Champlain, Lac St. Pierre and Lac St. Louis.

Habitat and life history

Silver Lamprey spawn in rivers and streams and require unrestricted migration to spawning habitat. Spawning habitat includes gravel and sand for building nests, clean fast-flowing water, and a small amount of silt-free sand or other materials on which the eggs can adhere. Spawning occurs only once in a lifetime and the adults die shortly afterward. Silver Lamprey eggs hatch after two to three weeks following fertilization and enter a larval stage. During this life stage, the worm-like larvae (called ammocoetes) drift downstream and burrow into soft sediments made of sand, silt and organic debris where they remain for four to seven years. At the end of this period, larvae undergo metamorphosis into their juvenile form, characterized by enlargement of the tail and dorsal fins, and development of eyes and a sucker disc lined with sharp teeth. The newly transformed juveniles migrate downstream into lakes or rivers in order to locate fish hosts on which to feed for one to two years before returning to streams to spawn.

Diet

During its larval stage, Silver Lamprey feed on organic matter that they filter out of the overlying water column, comprised mainly of algae, pollen, diatoms, protozoans and organic biofilm. Upon entering a large body of water, the juvenile Silver Lamprey becomes parasitic and is able to use its mouth to suction directly onto other fishes. Using its sharp teeth and tongue, it is able to abrade through the scales and skin of the host fish to feed on flesh and body fluids. A wide variety of fishes are used as hosts, but several studies have suggested that injuries resulting from the Silver Lamprey attacks are not fatal to the majority of fish hosts.

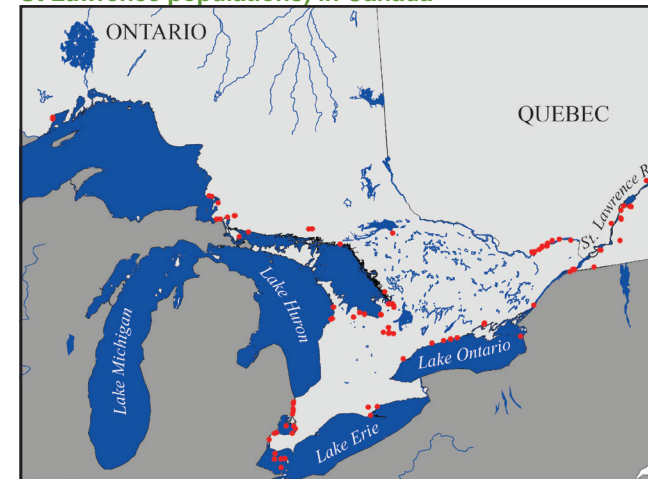
Threats

Threats to the Silver Lamprey include methods used to control the invasive Sea Lamprey in the Great Lakes (i.e. the application of lampricides and the construction of low head barriers to block spawning migrations), pollution, habitat alteration, dam construction, siltation, water fluctuations, and competition from other species. While most of these threats occur broadly across the Silver Lamprey's range, Sea Lamprey control impacts are limited to Silver Lamprey nursery streams in the Great Lakes that receive lampricide treatments or have Sea Lamprey barriers. Lampricide treatments are not conducted in the Huron-Erie corridor or outside the Great Lakes Basin (i.e. Quebec and St. Lawrence River).

Similar species

In the larval form, the Chestnut Lamprey (*I. castaneus*) and Northern Brook Lamprey (*I. fossor*) are indistinguishable from the Silver Lamprey. As adults, the Northern Brook

Distribution of Silver Lamprey (Great Lakes - Upper St Lawrence populations) in Canada



Lamprey is the most similar in appearance; however, the Northern Brook Lamprey is half the length of the Silver Lamprey, has less prominent teeth, and is not parasitic.

Text Sources: COSEWIC Status Report on the Silver Lamprey, *Ichthyomyzon unicuspis* in Canada. 2011; Scott, W. B., and E. J. Crossman. 1973. Freshwater fishes of Canada. Fisheries Research Board of Canada Bulletin 184; Renaud, C.B., Docker, M.F., and Mandrak, N.E. 2009. Taxonomy, Distribution and Conservation of lampreys in Canada. American Fisheries Society Symposium 72:293–309.

For more information, visit the SARA Registry at www.SARAreistry.gc.ca or the website below.

Cette publication est également disponible en français.

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www.aquaticspeciesatrisk.gc.ca

Section 32 (1) of the Species at Risk Act (SARA) states that “no person shall kill, harm or harass, capture or take an individual of a wildlife species that is listed as an extirpated species, an endangered species or a threatened species.”