

Aquatic Species at Risk



The Northern Brook Lamprey (Great Lakes - Upper St. Lawrence) a *Species at Risk* in Ontario

COSEWIC Status – SPECIAL CONCERN April 2007

SARA Status – SPECIAL CONCERN March 2009



Ichthyomyzon fossor
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The Great Lakes - Upper St. Lawrence populations of this species have been identified as Special Concern by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). It is listed under the federal *Species at Risk Act* (SARA) and was afforded

protection under SARA as of March 2009. Additional protection is afforded through the federal *Fisheries Act*. Under SARA, a management plan must be developed for this species.

General Description

The Northern Brook Lamprey (*Ichthyomyzon fossor*) is a non-parasitic species in the genus *Ichthyomyzon*. It can be distinguished from other lamprey species within its Canadian range by its comparatively small size, single dorsal fin and its unique teeth patterns. It is a member of the family Petromyzontidae and has the following characteristics:

- Eel-like appearance with smooth, scale-less skin;
- Small eyes;
- Teeth are small and knob-like; endolateral teeth are unicuspid;
- Single, continuous dorsal fin;
- Seven pairs of gill openings;
- Adults are dark greyish brown on the back and sides, pale grey or silvery white on the belly;
- Post-spawning colouration becomes slate blue to black on the back and sides, and white or whitish grey on the belly;
- Pre-spawning females may have an orange-tinted belly, through which the eggs may be visible; and
- Adults can reach 160 mm in length; average length from the Great Lakes is 127 mm.



Distribution

In the United States, the distribution of the Northern Brook Lamprey includes Illinois, Indiana, Kentucky, Michigan, Missouri, New York, Ohio, Pennsylvania, West Virginia, and Wisconsin. In Canada, this fish occurs in Ontario, southwestern Quebec and southeastern Manitoba, a distribution that comprises two freshwater biogeographic areas: Great Lakes - Upper St. Lawrence and Saskatchewan - Nelson. Specimens have been found in tributaries to lakes Nipissing, Superior, Huron, and Erie, as well as in the Winnipeg, Ottawa and St. Lawrence rivers. The distribution of four other lamprey species overlaps with the Northern Brook Lamprey in Canada.

Habitat and Life History

The Northern Brook Lamprey is a freshwater fish that is found in clear streams of varying sizes. It has two stages of development: larval and adult. Once hatched, larvae (ammocoetes) drift downstream where they burrow in soft substrate. Larvae do not have eyes or teeth and, instead of a sucker mouth, they have an oral hood. They live for up to seven years burrowed in the sediment, eventually metamorphosing into juveniles, which emerge, attach to the stream bottom and swim periodically. During transformation to juveniles, the oral hood becomes a buccal mouth with teeth. Adults live for only four to six months before spawning and dying. Spawning habitat usually includes a swift current and coarse gravel

or rocky substrate, with which males construct inconspicuous nests.

Diet

The larval fish are filter-feeders, consuming organic detritus, algae, protozoans, bacteria and pollen. Adults do not have a functional alimentary canal and do not feed during their short adult life.

Threats

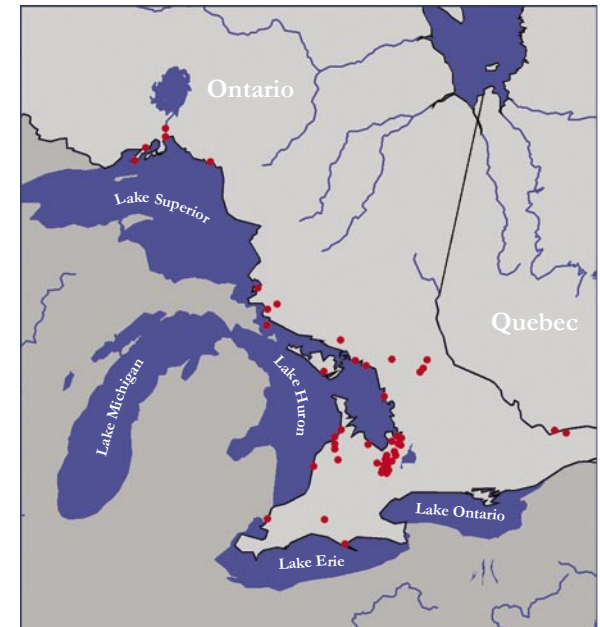
The use of lampricide for the control of the invasive Sea Lamprey (*Petromyzon marinus*) has resulted in reductions in Northern Brook Lamprey populations around the Great Lakes where the two fishes coexist. Additional threats to the Northern Brook Lamprey include pollution and changes in water levels and temperature.

Similar Species

The Sea Lamprey and American Brook Lamprey (*Lampetra appendix*) are distinguished from the Northern Brook Lamprey by their two dorsal fins. The adult Chestnut Lamprey (*Ichthyomyzon castaneus*) and Silver Lamprey (*I. unicuspis*) are distinguishable by their sharper and longer teeth.

Text Sources: COSEWIC Status Report 2007.

NORTHERN BROOK LAMPREY DISTRIBUTION - Ontario



For more information, visit the SARA Registry website at www.SARAregistry.gc.ca and the Fisheries and Oceans Canada (DFO) website noted below.

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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, harass, capture or take an individual of a wildlife species that is listed as an extirpated species, an endangered species or a threatened species.”