Natural Heritage & Endangered Species Program

www.mass.gov/nhesp

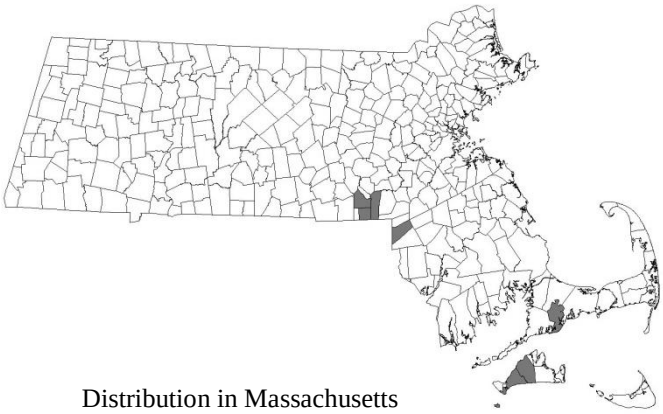
Massachusetts Division of Fisheries & Wildlife

American Brook Lamprey
Lethenteron appendix

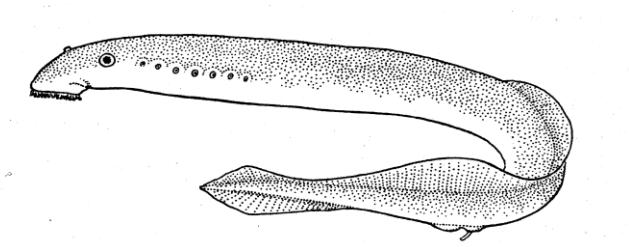
State Status: **Threatened**
Federal Status: **None**

DESCRIPTION: American Brook Lampreys are primitive eel-like fish that lack jaws, scales, paired fins, and bone. They have cartilaginous skeletons, one nostril between the eyes, seven pairs of pore-like gill openings, and seldom grow as large as 8 inches. Larval lampreys have eye spots that can only detect light and dark. As adults they have true functioning eyes. Larvae can be distinguished by the lack of pigment on the lower half of the oral hood (fleshy hood around mouth) and around the gills. After larvae metamorphose into adults, they have a circular mouth or oral disc with horny teeth and the eyes become prominent.

SIMILAR SPECIES: The only other lamprey species in Massachusetts is the sea lamprey (*Petromyzon marinus*). Sea lamprey larvae have pigment on much of the oral hood and around the gills. They can be difficult to distinguish as larvae. As adults, sea lampreys can reach up to 600 mm, whereas the American Brook Lampreys only reach 200 mm in length.



Distribution in Massachusetts
1983-current
Based on records in
Natural Heritage Database



Drawing by Laszlo Meszoly, from Hartel et al. 2002. Inland Fishes of Massachusetts.

HABITAT: American Brook Lampreys live in clear, cool streams. Adults spawn in pea gravel substrates. Larvae live in areas with substrates consisting of fine sand and muck, often in backwaters or stream margins. There are currently twelve known American Brook Lamprey populations in Massachusetts.

THREATS: Lampreys are vulnerable to sedimentation, water temperature increases, pollutants, and extreme water level changes.

LIFE HISTORY: American Brook Lampreys have an interesting life history. They can live for four to six years. The first three to five years are spent as larvae, generally referred to as ammocoetes. At this stage they live in burrows in sandy, mucky substrates and filter feed on organic detritus. They are blind, toothless, and have a fleshy hood around their mouth used for filter-feeding. When they reach a length of around 120 mm, they begin to metamorphose at which point they stop feeding. This generally begins in the fall or winter and is completed by the spring spawning season. During this metamorphosis, lampreys change in a few key ways: 1) they become sexually mature; 2) their eyes become truly functional; and 3) their mouths change from filter-feeding mechanisms to round, suction disks with horny teeth called an oral disk.

A Species of Greatest Conservation Need in the Massachusetts State Wildlife Action Plan

Massachusetts Division of Fisheries & Wildlife

1 Rabbit Hill Rd., Westborough, MA; tel: 508-389-6300; fax: 508-389-7890; www.mass.gov/dfw

American Brook Lampreys spawn from mid-April to early May. Males begin the construction of nests, creating a shallow depression in pea gravel substrates by moving rocks with their oral disk. Multiple individuals, both males and females, are often found in one nest and they all aid in nest construction after the initiation by the male. During copulation, females suck onto the bottom of the nest and the male attaches onto her head, both using their oral disks. As the sticky eggs are released, sand is kicked up, helping to cement the eggs in the nest. The adults die after spawning is completed. When ammocoetes hatch, they swim out of the gravel nest and drift downstream until the water flows slow down. Then they head to the stream bottom and burrow into soft substrates.

Breeding Season

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Updated 2015

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