



The Land Between

Cottage Country's Conservation Organization

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AMERICAN EEL

MANAGING MAJESTIC MANNA



American Eel (*Anguilla rostrata*): Managing Majestic Manna

The American eel is found in coastal fresh and marine waters stretching from Greenland along the east coast of North America to northern South America. Eels have a complex life cycle (Fig. 1). Originating from a single breeding population that spawns in the Sargasso Sea in the Atlantic Ocean, young eels drift from there with ocean currents eventually moving inland into fresh-water rivers, streams, and lakes. This journey may take many years, with some eels travelling as far as 6,000 kilometres to reach the extremities of its range in Ontario water bodies. After reaching fresh water, they feed and mature for 4 to 20 years before migrating back to the Sargasso Sea to spawn.

Eels in Ontario are exclusively female, the largest and most fecund (egg-laden) in the entire range.

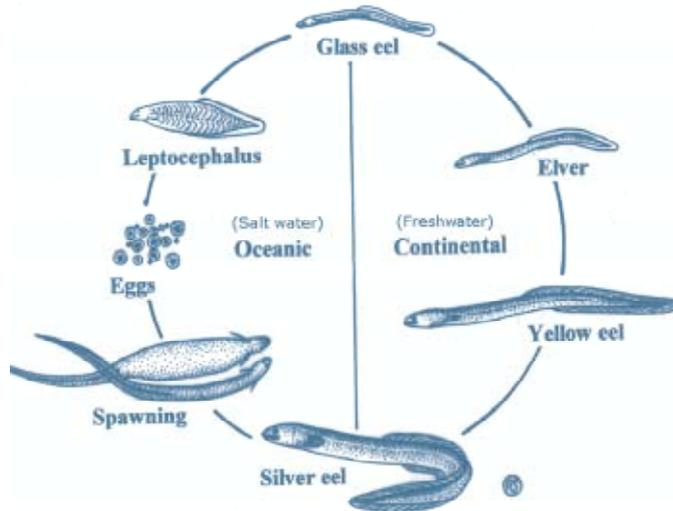


Figure 1. Life cycle of the American eel (OMNR, 2007)

It has long been recognized that the St. Lawrence River eel fisheries were among the most productive in the world and that eels produced in Ontario waters contributed significantly to these fisheries. For instance, in a Jesuit Relation of 1634, the following was written noting the important contribution of eels from what today would be termed Ontario

waters, to the important Quebec eel fisheries of the St. Lawrence River:

“It is thought that this great abundance is supplied by some lakes in the country farther north, which, discharging their waters here, makes us a present of this manna that nourishes us ...”

Today it is recognized that eels produced in Ontario and the St. Lawrence River watersheds contribute substantially to the global population.

Unfortunately, this unique and historically important species has declined dramatically within Ontario. The declines began first in our inland watersheds, including the Ottawa River and Trent River/Kawartha Lakes. Because of their long, complicated life cycle the declines occurred slowly, almost imperceptibly over many decades and generations until their abundance was reduced to mere relict representations.

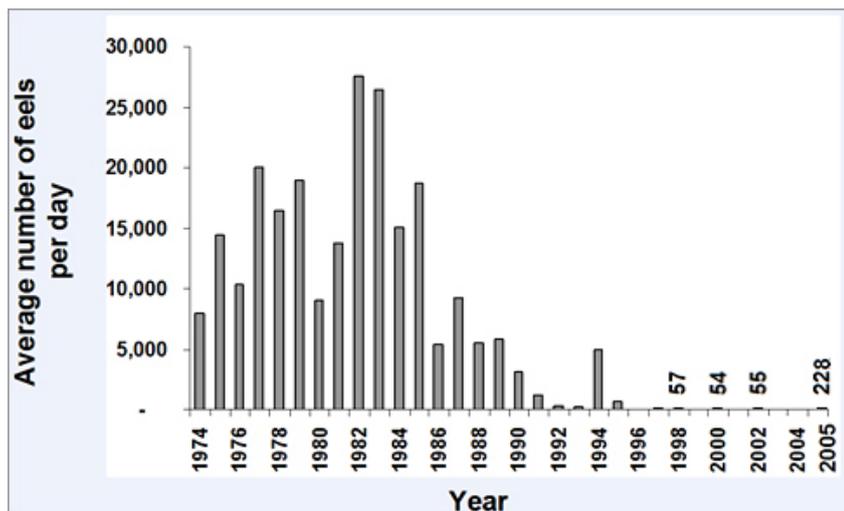
Over recent years the population has fallen precipitously in upper St. Lawrence River and Lake Ontario; the last vestige of abundance for the species in the province. Here the number of young American eels entering these waters has dropped by 99% in comparison with the early 1980s.

The American eel formerly was innumerable throughout the St. Lawrence River and Lake Ontario watershed, having a long history as an important food and commercial fish for Aboriginal peoples, early European settlers and current residents. The species once penetrated deep inland into Ontario tributaries as far north as Lake Timiskaming and its northern tributaries, west into the waters of Algonquin Park and Mazinaw Lake, and well into the Kawartha Lakes. Eels were a well-documented and highly valued resource for Aboriginal peoples in this area, a fact well supported by archaeological evidence extending back 4000 years.

During the 1980s to early 1990s, eels were one of the three most important commercial harvested from Lake Ontario, at times amounting to 50% of the landed value of all species harvested from these waters.

Figure 2. Average number of eels ascending the eel ladder per day, over a 31-day period for each year from 1974 to 2004. The ladder is located at the R.H. Saunders Hydroelectric Dam, in Cornwall, Ontario.

Note: no data are available for 1996.
Source: MNR 2007



In recent years, eel recruitment to Ontario has declined precipitously (Figure 2). The commercial and recreational fisheries in Ontario were closed in 2004 and 2005 respectively. The species is approaching extirpation in most

Ontario watersheds and is now listed as “endangered” provincially under Ontario’s new Endangered Species Act. It is expected that eel abundance will remain low in Lake Ontario for at least the next several decades. Recovery in inland waters of Ontario will take longer.

The long life span and vast migration of American eel, makes them susceptible to a wide range of factors. In the course of completing their life history eels must run a gauntlet of threats, including:

- mortality in turbines at hydroelectric facilities during downstream migration to the oceanic spawning grounds
- physical barriers, such as hydro dams, blocking migration, excluding them from important freshwater habitats
- exploitation by fisheries
- habitat and environmental alterations including changes in freshwater and oceanic conditions
- contaminants and pollutants affecting fertility and survival
- invasive species and diseases, including parasitic bladder worm from Europe now found in eels in parts of the U.S. and Canadian Maritime provinces

The aforementioned effects accumulate across the range, having substantial a impact on the single spawning population.

Ensuring the long-term sustainability of the American eel population is highly complex and requires significant international and multi-jurisdictional coordination.

Some measures currently underway across North America include identifying recovery actions; reducing or eliminating harvests; improving passage downstream around hydro-electric facilities; installing eel ladders to improve upstream passage at dams; and stocking in the St. Lawrence River, Lake Ontario and Lake Champlain.

The American eel is a highly unique species integral to our biodiversity, and a special part of our natural heritage. Our latitudes host eels that are entirely female, the largest and most fecund in the species range. This leaves us in the Land Between with the responsibility to help steward a significant segment of the entire species, fundamental to its future status.:

As eels are now extremely rare in many waters, it is difficult to capture them in routine fisheries assessment programs. If you encounter an eel, your report of the date, location and approximate size to the Land Between or Ontario Ministry of Natural Resources would be greatly appreciated and important in planning future recovery actions.

Reports can be made verbally or via email to:

Alastair Mathers, Ontario Ministry of Natural Resources

alastair.mathers@ontario.ca 613-476- 8733

Or to the Land Between at: tlb@thelandbetween.ca; 705-457-4838

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