

Anguilla rostrata (American Eel)

Family: Anguillidae (True Eels)

Order: Anguilliformes (True Eels and Morays)

Class: Actinopterygii (Ray-finned Fish)



Fig. 1. American eel, *Anguilla rostrata*.

[animaldiversity.org/accounts/Anguilla_rostrata/pictures, downloaded 9 March 2016]

TRAITS. The American eel can grow to 1.22m in length and 7.5kg in weight. The eels are snake-like fish with elongated bodies. The female eels are usually bigger than the males and lighter pigmented in skin colour. The eel scales are very small and cycloid (rounded) and are embedded in the epidermis of their skin. The eels have well developed eyes that are present on their long conical head (Fig. 1). One small gill opening is present at the base of each pectoral fin (Page and Burr, 1991).

DISTRIBUTION. *Anguilla rostrata* is classified as a catadromous species, migrating from fresh to salt water. The eel is known for spawning in the Atlantic Ocean and the juveniles swim upstream in rivers and streams in North and South America. Adults are commonly found lower down rivers near the sea rather than in far inland streams because it allows easy access back to the ocean. The eel is native to North America, Central America, northern parts of South America, Trinidad and Tobago, and most of the Caribbean (Fig. 2).

HABITAT AND ACTIVITY. The American eel, like other eel species, are bottom dwellers. The eel hunts during the night and hides itself in crevices, burrows and tubes during the day. During their freshwater phase the eels can be found in rivers, streams and lakes where they can shelter or bury themselves during the day and where food is present at night. The saltwater phase of their lives is spent near the river openings so they can easily swim upstream. The temperature requirement for the eel is flexible as the eel has been found at varying temperatures from 3-31°C (Landau, 1992).

FOOD AND FEEDING. Eels are nocturnal; they have an excellent sense of smell as they mostly depend on this sense to find food. *Anguilla rostrata* feeding habits are dependent on their level of maturity. The larval eels mostly eat phytoplankton on their journey to the coastal waters. As they develop into elvers (juvenile eels) their diet is mostly based on dead fish, aquatic insects, crabs, shrimp and crayfish (Landau, 1992). The adult eels use a method known as rotational feeding to rip pieces off the prey by twisting their body and spinning to generate a strong force.

POPULATION ECOLOGY. *Anguilla rostrata* can be found in large groups when juvenile. The eels use marine habitats throughout different phases of their life cycle. Leptocephali (larval eels), drift according to the prevailing currents which lead them to continental coasts of the ocean. The leptocephalus develops into the glass eel. The glass eel eventually develops into an elver which is a small version of the yellow eel. The yellow eels are nocturnal, and migrate approximately 10-15 km per night. They show a high tolerance to varying temperature and salinity during this migration. The yellow *Anguilla rostrata* spends 3-30 years inland becoming mature, entering the silver phase. The silver eels migrate from the freshwater rivers and streams to the open ocean.

REPRODUCTION. The sexually mature adults swim to the ocean where they would spawn (Fig. 3). The eels can live in freshwater for approximately 20 years, after which they leave to spawn at sea, and after spawning they die. The male eel would release his sperm in the vicinity of approximately four million eggs produced by the female, allowing them to become fertilized.

BEHAVIOUR. The leptocephalus larvae move to the coastal areas after being hatched, this process can take up to 18 months, after this they develop into carnivores and are referred to as elvers. All stages after the larvae are nocturnal avid feeders and excellent swimmers. The American eel are capable of respiring through their skin which allows them to be able to survive for several hours outside of water. Their skin is covered with a thick layer of protective slime which makes it difficult for them to be caught by predators.

APPLIED ECOLOGY. *Anguilla rostrata* is considered to be an endangered species on the IUCN Red List of Threatened Species website (Jacoby et al., 2014). The eels are exposed to different threats some of which are: (a) the bioaccumulation of contaminants (b) vulnerability of life stages (c) climate change. In 2003 the Quebec Declaration of Concern initiated conservation to restore the *Anguilla* eel population, at the American Fisheries Society 2003 International Eel Symposium. The commercial harvesting of eels has been and continues to be a great threat to the population.

REFERENCES

Jacoby, D., Casselman, J., DeLucia, M., Hammerson, G.A. & Gollock, M. 2014. *Anguilla rostrata*. The IUCN Red List of Threatened Species 2014: e.T191108A72965914.<http://dx.doi.org/10.2305/IUCN.UK.2014-3.RLTS.T191108A72965914.en>. Downloaded on 09 March 2016.

Landau, M. (1992). *Introduction to Aquaculture*. New York: John Wiley & Sons Inc.

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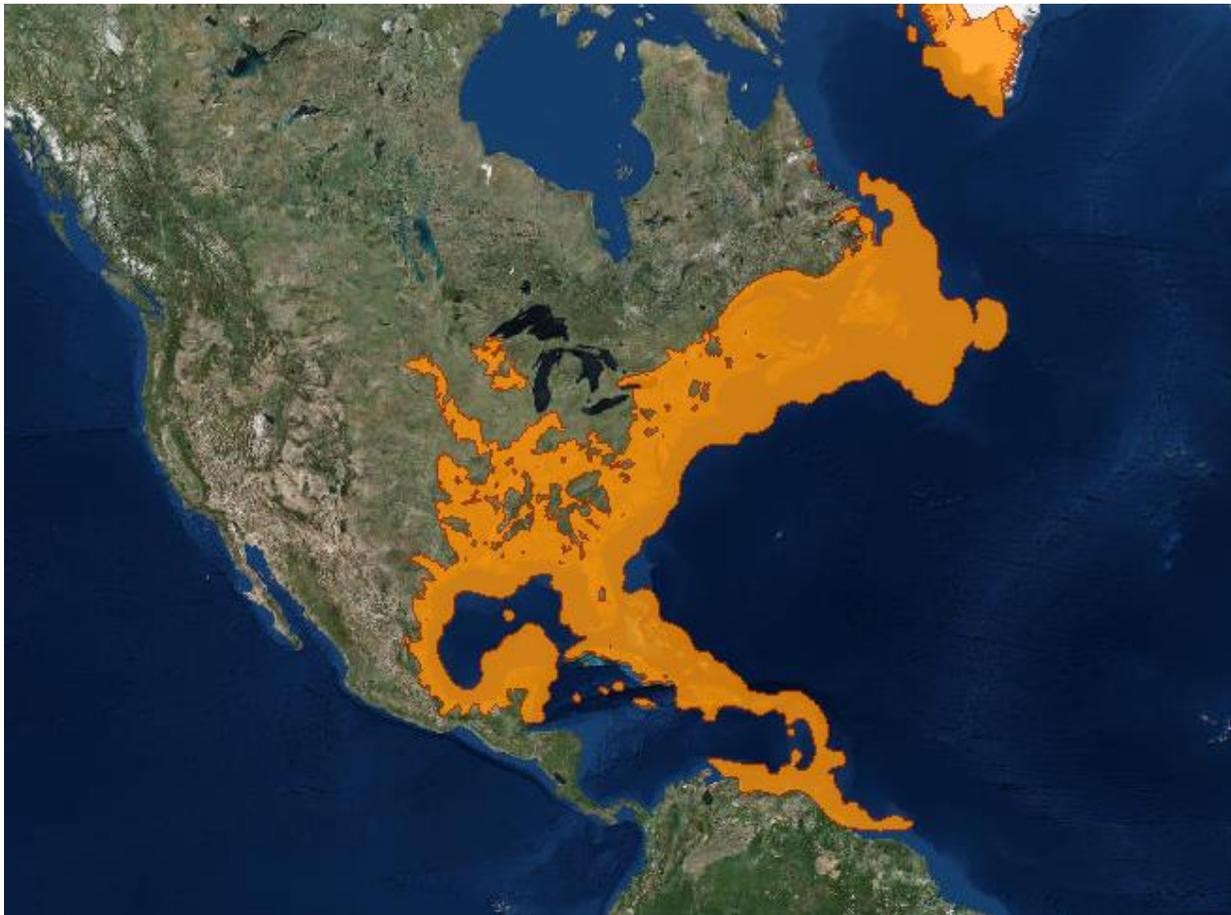


Fig. 2. Geographic distribution of *Anguilla rostrata*.

[<http://maps.iucnredlist.org/map.html?id=191108>, downloaded 9 March 2016]

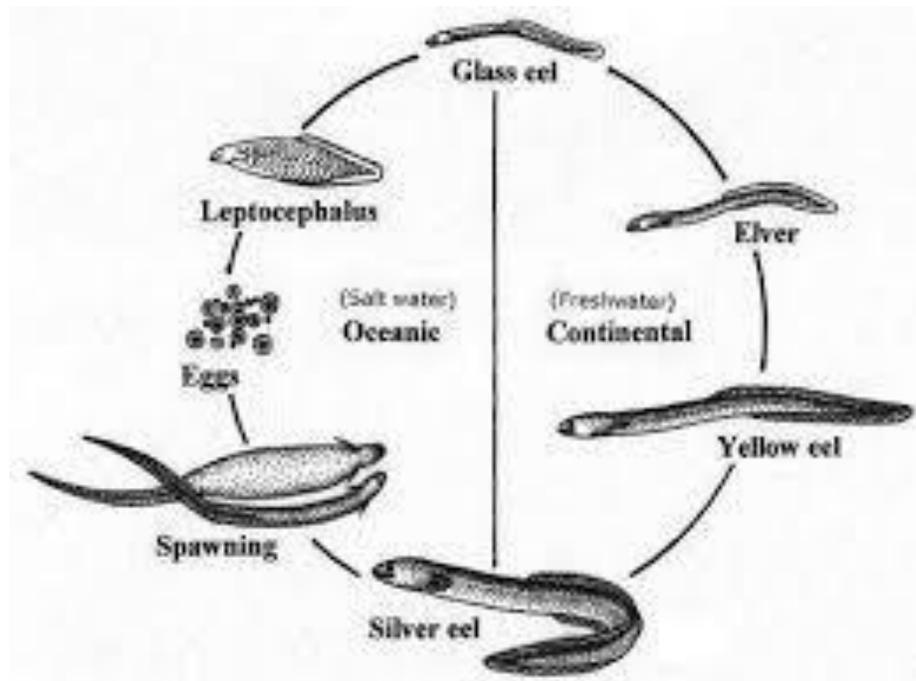


Fig. 3. Life cycle of *Anguilla* eels.

[<http://britishseafishing.co.uk/silver-eel/>, downloaded 9 March 2016]

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