



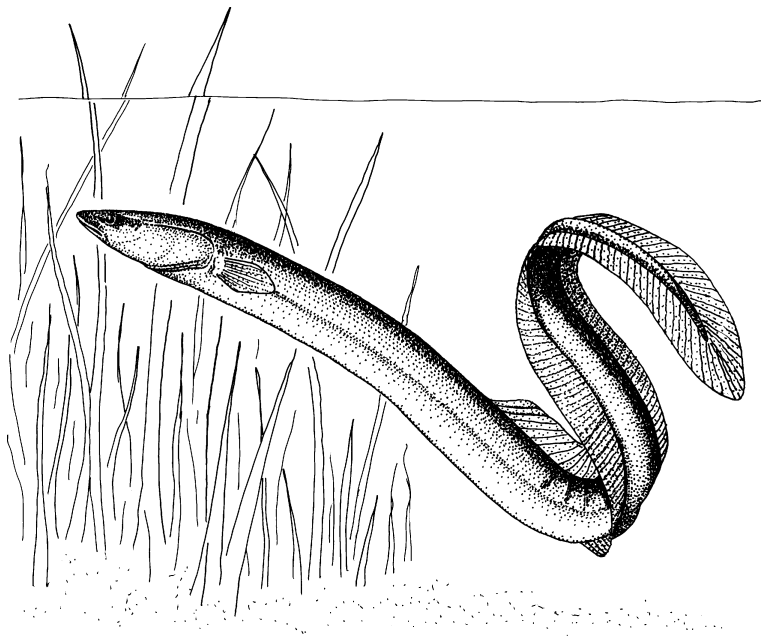
American Eel

Anguilla rostrata

The American eel belongs to a diverse group of fish that includes more than 400 species belonging to about 20 families. Eels within these groups can be found in habitats ranging from coral reefs to deep sea to freshwater lakes and streams. The life cycle of the American eel is complex, and the location of its spawning grounds remained a mystery for a long time. Unlike striped bass, which are *anadromous* and live in the ocean and return to fresh water to reproduce, the American eel is *catadromous*, spending its adult life in fresh water and migrating to marine habitats to spawn. The freshwater eels, which include the American eel, are unique in that they are the only freshwater species in North America that are catadromous.

History and Status

American eels are native to North Carolina and can be found in rivers, lakes and ponds throughout the central and eastern parts of the state. They are highly tolerant of adverse water conditions, including siltation, turbidity and decreased oxygen levels. Little is known about the population of eels within North Carolina. Currently the American eel is not endangered or threatened here, although there is some concern about the overharvest of young eels for export to other countries. In North Carolina, the eel is classified as a nongame fish. Current regulations restrict the harvesting of eels less than 6 inches in length.



Description

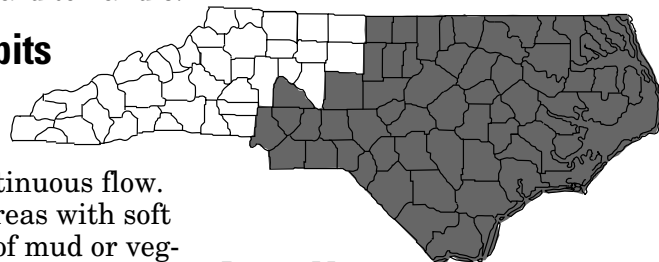
The American eel has an elongated, snake-like body that is grayish, olive or brown in color with a light-colored underside. The eel has a small head with a pointed snout and small, shiny eyes. The mouth of the eel contains many small teeth. The dorsal (top), caudal (tail) and anal fins are fused together into one low, continuous fin. This fin runs along the back two-thirds, top and bottom, of the body of the eel and, with snake-like body movements, provides much of its swimming power. Unlike sunfish or catfish, which have a forked tail, the caudal fin of the eel is rounded. The eel also has a pair of pectoral fins located behind the gill slits near the head. Though at first glance the American eel appears to have no scales, very small scales are deeply imbedded in the skin. A very heavy mucus layer covers the skin, causing eels to be very slippery and hard to handle.

Habitat and Habits

Female American eels prefer permanent streams with a continuous flow. They tend to like areas with soft bottoms composed of mud or vegetation. During daylight hours, eels hide in deep pools, under

undercut banks or in areas with a lot of cover. They are most active after dark and can be found anywhere in the body of water. Male American eels prefer brackish waters or estuaries (a mixture of fresh and salt water) found along the coast. Therefore, if you come across an eel in an inland stream or lake, it is probably a female.

The reproductive cycle of the American eel is complex and was not fully understood until the 20th century. During the fall, male eels about five to seven years old and female eels about seven to 15 years old begin to migrate to the warm waters of the Sargasso Sea in the southwestern Atlantic Ocean, which is located south of Bermuda and northwest of the Bahama Islands. During this migration, eels cease feeding. Once they reach the Sargasso Sea, they spawn in depths of up to 1,500 feet. The female



Range Map:

Occupied range

eels may lay up to 20 million free-floating eggs. After spawning is complete and the eggs are fertilized, adult eels die. The eggs hatch around February.

Larval eels, known as *leptocephalus* larvae, are transparent and resemble a willow leaf. In a journey that lasts about six to 12 months, the larvae are carried by currents, including the Gulf Stream, toward the mid-Atlantic coast and feed primarily on plankton (microscopic plants and animals). By the time they reach the coast, the larvae are about 2 inches long, and though still transparent, they resemble the adult eel and are called "glass eels." As the young eels grow, they lose their transparency and are called "elvers." Elvers resemble adult eels. Female eels then begin their migrations up coastal rivers and streams. During their migrations, they have been known to "crawl" up dams and cross land to avoid obstacles. This is one reason why eels may end up in isolated ponds or lakes, cut off from running streams or rivers. They remain in the waterways until they become mature and begin their spawning migrations, completing the life cycle.

Range and Distribution

The American eel can be found along the Atlantic coast and associated inland rivers from Newfoundland, Canada, south to Brazil, including the Gulf of Mexico, the Antilles and the Caribbean. Within the United States, their range exists along the Mississippi River drainages from South Dakota and southern Minnesota to Texas and extends throughout the eastern portion of the United States to the Atlantic coast. In North Carolina, the American eel is commonly found in rivers, lakes and ponds in the Coastal Plain and Piedmont.

People Interactions

Though recreational anglers catch eels using hook and line,

eels are mostly sought by commercial fishermen using trotlines, seines and fine mesh eel pots. The best time to concentrate fishing efforts for adult eels is late summer to early fall, when they are beginning their migrations to the sea. The best time and place to collect elvers are in lower ends of rivers and streams during spring or early summer, when the young female eels begin their migrations to freshwater habitats.

Although smoked eel is considered a delicacy by some, especially in European and Asian cultures, it can be found on the menu only in some of the larger cities in the United States. Most of the commercial catch is exported for aquaculture purposes to Europe and Asia, where eels are in high demand. Glass eels and elvers caught by commercial fishermen are shipped overseas, where they are raised in ponds until they reach a marketable size.

References

Manooch, Charles S. III. *Fisherman's Guide to the Fishes of the Southeastern United States* (Raleigh: N.C. State Museum of Natural History, 1984).

Rhode, Fred C., Rudulf G. Arnot, David G. Lindquit and James F. Parnell. *Freshwater Fishes of the Carolinas, Virginia, Maryland, and Delaware* (Chapel Hill: University of North Carolina Press, 1994).

Thompson, Peter. *Thompson's Guide to Freshwater Fishes* (Boston: Houghton Mifflin Co., 1985).

Credits

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AMERICAN EEL

Classification

Class: Osteichthyes

Order: Anguilliformes

Average Size

Length: 1 to 3 ft. up to 5 ft.

Food

Prefer live food such as fishes, insects, worms, crayfish, snails, clams and crabs. May scavenge and feed on materials of animal origin.

Spawning

Migrate from fresh water to spawn in the warm waters of the Sargasso Sea during midwinter. Females may lay up to 20,000,000 free-floating eggs. Parents die after spawning.

Young

Called *leptocephalus* larvae, the young, transparent eels are carried by wind and ocean currents to the mid-Atlantic coast. During their journey, they feed on plankton (microscopic plants and animals). By the time they reach the coast, though still transparent, they begin to resemble the adults and are called glass eels.

Life Expectancy

Generally five to 15 years. Up to 35 to 40 years in land-locked lakes.