

## **American Eel** (*Anguilla rostrata*)

Slithery, slimy and even vicious at times, the estuarine-dependent eel is “icky” to most people despite its fascinating behaviors and economic importance. To make matters worse, the eel ranks among the least understood of fishes.



The American Eel is a key member of the New York/New Jersey Harbor Estuary’s ecosystem. It is important food for larger salt and freshwater species and is a predator of smaller species such as clams and crabs. It is also a species of concern. Its current status in the Harbor Estuary is unknown but it is generally accepted that it reflects that of the species within its larger Mid-Atlantic Bight range where it is disappearing at an alarming rate. Its decline can be attributed to habitat loss, blocked passages within migration routes such as those caused by dams or hydropower plants, pollution (especially chemical) and over-fishing (young or “glass” American Eels are a lucrative export). Reports are so dire that the American Eel is being considered for the endangered species list.

Once abundant in the lower Hudson River and commercially important in Raritan Bay and elsewhere in the Estuary, commercial fishing for American Eels within the Hudson River and many of the Harbor Estuary’s New Jersey tributaries has been closed since the mid 1970’s. This is due to contamination of the fish by PCBs and other toxic chemicals. Commercially, only a small fishery for glass eels and a very minor fishery for juvenile eels to be used as bait are all that remain. Eels are still fished recreationally in the Estuary’s fresh and estuarine habitats but advisories limiting consumption have been issued by both states.

The American Eel is an interesting fish to say the least. They begin life as eggs hatching in the Sargasso Sea and may take years to travel thousands of miles to reach the freshwater streams where they mature only to return to the Sargasso Sea to spawn and die. After hatching, the American Eel spends its first year or so as larvae drifting in the ocean’s currents. Many are picked up by the Gulf Stream, with some arriving in the Harbor Estuary area during the fall. As the young eel gets nearer to the coast, it transforms into a worm-like shape that is clear in color. This is known as the glass eel stage. During this stage, they can reach a size of up to two inches. Following this, the eel turns brownish, looking very much like a miniature adult. During this stage, the eel is called an elver. As an elver, the journey inland through rivers and streams begins. They can even travel over obstacles like rocks or grass wet from rain. The immature adult eel is sometimes referred to as a yellow eel and can remain in this stage for five to twenty years. Young females ascend into freshwater where they may stay for 7-30 years as yellow eels. When they mature, they migrate downstream to the ocean to become “silver” eels and join the males heading back to their spawning grounds. The smaller males tend to stay in saltier water most of their life and can take up to 12 years to mature.

Eels can be found in a wide range of habitats from rivers and streams to lakes and ponds, estuaries and salt marshes. In the post-elver stage they tend to be a solitary species that is more active at night. The American Eel is said to eat anything it can swallow. Its diet changes with its size and location. Smaller eels will feed on benthic invertebrates, while larger eels will eat

crustaceans, fish, and frogs. In turn, the eel is eaten by a variety of larger predators and, in its early life stages, is even preyed upon by smaller predators. It can tolerate a wide range of temperatures and can live out of water for days if it stays moist and out of direct sun.

The habitats required by this species include the open ocean for larvae, then the continental shelf for the glass eel stage. Elvers can be found in a wide range of estuarine habitats, often in submerged aquatic vegetation (SAV). Travel to estuaries and rivers seem to be random and can vary annually. There are no known genetically or behaviorally distinct local populations. During harsh winters eels will move to deeper waters where they may burrow in the mud. These eels are reported to be very sedentary. As a consequence, if this habitat has contaminated sediments the eel becomes contaminated as well.



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