

# Asian Swamp Eel

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Another aquatic invasive species was confirmed in 2008: the Asian swamp eel. The species was confirmed by New Jersey Division of Fish and Wildlife's fisheries biologists and verified by the Academy of Natural Sciences. Fish and Wildlife's Bureau of Freshwater Fisheries is conducting an ongoing evaluation to determine the extent of the Asian swamp eel's distribution and abundance. Fortunately, its presence appears to be limited to one privately-owned location, Silver Lake, a 10-acre waterbody located in Gibbsboro.

Surprisingly, the Asian swamp eel is not a true eel. They are scaleless and have an elongated body with a tapering tail and blunt snout. Their teeth appear like bristles and they have one V-shaped gill located beneath the head. Although generally similar in appearance to an American eel—a true New Jersey native—the swamp eel has no fins. In contrast, American eel have pectoral fins, a long-rayed dorsal fin, anal and caudal fins. (At first glance the American eel also appears scaleless since their scales are imbedded.) Swamp eel also may be mistaken for lamprey, however lamprey do not have jaws and they possess an ovoid mouth. Lamprey, like American eel, also have distinct dorsal and caudal fins; the lamprey has seven gill openings on each side.

Unlike the American eel, the Asian swamp eel life cycle takes place exclusively in freshwater. All young hatch as female. As adults, some females develop into males, however, males can change back to females if female densities are low. Reproduction can occur year round.

These invasive eels are nocturnal and rarely observed by people. Preferred habitat includes shallow wetlands, stagnant waters, marshes, streams, rivers, ditches, canals, lakes, reservoirs and ponds. It was first believed that swamp eels could not tolerate cold temperatures; it is now known they can survive in ice-covered lakes and can tolerate a wide range of oxygen levels. Swamp eels can absorb up to 25 percent of their oxygen from the

air cutaneously (through the skin). They prefer freshwater habitats, but can tolerate brackish and saline conditions.

It is likely the Asian swamp eel was introduced to North America by aquarium release, stocking as a food source or escaping from fish farms during flooding events. The origin of the fish in Silver Lake is unknown.

Asian swamp eels eat a wide range of prey including fish, shrimp, crayfish, frogs, turtle eggs and aquatic invertebrates. Although the ecological impact in North American waters is relatively unknown, some effects are documented in other regions of the world where the eel has become established. There is concern that swamp eel competition with native aquatic species for food may displace the natives, as the swamp eel is known for its voracious appetite.

The presence of the invasive Asian swamp eel serves as a warning that there can be ecological damage inflicted from the careless introduction of a non-native species. A permit from New Jersey Division of Fish and Wildlife is required prior to the release of any species, native or not. The permit serves to prevent introductions such as the Asian swamp eel. 

