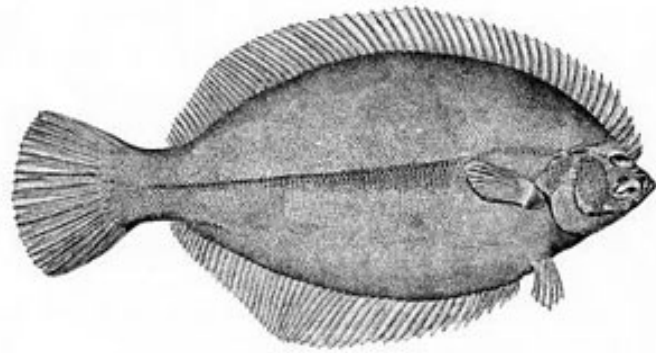


## Winter Flounder

*(Pseudopleuronectes americanus)*

Living near the bottom of the bays and shallows (down to 55 meters) of the New York/New Jersey Harbor Estuary, the Winter Flounder, sold in markets as flounder or lemon sole, is a favorite of recreational and commercial fishers. It is the thickest and meatiest of the flatfishes and can be caught nearly year-round especially in winter when most of the Harbor Estuary's other fish have left for warmer waters. The Winter Flounder does not do this and is, in fact, considered one of the most stationary of fish. Some might seek out cooler, deeper water in summer, especially those located south of New York, but return to the Estuary's bays and shallows in fall and winter as the water cools. In our area, the Winter Flounder is most abundant in Raritan Bay. Adults tend to be more abundant in the Lower Hudson region in winter and early spring, and late fall and spring in the Lower Bay region.



The Winter Flounder has a small mouth with just a few teeth up top and a set of incisors below. It is oval in shape, has both of its eyes on the same side of its body and displays a lateral line that is nearly straight. Its coloring is on one side only, its right side, meaning that if you hold this fish upright, it would have to be in your right hand if you wanted to view the side with color. Color can vary from brown to olive green or black. The other side (the one without eyes) is white to translucent. Like other flatfishes, it can change color to match its surroundings, usually making itself very dark when it is on mud and paler when it is near bright sandy bottoms. As compared to the Summer Flounder though, the Winter Flounder has less control over its shade and pattern.

The Winter Flounder spawns in our region close to shore from December to May. Females can lay between 500,000 to 1,500,000 eggs, depositing them near the bottom, preferably on sand. Knowledge of this has led to better management of human activities in the Harbor Estuary, such as dredging. In Newark Bay and the Arthur Kill for instance, two areas that have been identified as essential habitat for the Winter Flounder, no dredging is permitted from February 1 to May 31 since dredging there during this critical period could capture, bury or otherwise destroy eggs. The larvae seem to stay near where they hatched. They feed almost exclusively on small benthic organisms found on the surface of the sediments where they are located. The larvae are preyed upon by many things, including sand shrimp, fish, birds and some invertebrates. As they grow they gradually disperse to shallow muddy to fine sand inshore areas, and even at low salinities. They begin to resemble adults about 3 months after hatching. Adults prefer cooler waters and medium to high salinities. They use most sediment or bottom types, but soft sediments allow them to partially bury themselves for protection and to lie motionless with just their head raised to look for food, mostly worms, small bits of plants, crustaceans, mollusks and other small benthic invertebrates. Adults are eaten by numerous large coastal and estuarine predators including the Striped Bass. The Winter Flounder is fairly susceptible to pollution, especially exposure to insecticides. Since eggs are laid directly on bottom sediments, any toxins there can affect their success. The

Winter Flounder also has been known to be infected by externally-caused diseases, such as fin rot, and various internal diseases in our area.

This species is strictly managed by the Atlantic States Fishery Management Council (ASMFC) because of its persistent low regional population levels for over a decade and the lack of any recovery trend. Regionally, Winter Flounder populations have declined significantly since a peak in the early 1980s, and have been at about 60-70% of that peak since the mid 1990s according to ASMFC. Local population trends are unknown. Landings of Winter Flounder in the United States average from 6,000 to 15,000 metric tons per year, but only a small portion of these landings come from the New York/New Jersey Harbor Estuary area. It is thought that the recreational catch in the area of the New York Bight exceeds the commercial catch, although this is not confirmed.



This entry was researched and written by Claire Antonucci, Rosemary Higgins and Cathy Yuhas of the New Jersey Sea Grant Consortium Extension Program. It is part of a larger project, "The Key Species of New York/New Jersey Harbor Estuary" produced with funding from the New York/New Jersey Harbor Estuary Program.