

banks with tree roots and debris lose fewer fish during freshets and maintain higher numbers of coho in winter than sections without these habitat characteristics. In winter, the coho young generally avoid riffles, glides, and pools without cover.

The importance of coho salmon to humans is evident in the commercial and sport fisheries of Southeast. In some years coho bring in more money than any other commercial salmon fishery in Southeast and sport fishers usually harvest more coho than any other species of salmon.

Coho salmon typically spawn later than other species of salmon. Most populations enter fresh water in September and October, and most spawning takes place in late October and November. Thus, these late-running stocks are available to feed other animals after fish from earlier stocks have disappeared. In addition, coho carcasses may become frozen as streams ice over, so they are often available to hungry birds and mammals during midwinter thaws and even into spring. Due to the abundance and distribution of their young in streams and adjacent ponds they also provide food for many other creatures such as mink, otters, dippers, kingfishers, and mergansers.

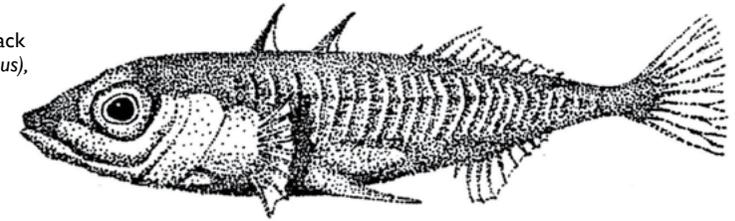
Threespine sticklebacks

Threespine sticklebacks are widely distributed in Southeast Alaska and are particularly abundant in lakes, ponds, slow-moving streams, and estuaries containing emergent vegetation. Two forms of threespine stickleback occur in Southeast—a marine form and a freshwater one.

The marine form lives in the sea for most of its life, migrating into fresh water or estuaries in spring to breed. In early autumn the offspring and adults leave streams and estuaries and move out into salt water. Some remain near shore through the winter, and others move out to open sea for considerable distances. Large numbers of three-spine sticklebacks, for example, have been taken at the water surface up to 496 miles from shore in the Gulf of Alaska. The marine form is best distinguished by numerous (twenty-two to thirty-seven) bony plates along its sides and by its bright silver color.

The freshwater form remains in streams, lakes, and ponds throughout its life. This form is best distinguished by only a few (zero to nine) bony plates on its sides and an olive color mottled with indistinct bars. Marine and freshwater forms spawn at one to two years of age, and probably die after breeding. Maximum life span is about four years.

Threespine stickleback
(*Gasterosteus aculeatus*),
marine form.



The males of both forms become brilliantly colored at breeding time, making them one of the most attractive of the small fishes residing in our waters. Colors include a blue or green eye, bright red or orange underparts, a red lining to the mouth, and translucent silver scales on the back.

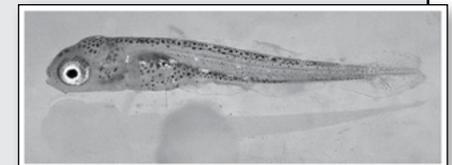
With a small hand seine we've captured hundreds of these fish in only a few minutes. Other fish and birds take advantage of the stickleback's amazing abundance and availability. They're an important food of cutthroat trout and Dolly Varden char. Terns, kingfishers, yellowlegs, mergansers, herons, and otters feed heavily on them.

Nest-building male sticklebacks

A male stickleback builds a nest by sucking up sand or mud and depositing it away from the construction site. In the resulting depression, he glues together pieces of vegetation with mucus secreted by his kidneys, until a dome-shaped structure is formed. He then wiggles into the structure to form a tunnel. He defends the nest by attacking any other colored male that swims near.

When a female whose belly bulges conspicuously with eggs approaches, the male courts her with a zigzag swimming motion while retreating toward the nest. He repeats these movements until the female follows him to the nest, where he points out the entrance with his snout. If the female likes the nest, she will wiggle into the tunnel and eventually deposit between fifty and one hundred eggs. At once, the male enters the nest and sheds sperm over them. He may repeat this courtship with several females until the nest becomes stuffed with eggs.

The male cares for the fertilized eggs and the young. At frequent intervals he fans the nest with his large pectoral fins, creating a flow of water that improves the supply of oxygen to eggs. The eggs hatch in about two weeks, and as young begin emerging from the nest, the male darts about catching them in his mouth and spitting them back into the nest. About ten days after hatching, the young begin to disperse, and the male no longer attempts to retrieve them.



Stickleback just hatched.