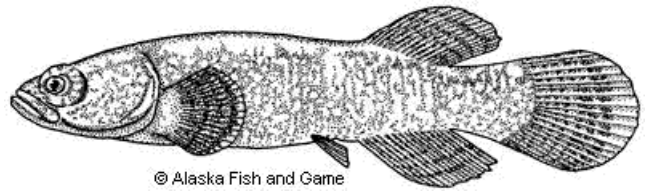


Alaska Blackfish

Alaska blackfish (*Dallia pectoralis*) are found only in Alaska and eastern Siberia. They typically live in the densely vegetated areas of lowland swamps, ponds, rivers, and lakes. They are rather sluggish, bottom-dwelling fish that use their large pectoral fins to paddle slowly about the vegetation in search of food. Once a prey organism is spotted, they capture it with a quick dart, much like a northern pike.

General description: Alaska blackfish are small, seldom longer than 8 inches (200 mm), although individuals up to 13 inches (330 mm) have been found. They are distinguishable from other fish by their large paddle-like pectoral (lower front) fins and tail, tiny ventral (lower middle) fins, backward placement of their dorsal (upper) and anal fins, and rather broad, flat heads. Their color is dark green or brownish on the upper sides and pale below, with irregular blotchy areas on their side. Mature males can be distinguished from females by the presence of a reddish fringe along the dorsal, caudal (tail), and anal fins. Also, in mature males the tips of the ventral fins extend well beyond the front of the anal fin, whereas in females they do not.



Life history and habits: Spawning occurs from May to August, with the possibility of individual fish spawning several times and females releasing only a portion of their eggs each time. Depending on her size, a female may release a total of 40 to 300 eggs at intervals throughout the entire spawning period. The eggs adhere to the heavy vegetation and hatch in a short time (about nine days at 54°F). The young are tiny at hatching (about 6 mm), and, depending on water temperature, live off their yolk sacs for about ten days.

Rate of growth varies throughout Alaska. Blackfish from the Interior and Anchorage area are about 2.5 inches (108 mm) at age 2, 5.5 inches (138 mm) at age 3, and 7 inches (178 mm) at age 4. In contrast, Alaska blackfish from the Bristol Bay region are much slower growing and longer lived. Four-year-old fish are only about 2.5 inches in length, but they live up to eight years. One study found that female blackfish first reach sexual maturity at a length of about 80 mm.

The Alaska blackfish are unique because they have a modified esophagus capable of gas absorption, meaning they can exist off atmospheric oxygen. The existence of an air-breathing fish in arctic regions at first seems unlikely as most oxygen problems in the water would be expected to occur in winter—a time when air breathing would not appear to be of any advantage because of the ice cover. However, this capability allows these little fish to live in the small stagnant tundra or muskeg pools that are almost devoid of oxygen in summer and also to survive in the moist tundra mosses during extended dry periods while waiting for rain to fill the tundra pools again.

Food habits: Aquatic insects and other small invertebrates are the principal foods of most blackfish. However, in Bristol Bay the larger blackfish are cannibalistic and feed on their own kind; they also eat small, young-of-the-year northern pike.

Uses: Depending on one's viewpoint, the blackfish may be beneficial or detrimental. For example, in some areas of Alaska the blackfish are a major prey item for northern pike, therefore a benefit. Burbot, sheefish, river otter, mink, and loons also feed on blackfish. However, accidental or illegal introductions of blackfish, such as has occurred in the Anchorage area, may result in competition for food with important sport fish. Furthermore, blackfish introductions into stocked rainbow lakes may result in reduced growth and survival of rainbow trout.

One use of blackfish, however, is as food for man. Alaska Natives have used blackfish extensively for food. In many areas of Alaska the fish are still used as food for humans and dogs. Their great abundance and ease of capture make the Alaska blackfish excellent subsistence fish, especially when other food supplies may be less available. What makes these fish so easy to capture? In winter, Alaska blackfish have moved out of their tundra pool habitats and reside in the deeper portions of lakes, where oxygen is more abundant. However, in many of these waters, oxygen may become depleted, especially toward late winter or early spring. This stresses the blackfish, and their natural tendency is to seek open water areas and atmospheric oxygen. Hence, in known blackfish lakes Native people find holes where the blackfish come up to breathe, or they cut a hole in the ice. The fish will concentrate in the vicinity of these holes in large numbers, making them easy to capture with a rather simple funnel-shaped trap made from strips of tamarack, spruce, or small-mesh galvanized hardware cloth. In spring and fall blackfish are also easily caught while migrating to and from their summer habitat by placing the traps in narrow channels. The best blackfish lakes are reported to be those with the most otter and mink sign (they no doubt provide good food for the animals as well as for man). Many people who regularly harvest blackfish claim they are always extremely abundant, with no indication of depletion, despite years of use.

Since the blackfish can live off atmospheric oxygen, they are very hardy. Some Natives keep large numbers alive in a tub of water and use them as needed. Others cover them with snow, which often results in some of the fish moving towards the center, where the water is not frozen, to remain alive for extended periods. This ability has caused reports that Alaska blackfish can withstand becoming completely frozen. However, controlled experiments have shown this to be untrue. Even partial freezing of their bodies results in eventual death.

Alaska blackfish are certainly one of the most fascinating fishes in Alaska. Only one other species of fish in the world is known to have modified its esophagus for respiratory purposes, and that is a tropical swamp eel. One author believed the Alaska blackfish represented a prime example of an end-product of evolution in mutation and natural selection that results in the establishment of a species well-adapted to a limited environment.

Text: Robert H. Armstrong
Illustration: ADF&G Staff
Revised and reprinted 1994