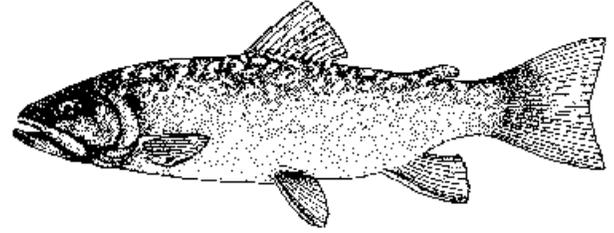


## Brook Trout

**Brook trout** (*Salvelinus fontinalis*) belong to the char family, and not surprisingly, they are sometimes referred to as brook char. Brook trout live in cool, oxygenated water where there is little silt or contamination. Such pristine conditions are prime habitat for both trout and salmon. Consequently, much of the knowledge gained from studying brook trout has helped form a basis for understanding the requirements of all salmonids.

**General description:** Brook trout are distinguished from trout, salmon (*Onchorynchus* sp.), and other char species by wavy, pale yellow markings on the dorsal surface and dorsal fins which are called vermiculations. Brook trout also have small red spots surrounded by light blue halos which are scattered along the side of the body with larger light yellow spots. Otherwise, brook trout in Alaska most closely resemble Dolly Varden (also a char) which don't have the marbling and blue halos.



**Range and habitat:** Brook trout is not native to Alaska but was introduced to Alaska and other western states between 1917 and 1950. Many rivers, streams, and lakes in Southeast Alaska were stocked with brook trout but it is widely believed that no fish survived in any of the rivers and streams or in any lakes that was open to migration to saltwater. Although considered a non-native species, brook trout did survive in a handful of land-locked lakes in Alaska which now provide popular sport fishing opportunities. In most cases, the brook trout seem to have survived best in barren, subalpine lakes with a relatively low food supply, marginal spawning, and year-round low water temperatures. Brook trout seem to be well adapted to these marginal conditions and are probably better suited for these waters than other native species. Competition between brook trout and other species is generally considered negligible.

Brook trout are found in Rustabach Lake near Haines; Upper and Lower Dewey lakes near Skagway; Salmon Creek Reservoir near Juneau; Green, Heart, and Thimbleberry lakes near Sitka; Crystal Lake near Petersburg; Grace, Ketchikan, Shelocum, and Perseverance lakes near Ketchikan area; and Emerald Lake (Texas Lake) near Hyder.

Brook trout are native only to the Eastern United States and in many places occupy only a fraction of their historic range. Because of the wide ranging stocking efforts, brook trout are currently found throughout much of the western states and is often considered an invasive species and a threat to rare forms of native trout. In Alaska, it is believed that our isolated populations of brook trout currently pose no threat to our native species, as long as they remain confined to the lakes they currently occupy.

**Life history:** Brook trout populations in several Southeast Alaska lakes have been evaluated in recent years. The maximum age of fish sampled was 9 years with the majority of individuals younger than 5. The maximum length of fish sampled was 14.9 inches. The populations of brook trout in the sampled lakes ranged from an estimated 500 fish in Thimbleberry Lake (10 acres) to approximately 3,200 fish in Green Lake (1,000 acres). An analysis done on the stomach contents of brook trout indicates they eat everything available, including aquatic and terrestrial insects, zooplankton, snails, and leeches.

Brook trout spawn in autumn (October – November) when temperatures and day length are decreasing. Peak spawning activity in Green Lake, near Sitka, was observed in mid-October and completed by early November. During spawning, the female brook trout creates a depression, known as a redd, in the gravel or other substrate. A female lays 300-600 eggs. As the eggs settle into the red, the male releases sperm, also known as milt, onto the eggs. The female then buries the eggs with loosely packed gravel. The eggs begin to hatch into alevin in the spring. During this phase, a yolk sac is attached to their bodies and they resemble tadpoles. When the alevin have used the nutrients contained within the yolk, they emerge from the gravel as fry. In time, the young will head for shallow water to search for prey. Here they will mature from juveniles to adults. Most brook trout spawn annually after reaching maturity. Brook trout typically spawn in streams but they can also successfully spawn in lakes over a variety of substrates. The ability to spawn successfully in lakes makes them especially valuable as a sport fish in lakes with marginal or nonexistent stream habitat. Most other salmonids in Alaska cannot spawn in lakes and require streams for successful spawning.

**Sport fishing:** The annual harvest of brook trout in Alaska by fishermen is small, seldom numbering more than 2,000 fish. This low harvest is due to the small number of lakes containing these fish. A large percentage of the lakes that do contain brook trout are only accessible by foot or float plane.

Text: Artwin E. Schmidt

Illustration: Ashley Dean

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