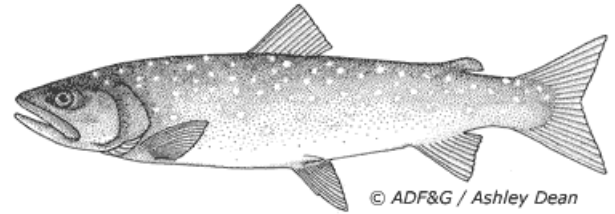


Dolly Varden

Two forms or sub-species of **Dolly Varden** (*Salvelinus mama Walbaum*) occupy most of the coastal waters of Alaska. The distribution and range of each form has changed in recent years with knowledge gained from genetic analysis, but there is no absolute distinction in life histories between the two forms. The northern form is primarily anadromous, occupying both sides of the Alaska Peninsula and north and eastward around the Alaska coast to the Canadian border as well as in the Susitna River Basin in Southcentral Alaska. The southern form is found from the Aleutians to the southern tip of Southeast Alaska including Kodiak Island, and on the south side of the Alaska Peninsula. The southern form primarily resides in perennial mainland and island streams, and exhibits a variety of life history forms including, stream resident, lacustrine (lake dwelling) and anadromous.



The origin of this odd name for a fish comes from the common name given to brightly-colored char in California during the 1870's. The name Dolly Varden actually refers to a colorful cloth of "pink pattern of good looks" that was milled for dressmaking in the late 19th century. The cloth itself was named after Dolly Varden, the character who wore brightly colored dresses in the Charles Dicken's 1841 novel, *Barnaby Rudge*.

Dolly Varden have a dark history in Alaska that lasted from 1921 through 1939. During this time it was believed that Dolly Varden preyed heavily on commercially important and valuable young salmon. A bounty ranging from 2 to 5 cents was paid for each Dolly Varden tail turned into officials. It was thought that by eliminating Dolly Varden as a species the survival of juvenile salmon populations would greatly increase. It is now known this idea was totally erroneous as Dolly Varden are not highly predatory and were never responsible for any decline in salmon populations. However, 6 million tails were turned in for payment before the program ended in 1939, when 20,000 of the tails submitted for payment turned out to be mostly from Coho salmon.

General description: Young Dolly Varden have eight to ten, wide, oval blotches or parr marks contrasting with the mottled olive-brown color of their body. The sea-run fish are silvery with an olive-green to brown color on the dorsal surface and numerous red to orange spots on their sides. As spawning season approaches, the mature males become brilliant red on the lower body surface, and the lower fins become reddish-black with a white leading edge. Mature females are similar, but are less brightly colored. Males develop an extended lower jaw called a kype, which hooks upward and fits into a groove in the upper jaw. A kype also forms in the females, but is considerably less developed.

Dolly Varden belong to a group of trout-like fish called char (*Salvelinus sp*). The primary visual distinction between char and trout and salmon are that char have light spots on their dark body sides while trout and salmon usually have black spots on their light colored sides.

Life history: Dolly Varden are fall spawners and usually spawn between September and November in small headwater streams. The female, depending on her size, may deposit from 600 to 6,000 eggs (2,500 to 10,000 in the northern form) in depressions, or redds, which she constructs in the streambed gravel by digging with her tail fin. The male usually takes no part in nest building and spends most of his time defending the redd by chasing, biting or threatening intruders. When the female is ready to deposit her eggs, the male moves to her side and spawning begins. Sperm and eggs are released simultaneously into the redd where fertilization occurs. After spawning the female then forces the exposed eggs into the crevices by undulating her body and tail before covering the eggs with gravel.

The eggs develop slowly in the cold water temperatures and hatch in March approximately four to five months after fertilization. After hatching, the young Dolly Varden absorb the food from their yolk sac and usually do not emerge from the gravel until this food source is used. Emergence from the gravel usually occurs in April or May for the southern form and in June for the northern form.

The young Dolly Varden rear in streams for 2 to 4 years before beginning their first migration to sea, but some may rear as long as six years. During this rearing period, their growth is slow, a fact which may be attributed to their somewhat inactive habits. Young Dolly Varden often remain on the bottom, hidden from view under stones and logs, or in undercut areas along the stream bank, and appear to select most of their food from the stream bottom.

Prior to their seaward migration Dolly Varden go through a series of physical changes called smoltification which allows them to survive in saltwater and during this process the fish lose their parr marks and become silvery in color. The fish are now about 5 inches long and are called smolt. This seaward migration usually occurs in May or June, although significant but smaller numbers have been recorded migrating to sea in September and October. After their first seaward migration, Dolly Varden usually spend the rest of their lives migrating to and from fresh water in an interesting and often complicated pattern of migration.

The southern form migrate into lakes during the fall where they spend the winter while most northern Dolly Varden migrate into rivers to spend the winter. Dolly Varden hatched and reared in a lake system typically carry on annual spring migrations to saltwater seeking food before returning to a lake or river each fall to spend the winter. However, southern Dolly Varden originating from nonlake systems must seek a lake in which to winter and research suggests that they may find lakes by random searching, migrating from one stream system to another until they find one with a lake. Once a lake is found, these fish typically conduct annual seaward migrations in the spring, sometimes entering other freshwater systems in their search for food. Dolly Varden are known to follow salmon during upstream spawning migrations where there are lots of nutritious salmon eggs for the Dolly Varden to feed on.

Dolly Varden return to spawn in their stream of origin or "natal stream" upon reaching sexual maturity. Most southern forms of Dolly Varden reach maturity at age 5 or 6. At this age they may be 12-16 inches long and may weigh from 1/2 to 1 pound. Northern Dolly Varden reach maturity at age 5 to 9 after having spent three or four summers at sea, and may be 16 to 24 inches long. Dolly Varden possess the ability to find their natal stream without randomly searching, as was the case in their original search for a wintering area. Those of the southern form that survive the rigors of spawning return to a lake to spend the winter, while northern form Dolly Varden usually overwinter in the river system in which they have spawned.

Mortality after spawning varies depending on the sex and age of the fish. Males suffer a much higher mortality rate after spawning, partly due to fighting and the subsequent damage inflicted on each other. It is doubtful that much more than 50 percent of the Dolly Varden live to spawn a second time but a small number may live to spawn more than twice. Few southern Dolly Varden appear to live longer than 8 years while northern Dolly Varden may live as long as 16 years, but individuals over age 10 are uncommon. Maximum size for southern Dolly Varden is between 15 and 22 inches and up to 4 pounds but an occasional 9- to 12-pound fish have been reported, especially in northern populations.

Sport fishing: Both forms of Dolly Varden are highly sought after by anglers throughout Alaska. The fish is unique as it has readily adapted to the numerous small- to medium-sized non-lake streams that enter Alaskan saltwater areas. Because Dolly Varden migrate into freshwater and into marine near-shore areas at times when salmon may not be available to anglers it's status and popularity as a sport fish will continue to increase as angling pressure rises.

To be a successful Dolly Varden angler in Alaska, it helps to understand their migratory habits. Since sea-run Dolly Varden migrate to the marine environment from lakes in the spring, a lake outlet stream, stream mouth, or nearby beach should prove successful from April through June. Good Dolly Varden fishing can be found in salt water during the summer months (May – July) as Dolly Varden mingle with, and eventually, follow salmon migrations upstream. As mature Dolly Varden begin to return to their natal stream to spawn and feed in August and September, most coastal streams in Southeast Alaska and up through the Aleutian Chain provide good fishing opportunities. Try fishing near spawning salmon, in deep holes, and at the creek mouth on an incoming tide. Fishing for sea-run Dolly Varden in lakes can also be good as they migrate into lakes from late August through October, and are in prime condition after their spring and summer growing season. Ice fishing in lakes during the winter can also provide excellent angling opportunities. A sea-run Dolly Varden caught on light tackle can be an experience not easily forgotten and like other char, the Dolly Varden's pink, firm flesh is full of flavor.

Applying knowledge of any fish's life history can not only help in choosing where to fish, but can help in choosing an angling technique. Knowing that Dolly Varden hang out at the stream mouths and in the near-shore environment during the spring, and that they are feeding on emigrating pink salmon fry will lead anglers to try small spinners and or fly patterns imitate small fish. As the salmon fry grow and migrate along the saltwater beaches and shoreline during late spring and summer months try using slightly larger streamer flies and lures which imitate small silver colored fish. Coastal streams in August and September can produce excellent fishing for those using spinning lures or fly patterns which imitate salmon eggs drifting downstream.



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