

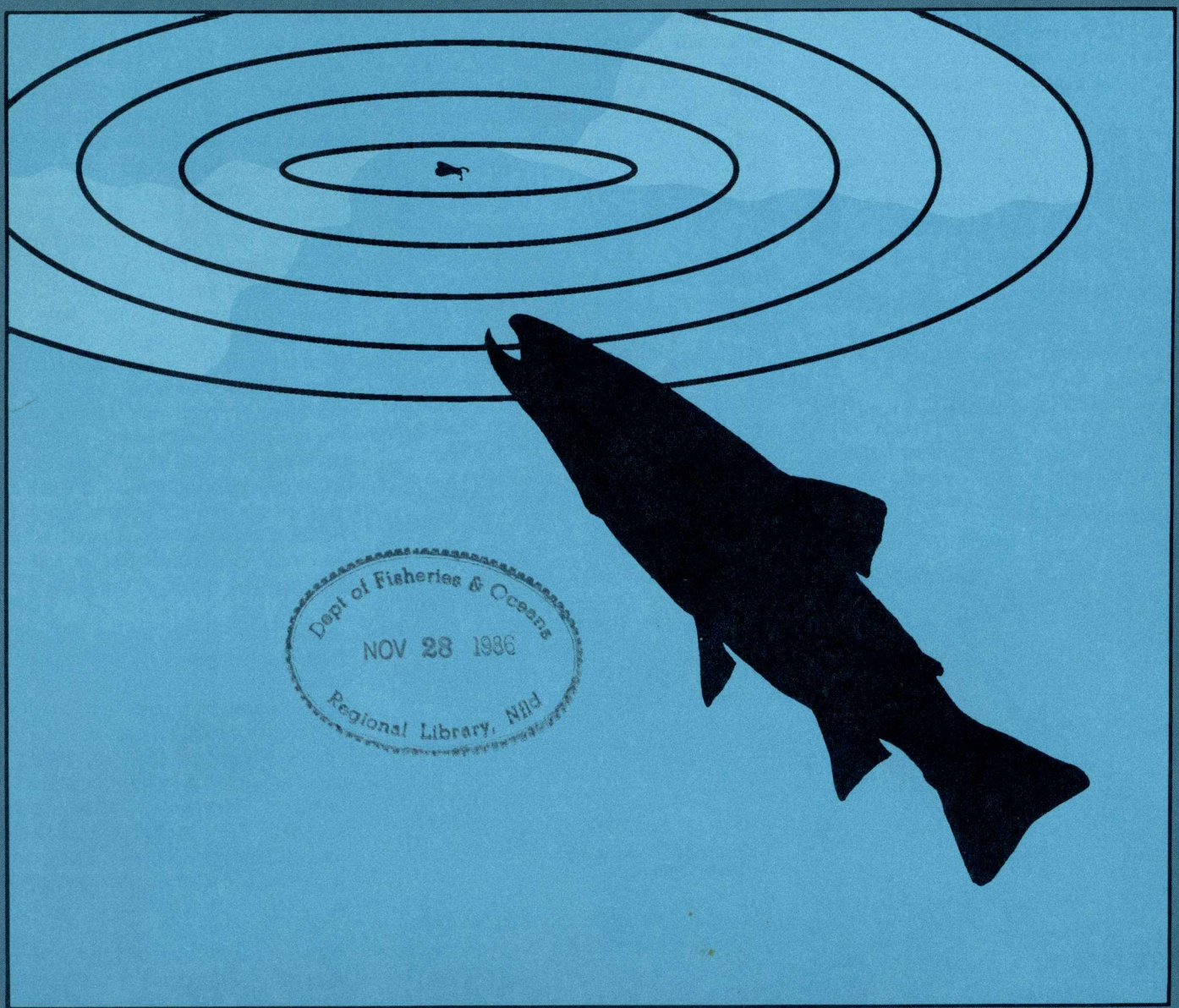
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Underwater World

Trout in Canada's Atlantic Provinces



TROUT IN CANADA'S ATLANTIC PROVINCES

Four species of trout live in Canada's Atlantic provinces of New Brunswick, Nova Scotia, Prince Edward Island, and Newfoundland. Two are native and two have been introduced. The four species belong to the family of fishes known as Salmonidae whose members include salmon, trouts, charrs, and whitefishes. Members of this family are commonly referred to as salmonids. Salmonidae is the dominant family of fishes in the northern waters of North America, Europe, and Asia. It is probably the most economically important family of freshwater fishes in the world.

Brook trout (*Salvelinus fontinalis*)

Other common names of the brook trout are brook charr, speckled trout, coaster, brookie, square-tail, mud trout, sea trout, slob trout, native trout, Eastern brook trout, mountain trout, breac, *omble de fontaine*, *truite*, *truite de mer*, and *truite mouchetée*.

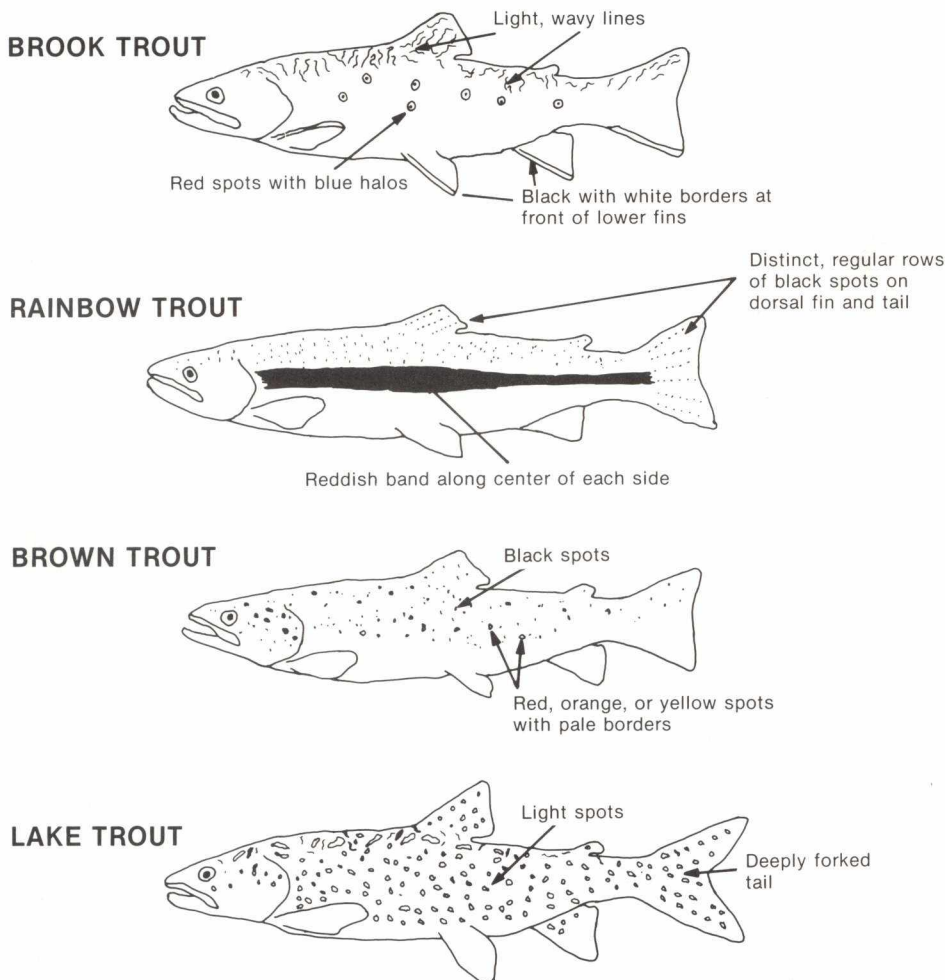
The brook trout is a native of eastern North America and is Atlantic Canada's most common trout. It is extensively distributed throughout the Atlantic provinces, including offshore islands, in cool, clear lakes, ponds, and streams. Fish from many populations leave fresh water and go to sea. The brook trout is the fish most preferred by anglers in each of the Atlantic provinces. In some areas, sea-run brook trout are harvested commercially.

The appearance of adult brook trout in fresh waters varies from place to place and with age and sex of the fish, but is usually distinct from all of its relatives. The back is green to dark brown or nearly black. The back, the almost unforked or square tail, and the large fin in the middle of the back (dorsal fin) are marked with lighter-colored, wavy lines. The sides are green to brown with pale spots and small, distinct, red spots surrounded by bluish halos. The belly can be white to yellow in females or deep orange to red in males. The front edges of the lower fins are black with white borders. Colors become more pronounced as spawning time approaches. Brook trout that go to sea become silvery and lose much of their distinctive marking, but the white leading edges of the lower fins and the red spots on the sides are often visible. Upon returning from the sea, they revert to their usual appearance in fresh waters. Brook trout flesh ranges from white to orange, pink, and red, depending on the diet and physical condition of the fish.

Brook trout spawn in the fall, usually from September to November, in shallow, gravel-bottomed streams and, occasionally, in lakes. The female digs and cleans a shallow nest or redd in the gravel and covers her 3 to 5 mm diameter eggs after they have been shed and fertilized. The young, after hatching, remain in the gravel absorbing the yolk sacs of their eggs. They typically emerge from the gravel in the spring when they are about 3 to 4 cm long.

Brook trout eat a great variety of food, including plankton, insects, snails, clams, and fish. Food size tends to increase as the trout get larger. Growth

Fig. 5 Useful identifying features for adult trout in the Atlantic provinces.



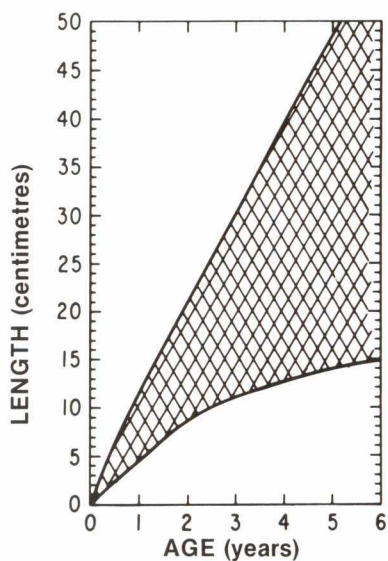


Figure 1. Variation in growth of brook trout from different area.

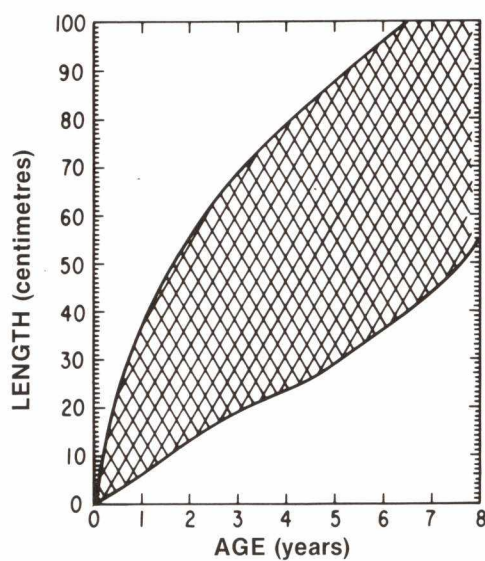


Figure 2. Variation in growth of rainbow trout from different areas.

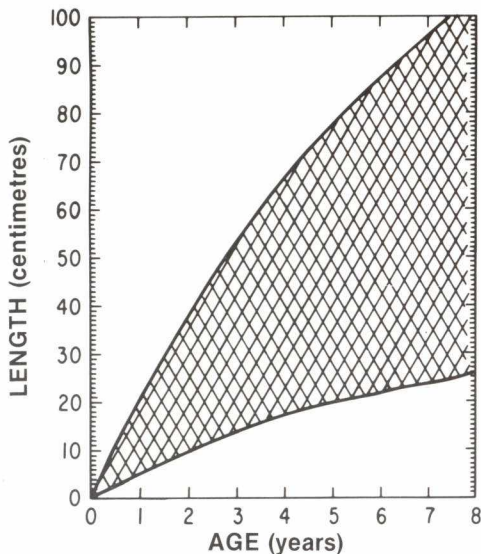


Figure 3. Variation in growth of brown trout from different areas.

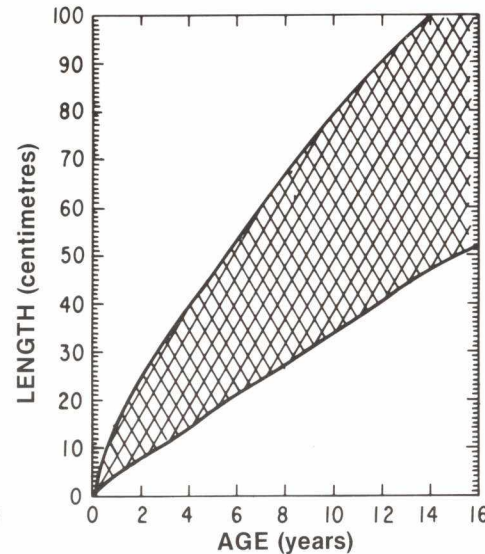


Figure 4. Variation in growth of lake trout from different areas.

rates are highly variable but brook trout usually mature at about 2 to 4 years of age and 10 to 20 cm in length. Although they seldom live longer than five years and fish of 0.5 kg are considered large, the biggest brook trout on record, caught in Ontario in 1916, was 6.6 kg. Generally, larger bodies of water contain older, bigger fish.

The migrations of sea-run brook trout are variable. Typically, fish descend to the sea from late April to early June,

remain in the sea close to their home streams for an average of two months, and return to fresh water. They do not necessarily move every year from fresh to salt water. Food in the sea is mostly fish and the growth of sea-run brook trout is more rapid than the growth of freshwater brook trout.

Rainbow trout (*Salmo gairdneri*)

The rainbow trout is also called steelhead trout, steelhead, Kamloops trout, coast rainbow trout, silver trout, and *truite arc-en-ciel*.

The rainbow trout is a native of western North America. It was introduced into Newfoundland in 1887, into New Brunswick and Nova Scotia in 1899, and into Prince Edward Island in 1925. It prefers cool, clear lakes, ponds, and streams but can tolerate warm water and may migrate to sea. The rainbow trout is commonly used for fish farming and as a standard laboratory animal for tests of water quality. Next to brook trout, it is the trout most preferred by anglers in at least three of the Atlantic provinces.

The color of adult rainbow trout is variable. In fresh waters, the back may be metallic blue to yellow, green, brown, or black. The sides may be silvery, white, or yellow-green to grey but are usually marked with a pink, rose, or red band along the center of each side. Small black spots occur on the back and, often, over the sides. These small black spots occur in distinctly regular rows on the dorsal fin and nearly square or lightly forked tail. Rainbow trout that migrate to large lakes or the sea become more silvery but retain the regular rows of black spots on the dorsal fin and tail. The flesh of rainbow trout is usually pink to red in smaller individuals to white in larger trout feeding almost exclusively on fish.

Rainbow trout spawn in the spring in the Atlantic provinces, usually from March to May, in shallow, gravel-bottomed streams. Spawning activities and egg sizes are similar to those of the brook trout. Young usually emerge from the gravel in about 5 to 8 weeks.

Rainbow trout, as do the other trout, feed on a wide variety of food, with diet depending on food availability and food size tending to increase as the trout get larger. Age at maturity is usually 3 to 5 years but, because of variable growth rates, length at maturity may range from 15 to 40 cm. Usually, the oldest fish captured are 3 to 4 years in small streams and lakes and 6 to 8 years in sea-run populations. Rainbow trout of 2 kg are considered large in Canada's Atlantic provinces but world angling records include a freshwater resident weighing in excess of 11 kg and a sea-run fish over 19 kg.

Rainbow trout that migrate to sea usually leave fresh water in the spring, at 1 to 4 years of age. They may remain in the ocean for only one season or spend several years there before returning, with a high degree of homing, to spawn in fresh waters.

Brown trout
(*Salmo trutta*)

Common names of the brown trout include German brown trout, English brown trout, Lochleven trout, European brown trout, brownie, sea trout, and *truite brune*.

The brown trout is a native of Europe and western Asia. It was introduced into Newfoundland in 1884, into New Brunswick in 1921, and into Nova Scotia in 1923. It does not occur on Prince Edward Island. It inhabits cool-to-warm lakes, ponds, and streams and fish from many populations migrate to sea. The brown trout can remain active for longer periods of time than brook trout in warm waters and thus, often thrives where brook trout cannot. Brown trout are becoming increasingly popular with anglers in the Atlantic provinces and sea-run fish are often mistaken for Atlantic salmon.

The adult brown trout in fresh waters has a brown or olive-brown back, lighter brown to silvery sides, a white belly, and an overall light brown or tawny appearance. Large black spots on the back, dorsal fin, upper sides, and upper head often have lighter borders. Occasionally, there may be a few irregularly arranged black spots on the nearly square or slightly forked tail. Red, orange, or yellow spots with pale borders are on the sides. Brown trout that migrate to large lakes or the sea become silvery and lose much of their distinctive spotting. Sea-run brown trout can often be distinguished from look-alike Atlantic salmon by their upper jawbone extending beyond the eye, their smaller and more numerous black spots on the head, and their smaller scales. After returning from the sea, their freshwater coloration soon reappears. The flesh of brown trout may vary from white to reddish.

Brown trout spawn in late fall to early winter, usually after brook trout, in stream areas similar to those selected by brook trout or, occasionally, in lakes. Spawning activities are similar to those of the brook trout. Brown trout eggs have a diameter of about 4 to 5 mm. The young usually emerge from the gravel in April or May.

Brown trout eat a great variety of food as do the other trout. Large brown trout feed mainly at dusk or later, with fish being an important part of their diet. They usually mature at about 3 to 6 years of age and seldom live longer than 10 years. The average size of brown



trout captured in inland waters is about 0.5 to 1.0 kg. In the Atlantic provinces, angled fish of greater than 4 kg are not rare and fish larger than 12 kg have been captured.

Brown trout that go to sea may migrate, typically in April to June, and return to fresh water in 2 to 4 months or after spending one or more winters in the ocean. Ocean migrations may be extensive. When returning to fresh waters, they often stray to places other than their river of origin.

Lake Trout

(*Salvelinus namaycush*)

Other common names of the lake trout are lake charr, Great Lakes trout, togue, laker, grey trout, and *touladi*.

The lake trout is a native of North America. In the Atlantic provinces, it occurs in New Brunswick, Nova Scotia, and the Labrador portion of Newfoundland. It prefers cool, deep lakes but, in the north, may inhabit shallow lakes and rivers. It is the least tolerant of salt water of the North American salmonids but may occasionally be found in estuaries. The lake trout is one of the world's largest freshwater fishes. It is highly regarded in both commercial and sports fisheries.

The color of adult lake trout varies from light green, grey, or silvery to dark green, brown, or black on the sides and back. Light-colored spots occur on the back, sides, cheeks, dorsal fin, and deeply forked tail. Often, the light-colored spots run together into larger spots or worm-like markings. No red spots or other bright colors appear on the body. Sometimes, narrow, white borders appear on the front edges of the lower fins but are never as distinct as those on the brook trout. The flesh may be white, pink, orange, or orange-red, depending on diet and physical condition.

Lake trout usually spawn from September to November, on clean, rocky shoals in lakes or, rarely, in rivers. The 5 to 6 mm eggs are fertilized and then fall into crevices among the rocks. They typically hatch in about 4 to 5 months.

Lake trout will eat almost any food but the larger ones prefer fish. Lake trout that eat fish grow faster and live longer than those that do not. Growth rates are variable but lake trout usually mature at about 5 to 8 years of age and 30 to 60 cm in length. The maximum age of lake trout is usually about 15 to 25 years, although some fish live as long as 50 to 60 years. In most lakes, angled lake trout average less than 60 cm and 4 kg but fish of greater than 157 cm and 40 kg have been caught.

Hybrid trout

Crosses of the brook, rainbow, brown, and lake trouts have occurred, usually through artificial means. Hybrids are often strikingly marked. Typically, appearance and habits are intermediate to those of the parents. In some environments, hybrids may have a higher rate of survival than either of the parents. With the exception of the splake or wendigo (lake trout X brook trout), hybrids are typically sterile.

Hybrids do not occur regularly in nature due to the differing habitat preferences, spawning times, and behaviours of the species. However, naturally occurring tiger trout (brown trout X brook trout) with their extensive pattern of light-colored lines or spotting, may be captured in areas inhabited by both brook trout and brown trout.

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