

Fluvarium Fact Sheets

Brook trout

Salvelinus fontinalis



Photo by Flickr user Nature Snooper

Brook trout are native to Newfoundland and Labrador, but have been introduced to other parts of North America for recreational fishing. They are one of the most widely distributed fish species in Newfoundland.

Description

Brook trout vary in colour depending on habitat and spawning season. Adults living in freshwater are olive to dark brown on their body with a white to yellow underside. Their sides have red spots surrounded by a blue ring. They also have cream to light brown coloured wavy lines (called vermiculations) on their head and back.

Their pectoral fins have a distinct white edge followed by a black margin and some orange or reddish pigmentation. Males during spawning season have more intense colours and their bellies become orange-red. They may also develop a hooked jaw called a **kype**.

Sea-run brook trout are silvery with distinct red spots on the sides. The silvery colour is lost as they return to freshwater.

Size

The average size of brown trout varies depending on habitat.

- **Sea-run or anadromous trout** (see Box 1) are usually larger than freshwater trout and range from 20-39 cm.
- Trout living in streams range from 12-33 cm.

Lifespan

These fish have the shortest lifespan among all the chars (Genus *Salvelinus*) and generally rarely reach the age of 4 years. Slow growing fish in colder waters may live longer with lifespans in the Maritime Provinces around 5-

6 yrs. Seven year old fish have been recorded in Newfoundland.

Habitat

Brook trout are usually found in cool (8-16 °C) well oxygenated medium speed streams with equal amounts of **pool** and **riffle** areas. They also live in deep pools with slow moving water during winter.

They often hide in undercut banks, overhanging vegetation and in-stream vegetation for shade and to hide from predators. They may also move to deep lakes to avoid high temperatures. In lakes, adults are generally found in the deeper areas whereas small adults and young trout are found near the shore.

Box 1: Definitions

Alevin - A newly hatched fish that has a large yolk sac. It is a stage of trout and salmon development.

Fry - A young fish and a stage of trout and salmon development. In trout, fry have absorbed their yolk sac and have emerged from the gravel.

Parr - It is a stage of trout and salmon development where the fish is rapidly growing and has parr marks or dark vertical bars on its side.

Pool area - a deep or shallow part of the stream with slower water flow. Older, larger fish are generally found in deeper pools which provide shelter and shade. Shallow pools are good nursery habitats where you will find more young fish.

Redd - a shallow depression or spawning nest made by salmon or trout.

Riffle area - an area characterized by shallow, fast, well oxygenated, moving water, and contains a gravel bed. It is here that Brown trout migrate to spawn or lay eggs.

Sea-run or Anadromous - fish that live in the ocean but return to freshwater to reproduce.

Range

The brown trout is native to eastern North America, but has been widely introduced in other areas for angling purposes.

In Canada it occurs throughout Quebec and the Atlantic Provinces.

Diet

These fish are carnivorous and catch their food by actively chasing it.

- Trout in freshwater eat aquatic and terrestrial insects, including blood worms, black flies, mayflies, dragonflies, snails and leeches.
- Large trout prey on fish including minnows and sculpins and small field mice. They will also consume eggs of smelt and trout.
- Sea-run trout eat fish like silversides, rainbow smelt, mummichogs, small eels, rock gunnels and invertebrates like sandworms and amphipods.

Reproduction and development

Brown trout spawn from late October to early-November in Newfoundland.

- They choose spawning sites in shallow headwaters, streams or rivers that have good water flow and a gravel substrate.
- Gravel substrate has spaces for the eggs to fall into reducing the chance they will be eaten by predators or other trout.
- Males go through a courtship activity called quivery by swimming alongside the female and rubbing her with his fins.
- The female uses her tail to dig a nest or **redd** in the gravel. She and a male may spawn several times in one area, covering up the redd with gravel after each spawning. The female may also spawn with several different males of the spawning season.
- Females may produce 500-3000 eggs depending on their size.
- The eggs hatch around April to mid-June but remain buried in the gravel. The young trout are call **alevin** at this stage and take nourishment from their large yolk sacs.
- After the yolk sac has been mostly absorbed and the water has warmed, the young fish emerge the gravel as **fry**.
- The fry quickly grow into **parr**, a stage of rapid growth where parr marks or dark

vertical bars appear on their sides.

- Brook trout reach sexual maturity in their second to third year in Newfoundland. Adults may migrate to lakes, estuaries or the ocean for their adult lives, but all brook trout return to streams to spawn.

Predation

Brook trout are preyed upon by larger fish like eels, perch and pickerel, and by birds such as mergansers and kingfishers. Mink, otter and humans will also eat them.

Relation to humans

This trout is recreationally fished around Newfoundland. It is one of the most popular game fish in Canada

Interesting facts

- Due to its popularity as a game fish, this species has been introduced around the world.
- Cross breeding between brook and brown trouts produce a “tiger trout”.

At The Suncor Energy Fluvarium

- The Fluvarium level or the ‘windows on a stream’ area has a speculator panoramic view of brook and brown trout as they move throughout their natural habitat.
- See brook trout in our series of aquariums on the Fluvarium level.

Additional resources

Grant, C.G.J., and E.M. Lee. 2004. Life history characteristics of freshwater fishes occurring in Newfoundland and Labrador with major emphasis on riverine habitat requirements. Canadian Manuscript Report of Fisheries and Aquatic Sciences; no. 2672. Department of Fisheries and Oceans.

Scott, W.B. and M.G. Scott. 1988 Atlantic Fishes of Canada. Canadian Bulletin of Fisheries and Aquatic Sciences, 219: 731 p.

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