

Fluvarium Fact Sheets

Arctic char *Salvelinus alpinus*



The Arctic char has been a major food source for Northern Canadian native peoples for hundreds of years. As their name suggests, these fish prefer cold waters.

Description

These fish are similar in shape to salmon and trout. Colour is variable in land-locked spawning char, but non-spawning or sea-run char are usually silvery. Spawning males are bluish green on their top and have a whitish belly with pink to red spots. White spots also cover the body. Spawning adults may have a hooked lower jaw called a **kype** (see Box 1).

Size

The average size of Arctic char varies depending on habitat. They generally grow slowly but anadromous char can grow faster and reach a larger size than land-locked char. In North America:

- **Sea-run** or **anadromous** char generally range in size from 30-70 cm.
- **Landlocked** char generally range in size from 20-40 cm.

Some Arctic char stay small as a strategy for reproduction and survival. The minimum size for a mature female is 0.7 cm.

Lifespan

These fish generally live for about 6-7 years in the wild but individuals aged 11 and 13 years have been caught.

Habitat

Arctic char live in a variety of habitats including streams, lakes and coastal areas.

In Newfoundland, Arctic char live in the deep parts of lakes when other salmonids

(Atlantic salmon, brook and brown trout) are around.

Sea-run char move to sea during spring to early summer and return to estuaries and freshwater by autumn. All char spend winter in freshwater.

Unlike salmon, char can not jump up fish ladders and need higher water levels to get around obstacles.

Range

The Arctic char is found throughout the Arctic, sub-Arctic, boreal and temperate areas including Canada, Norway, Scandinavia, Russia, Iceland and Greenland.

In North America they are found as high north as Ellesmere Island and as far south as Maine.

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.

Kype - the lower jaw of a char that is hook shaped. Usually develops during the spawning season.

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

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

Diet

These fish are carnivorous and eat a variety of marine and freshwater animals.

- In the ocean, Arctic char eat capelin, snailfishes, sand lance, Arctic cod and sometimes smaller Arctic char.
- In freshwater, they eat aquatic insects, snails and other fish including brook trout, rainbow smelt and sticklebacks.

Reproduction and development

Arctic char spawn from November to December in Newfoundland. They choose spawning sites

The female uses her tail to dig a nest or **redd** in the gravel as the males guard and establish territories. She and a male may spawn several times in one area, covering up the redd with gravel after each spawning. The male may also spawn with several different females of the spawning season.

Anadromous females will produce about 3000-5000 eggs, but only a small percentage will survive till maturity.

The eggs hatch around mid-April to mid-May 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 surface ice has broken, the young fish emerge the gravel as **fry**.



Arctic char parr

The fry quickly grow into **parr**, a stage of rapid growth where parr marks or dark vertical bars appear on their sides.

It may take 12-14 years to for the fish reach sexual maturity.

Predation

Arctic char are preyed upon by larger Arctic char, other fish, various diving birds and humans. At sea they are prey to terns and seals.

Relation to humans

This char is an important food source for Northern Canadian native peoples. It is also part of sport and commercial fisheries in Canada. They are also raised through aquaculture.

Interesting facts

- Arctic char have the most northern distribution of all freshwater or anadromous fish.
- Unlike salmon and trout, both mature and immature char migrate to saltwater.
- These fish have are surprisingly varied in size, colour and shape depending on their habitat. Arctic char in one lake can look very different from Arctic char in other lakes.
- Arctic char are being studied in New Brunswick to improve aquaculture production.

At The Suncor Energy Fluvarium

- See Arctic char up close in our series of natural water aquariums that showcase fish species found around Newfoundland and Labrador.

Additional resources

Klemetsen A., Amundsen P.-A., Dempson J.B., Jonsson B., Jonsson N, O'Connell MF, Mortensen E. 2003. Atlantic salmon *Salmo salar* L., brown trout *Salmo trutta* L. and Arctic charr *Salvelinus alpinus* (L.): a review of aspects of their life histories. Ecology of Freshwater Fish. 12: 1-59.

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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