Fluvarium Fact Sheets

Atlantic salmon

Salmo salar

Atlantic salmon are an important food fish that is harvested commercially and recreationally. Efforts are being made to restock Newfoundland and Labrador's rivers with this species.

Description

Atlantic salmon vary in colour based on their habitat, age and sexual activity. Adults in freshwater are bronze to olive coloured with small black spots (and occasionally red spots) on the head back and sides. In saltwater, the salmon turn silvery, with a metallic green sheen.

Two characteristics that can be used to distinguish these fish from trout common in Newfoundland and Labrador are a long slender **caudal peduncle** (*see Box 1*) and a mouth that does not extend beyond the eye. Mature males may have a hooked lower jaw called a **kype**.

Size

The average size of Atlantic salmon varies depending on habitat.

- **Sea-run** or **anadromous** salmon can be especially big, with the largest caught in the world weighing 35 kg (77 lb). Most are around 9 kg (20 lb) less.
- In Newfoundland largest Atlantic salmon living in freshwater caught was 9 kg (20 lb).

Lifespan

These fish generally live for about 4-10 years in the wild.

Habitat

Atlantic salmon are anadromous and spend the first few years of its life in freshwater before migrating out to sea. During the first few years of life, they live in large cool rivers with very gravely bottoms. The young **parr** actively seek cover under overhanging vegetation and undercut banks. They also prefer faster flowing water than other trout, char or salmon. Adult salmon in lakes are generally found near the bottom.

Range

The North American population of Atlantic salmon is found all along the Atlantic coast from the Arctic circle down to the Connecticut river. Both anadromous and freshwater salmon are found throughout Newfoundland and Labrador.

Box 1: Definitions

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

Caudal peduncle – The area of the tail in front of the tail fin but behind all other fins.

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.

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.

Diet

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

- Small, young salmon eat the larvae of aquatic insects including blackflies, stoneflies and mayflies.

- Land locked adult salmon eat terrestrial insects and fish like sticklebacks.
- At sea they eat plankton and amphipods. Large adult salmon at sea eat fish including herring, alewives, smelt and capelin.

Reproduction and development

Atlantic salmon spawn from mid-October to mid-November in Newfoundland. They choose spawning sites in streams with clean, well-oxygenated, gravel-bottom **riffle areas** above a pool or at the tail of a pool. They may also spawn in a lake and choose shallow sites along the shore with a gravel bottom.

Males will attempt to court a female and drive her towards a suitable spawning site. The female uses her tail to dig a nest or **redd** in the gravel. The female may rest frequenly while digging a nest and while the male continues to drive away other male salmon. 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.

The number of eggs deposited depends on the size of the female. Generally about 8 000-26 000 eggs are produced but only 74-91% will survive to hatch in the spring and only 10-30% will survive the first winter.

The eggs hatch around mid-April to early-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 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.

It takes 3-4 years to for the fish reach sexual maturity. Some adults may stay in freshwater or migrate to the the ocean for their adult lives, but all Atlantic salmon return to freshwater to spawn.

Predation

Young salmon are prey to merganser ducks and kingfishers. American eels may also eat large numbers of young salmon. Se-run salmon are preyed upon Pollock, tuna, and various sharks and seals.

Relation to humans

This species is an important recreational game fish. Due to high demand for Atlantic salmon, there are many aquaculture operations for this species throughout the world.

Interesting facts

- The scientific name *Salmo salar* means to jump in latin. They can make leaps up to 3.7 m.
- The largest known Atlantic salmon caught in Canada was 25 kg (55 lb) from the Grand Cascapedia River, Quebec. The oldest Atlantic salmon known from Newfoundland was 14 years old.
- From 1995-2002, The Fluvarium took part in an Atlantic salmon restocking program in partnership with the Department of Fisheries and Oceans. Salmon eggs were incubated on site and each year about 8000 salmon fry were released into the Rennie's, Waterford and Virginia Rivers.
- In 1999, salmon were found in a fish trap at Quidi Vidi Lake. They were believed to be from the first batch of fry released in the system in 1995 and were the first salmon seen in the rivers since the 1930's.

At The Suncor Energy Fluvarium

- Join the The Suncor Energy Fluvarium in helping restock Atlantic salmon with the Atlantic Salmon Federation's Fish/Friends program. Each spring The Suncor Energy Fluvarium delivers about 1600 salmon eggs to various schools that raise the eggs in special classroom incubators. In the late spring, classes go to The Suncor Energy Fluvarium to release salmon eggs into Nagle's Hill Brook.
- Go nose to nose with our resident Atlantic salmon on our Fluvarium level.

Additional resources

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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