

*"Upstream
swims
the salmon"*

The salmon is a migrating fish species. It is born in the fresh water of rivers and streams, migrates to the sea where it reaches maturity, and one day comes back to its home river to spawn. The salmon's journey can be over 3000 kilometres long.

The life of the salmon starts as a fish-egg the size of a pea in the gravel of the river bed. During its years in the river, the fry feeds on micro-organisms, growing to approximately 15 centimetres, but already bearing resemblance to a grown salmon. Its appetite grows and its migration instinct awakens, and soon it is time to say goodbye to the home river.

Upon reaching saline water the young salmon follows the same routes as its ancestors. It becomes a predator and quickly grows to approximately one meter and 10 kilograms, with older individuals sometimes weighing up to 20 kilograms. After a few migratory years the instinct to spawn drives the salmon back to its birthplace – and the most impressive phase of the migration begins.

"Upstream swims the salmon", writes poet Juhani Siljo. The salmon can jump up to a height of two metres above the surface when negotiating rapids on its journey upstream to the spawning areas. It also stops eating, and loses up to one third of its weight. After it has spawned, the salmon has fulfilled its biological mission and begins its journey back into the sea.

Some of the salmon don't survive the stress of spawning, but some come back to their home rivers later – and the big circle closes.

A stairway for the salmon

The Merikoski fish passage opened in summer 2003. It enables migrating fish to swim upstream past the Merikoski power plant to the upper parts of the Oulujoki river. Thanks to the fish ladder, salmon and other migratory fish can now climb to the 40-kilometre stretch of the river between the Merikoski power plant and the next power plant in Montta and reach the Muhosjoki and Sanginjoki tributaries.

Populations of migrating fish in the Oulujoki river are maintained with obligatory annual fish stockings. The fish passage enables a natural reproduction cycle for the fish. Spawning areas where the fish can reproduce in a natural setting have been reconditioned upriver.

Extensive studies of several years preceded the building of the fish passage. Suitable areas for the entrance were studied, and the behaviour of different fish species was observed in an experimental fish passage and in the former channel of the rapids.

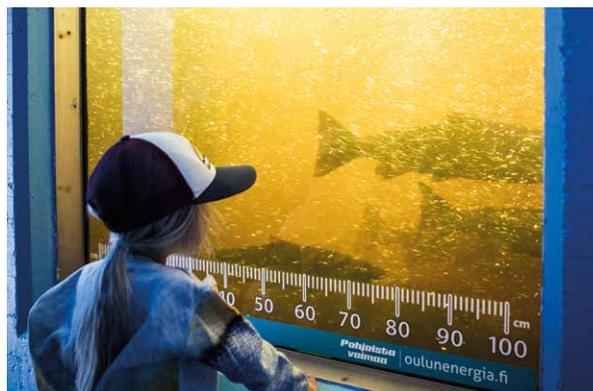
The fish passage consists of three parts. The entrance to the passage is in an old log-floating channel by the power plant. The middle leg is an ascending groove dredged to the old river bed, while the final steeper section is formed by a landscaped, stream-like stretch in the Hupisaaret park. To reach the upper reservoir of the Merikoski power plant and continue upriver, the fish must navigate a number of turns and steps. They must first find the entrance of the fish ladder, then climb an ascending stretch of 750 metres with 64 steps to an altitude of 11 metres above sea level. The most difficult challenge in building the fish ladder was how to signpost this complicated route.

Research data on fish migration

An observation room with an underwater window for watching the fish is located near the top of the fish passage in Hupisaaret. The room is also open for the general public on special guided tours that give a glimpse to the aquatic lives of the fish.

The movements of the fish are monitored constantly. When the fish passage is open, the passing fish can be watched online on a web camera on Oulun Energia's website at oulunenergia.fi/en/merikoski-fishway. The migrating fish are also monitored using a fish counter that captures each fish on video. The recording is used to determine the species, size and number of the fish swimming upriver, and statistics show there really is plenty of traffic going upstream: in addition to salmon and trout, the species that use the fish passage include perch, bream, roach, pike and whitefish.

Fish counter data reveals, for example, that a salmon of 18 kilograms and a trout of 6–7 kilograms are the biggest fishes that have travelled upstream, and that in September 2019 the number of salmon swimming upriver in one day was 245.



The city, the river and the salmon

The coat of arms of the city of Oulu bears a castle and a salmon. When the city was founded, the river was an important trade and military route, and the abundance of salmon in the river was an important factor that attracted people to settle down in the region. It was migrating fish, above all salmon — the meat of which was called “the red gold” — that made the reputation of Oulujoki as a river rich with fish.

For centuries, salmon fishing remained an important source of livelihood for the landowners along the river. For a long time salmon, along with tar and butter, was one of the most important export products of the traders of Oulu. Stockholm was the main export destination, and salmon was also used as currency for paying taxes to Sweden.

A rich social life with fishing associations, salmon weirs and sometimes legal proceedings that seemed to have no end developed around salmon fishing. In the 1800s, British sport fishers, the so-called salmon lords with habits that appeared outlandish to the locals, also contributed to this tradition.

During the 19th century the annual salmon catch from the river was approximately 40,000 kilograms, but at the turn of the century the amount started to fall. In 1899 the catch was down to 18,000 kilograms, and by 1902 it had dwindled to 6,500 kilograms. As the salmon weirs also obstructed the log floating of the growing wood industry, they were considered unprofitable and were gradually dismantled. The river fishing of salmon turned to the cheaper but also less reliable seine fishing.

In the 1940s, the construction of the Merikoski hydro-electric power plant at the mouth of the river cut the salmon and other migrating fish off from the river. Salmon fishing moved to the stretch of the river between the power plant and the sea, and a new era of hydro-electric power began in the history of the river.