

Salmon at weirs

November 2015

Salmon jumping at weirs give us a glimpse into an important stage of the amazing lifecycle of this magnificent and charismatic animal.



Atlantic salmon jumping at a weir

What is an Atlantic salmon?

A native fish found in many European Rivers. They can reach sizes of over 1m. In the last few decades numbers have been in decline despite improvements in river water quality and habitat. Causes may include reduced sea survival, climate change, and barriers. According to the Atlantic Salmon Trust, numbers of salmon at sea was an estimated 8 million in the 1960s and 70s. In more recent years this number is down to just 3 million.

Why are they jumping?

Salmon migrate between different environments - in this case the sea and the river. They are trying to get up the river to their natal spawning areas where they started life. Barriers like weirs can stop or delay these fish getting to these spawning and nursery grounds. The more they jump the more chance they have of becoming exhausted or injured which may result in fungal infections.

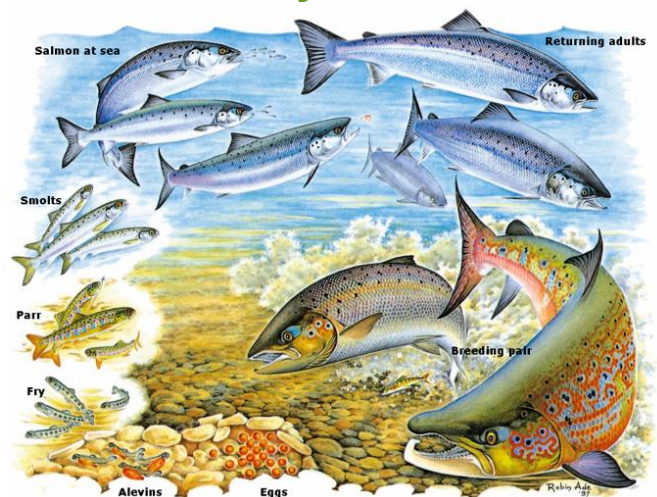
Lots of salmon are jumping, so is the population healthy or increasing?

Unfortunately not! Salmon migration is triggered by river flows, so often salmon are seen trying to get past a barrier at one point in time. Sometimes it is a few fish jumping over and over again. They can also get stuck below weirs at times of low flow.

Why are they not using a fish pass?

Where there is a fish pass present, most salmon will make use of it. Unfortunately no fish pass works well all of the time. Efficiency depends on river flow and pass-type. Salmon locate fish passes due to the 'attraction flow' of water coming from the pass. This may not be strong enough to draw fish directly to it. In this case salmon will work their way along the weir to a fish pass.

Salmon life cycle



Adult migration

At sea, salmon are extremely wide-ranging, some travelling from UK rivers as far as Greenland or Norway. They feed as much as possible to build up fat reserves. They then undergo physical changes to enable them to migrate back to freshwater.

There are two main migrations from sea to freshwater. Large 'multi-sea winter' fish tend to migrate from February as 'spring fish'. These do not feed in freshwater, but will spend the whole of summer and autumn living off their body fat. Smaller salmon that have been at sea for only one 'sea winter' tend to migrate into rivers from September. The longer a salmon has been in freshwater the more 'coloured' it becomes: a silver fish jumping at a weir is an autumn-run fish that has recently been at sea.

Before they spawn, both males and females undergo a series of changes. Females have developing eggs inside them, around 1,500 eggs per kg of fish. Males develop a large kype (hooked

lower jaw) that helps them fight other males. How far they have to travel will depend where the fish started its life as an egg.



Male Atlantic salmon with kype

Spawning

Spawning is triggered by temperature, occurring from November. On spawning grounds females build a series of redds (or nests) in clean gravels into which they lay their eggs. At each spawning, males will compete to be the one chosen by the female. However, eggs in each redd have been found to be fertilised by on average 6 different males! One or two males will pair with the female to release their milt directly onto the eggs, but at the same time, smaller 'sneaking' males will rush in and release their milt as close as possible to the eggs. The eggs develop over several months; juveniles then spend two or more years before 'smolting' and migrating to sea from April.

After spawning

Unlike Pacific salmon, Atlantic salmon do not always die after spawning. Most are too exhausted to recover, but a few post-spawning fish called 'kelts' may slowly make their way back to sea, and regain condition to spawn again.

Impacts on salmon at weirs

Pollution

River water quality has improved. However a pollution event or construction works in the water could delay or harm migrating fish. We regulate to keep in-river works to a minimum from October.

Netting and angling

Nets men in estuaries are only allowed to operate for limited time periods and take a very small number of fish to minimise impacts on salmon.

Anglers can use rod and line to catch salmon with the correct licence. However, there are close seasons to protect migrating fish ([check byelaws](#)). Catch and release is mandatory in some areas or for some time periods. When this is not the case we promote voluntary catch and release. The target is for over 75% of salmon caught, to be released unharmed. Salmon delayed below weirs may be vulnerable to illegal fishing.

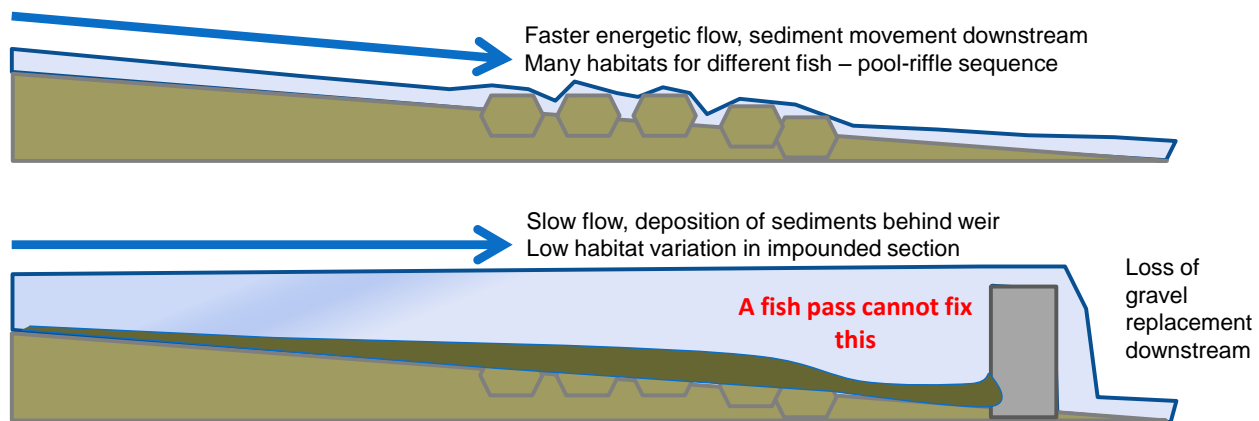
Predation

This is a natural form of mortality, but fish delayed at weirs or exhausted from jumping may be more vulnerable to predators.

Impact of structures in the river

Structures in the river have two impacts on salmon and other fish. The first is delaying or preventing fish movement up or downstream. The second is the most serious: habitat loss. Barriers prevent the natural movement of gravels through the river, and reduce the amount of variable habitat suitable for different species and life stages of fish including salmon, e.g. clean spawning gravels, fast flowing and shallow juvenile areas and small pools for resting adults. We would not usually support construction of new weirs and where suitable we support removal of defunct structures.

Impacts of instream structures on river habitat



customer service line
03708 506 506

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0345 988 1188

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