

Salmon

Salmo salar

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Biology

Atlantic salmon (*Salmo salar*) is indigenous to the North Atlantic coast of Europe and the rivers flowing into it. It is an anadromous species. It reproduces in freshwater, where it also spends its first few years, but spends most of its life in sea water.

Spawning occurs from October to January. Eggs are released and fertilised in upstream gravel beds, and require very clean and well oxygenated waters. Many fish die after spawning. The alevins feed for around four to six weeks on their own reserves; subsequently the fry start to feed on insect larvae. The juvenile fish, called 'parr', stay in freshwater for two to five years, until they go through the smoltification process, whereby the fish adapt their physiology to seawater and migrate to the sea, usually between March and June.

Farming

Hatchery techniques for Atlantic salmon were originally developed in the United Kingdom in the 19th century for restocking purposes. However, it was in Norway in 1960 that a farm first marketed adult salmon produced in floating cages.

The initial stage of the salmon farming cycle takes place in freshwater. The reproduction of Atlantic salmon in captivity is strictly controlled. The eggs are removed from the female fish and are fertilised by mixing them with sperm taken from the male fish. They are then placed in incubation tanks. The rearing of hatched alevins takes place in two stages. The first stage, in silos or trays, lasts four to six weeks, until the larvae have absorbed their yolk sac and developed into parr. In the second stage, the parr are transferred to freshwater tanks (or floating cages in a lake), where they will remain for one to two years, the time required for smoltification.

The smolts are then transferred to a sea site, where they are placed in a floating cage. They stay in the cage for around two years, the time it takes to reach commercial size (2-5 kg).

Salmon are carnivorous and the smolts are fed pellets made of fishmeal and fish oil. These contain additional ingredients, such as vegetable meals and extracts (cereals, beans, soy etc.), vitamins, mineral salts and carotenoid pigment, which gives them their characteristic colour.

Production and trade

Worldwide, aquaculture accounts for two thirds of total salmon production. The main farmed species is Atlantic salmon, accounting for 93% of total aquaculture production. In 2009, the main producers of Atlantic salmon were Norway, Chile, the EU and Canada.

In the EU, salmon production is limited to Atlantic salmon. Farming of other species and fishery captures are negligible. The EU is very dependent on the rest of the world for salmon, since it imports 80% of its supply from third countries, and 80% of that from Norway. Imports from China are on the increase, but this is actually Norwegian salmon which has been filleted and frozen in China. The two major EU importers of Norwegian salmon are Sweden and Denmark, although they only act as hubs and actually re-export almost everything to the main EU markets for salmon (France, the United Kingdom, Germany and Poland). This specific role of Sweden and Denmark explains why the value of intra-EU trade seems to be as big as the value of imports. Poland and Germany also contribute to this important intra-EU trade by processing (mainly smoking) Norwegian raw material. Exports from the EU (mainly Scottish salmon towards the USA) are not very significant.



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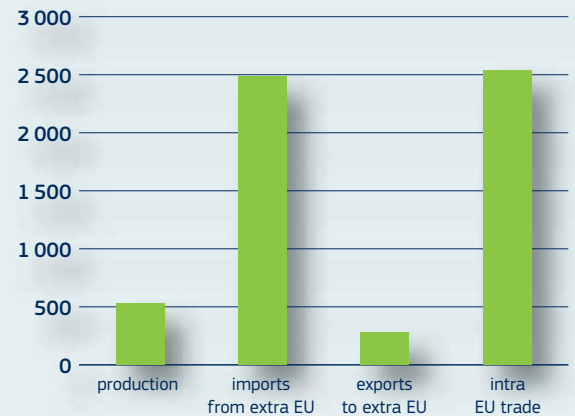
Presentation on the market

Salmon is a highly versatile fish, as reflected in the number and variety of salmon-based products on the shelves all over the EU. There is a high proportion of fresh sales, which fishmongers present as fillets or cutlets and supermarkets in pre-packaged format. Smoked salmon is a popular delicacy that is generally presented vacuum-packed and pre-sliced.

Nutritional value per 100 g (average for UK and Norwegian farmed salmon)

Calories: 198 kcal
Protein: 20 g
Selenium: 12 µg
Vitamin D: 5.7 µg
EPA: 612 mg
DHA: 869 mg

EU salmon supply and trade* (2009) (MEUR)



* from fishery and aquaculture.

Source: Eurostat.

Salmon waterzooi

Ingredients (serves 4)

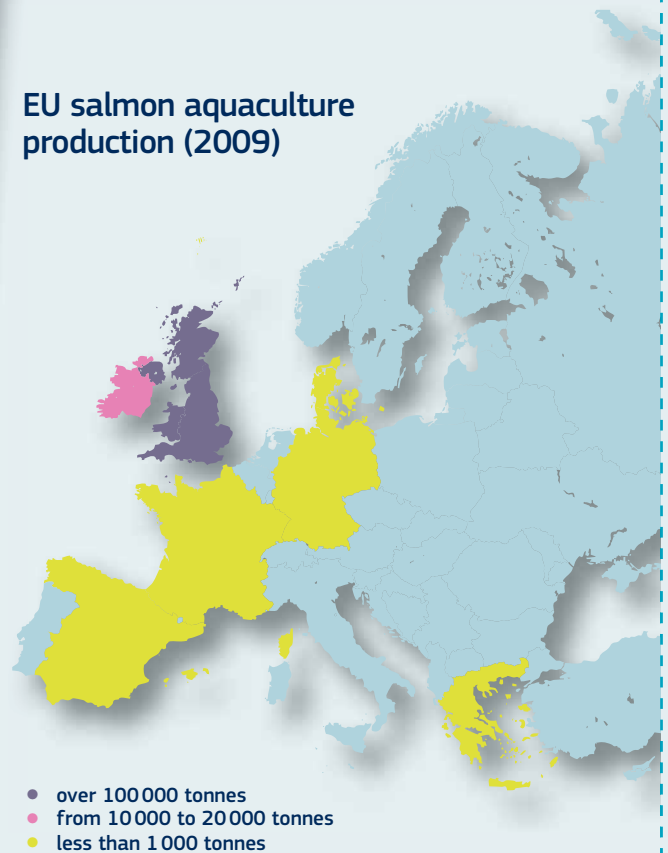
- 4 salmon steaks
- 150 g carrots
- 100 g celery stalks
- 50 g leeks, white parts only
- 50 g roux
(25 g butter and 25 g flour)
- 150 ml cream
- 2 egg yolks
- Butter
- Salt and pepper

Method

1. Finely slice the carrots, celery and leeks into evenly-sized batons. 'Sweat' the vegetables in a pan with a little butter for around 3 minutes.
2. Add just enough water to cover the vegetables, season and simmer for around 12 minutes. Strain the juices through a sieve and set the vegetables aside.
3. Grease a deep baking dish with butter and place the seasoned salmon steaks in the dish.
4. Add water to the cooking juices from the boiling vegetables to make 1 litre, then pour the juices over the salmon. Bake in a pre-heated oven at 175 °C for 15 minutes.
5. Remove the salmon steaks and keep warm.
6. Strain off the cooking juices and blend with the roux. Simmer for 5-6 minutes.
7. Blend the eggs with the cream and stir into the sauce. Add the cooked vegetable batons.
8. To serve, place one salmon steak on a soup plate and cover with a generous helping of the sauce.

Recipe courtesy of chef Philippe Votquenne (Euro-Toques Belgium)

EU salmon aquaculture production (2009)



Source: Eurostat.