

Turbot

Psetta maxima

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Biology

Turbot (*Psetta maxima*) is a prime flatfish with both eyes on the upper side. It is common on the Atlantic coasts of Europe, but less frequent in the Mediterranean. It lives in marine sandy and muddy bottoms, from shallow waters down to 100 metres deep, imitating the colour of the substrate. Spawning takes place from May to July in the Atlantic and earlier, from February to April, in the Mediterranean. Larvae are initially symmetrical, but after 40 to 50 days, as they develop, the right eye moves to the left side. The turbot is carnivorous. Juveniles feed on molluscs and crustaceans and adults mainly on fish and cephalopods.

Farming

Turbot farming started in the 1970s in the United Kingdom and was then further developed in France and Spain. Although other EU countries are involved in turbot aquaculture activities, Spain, particularly the Galicia region, has become the main EU producer.

Like most of the seabream and seabass seed supply, turbot juveniles are produced by technologically sophisticated hatcheries which require skilled staff.

Reproduction in captivity is carried out under strictly controlled conditions. Broodstock are maintained in concrete tanks, at low densities, under specific photoperiod and temperature conditions, and fed on specially designed moist pellets. This provides eggs all year round. The eggs are pelagic and are placed in incubation tanks until hatching.

Larvae are reared in semi-intensive systems (five larvae per litre) or intensive systems (twenty to forty larvae per litre). When their mouths open, they are fed zooplankton and subsequently artemia (a small crustacean). Phytoplankton may also be added to the tanks. During their second month they are weaned onto commercial artificial diets. In the following two months, the juveniles are fed on dry granules in nurseries and reach a weight of 5-10 g.

The juveniles are then transferred outside to bigger tanks for a pre-fattening period of several months until they reach around 100 g.

On-growing normally takes place in outdoor, land-based, square or circular tanks with open-circuit pumped seawater. The tanks are covered to protect the fish from sunburn. Density is 20 to 40 kg per square metre. Only a small proportion of European turbot is produced in recirculation aquaculture systems (RAS). Flat-bottomed cages can also be used for the on-growing stage but are less frequent. It takes 26 to 30 months to reach a commercial size of 1.5 or 2 kg.

Production and trade

Turbot production used to be limited to the European area before turbot farming was developed in China with broodstock imported from Europe. According to FAO data, China produces around 60 000 tonnes of farmed turbot, while EU aquaculture production is just under 10 000 tonnes and EU fisheries production around 6 000 tonnes per year. Within the EU, Spain is the main producer of farmed turbot, but a sizable development of turbot aquaculture is expected in Portugal soon. Trade with third countries is not significant. Intra-EU trade of farmed turbot is assessed at half the value of EU aquaculture production, with main flows from Spain towards France, Italy and Portugal.



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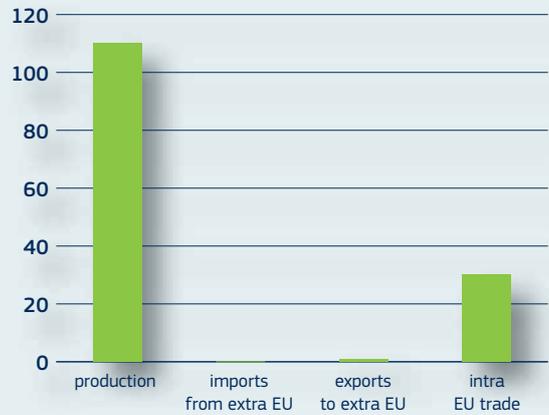
Presentation on the market

This prime flatfish is generally sold whole. Its main outlet is to the restaurant trade.

Nutritional value per 100 g (average)

Calories: 108 kcl
Protein: 18 g
Selenium: 18 µg
Vitamin D: 3.6 µg
EPA: 364 mg
DHA: 428 mg

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



* from fishery and aquaculture.

Source: Eurostat.

Turbot with wild mushroom risotto

Ingredients (serves 4)

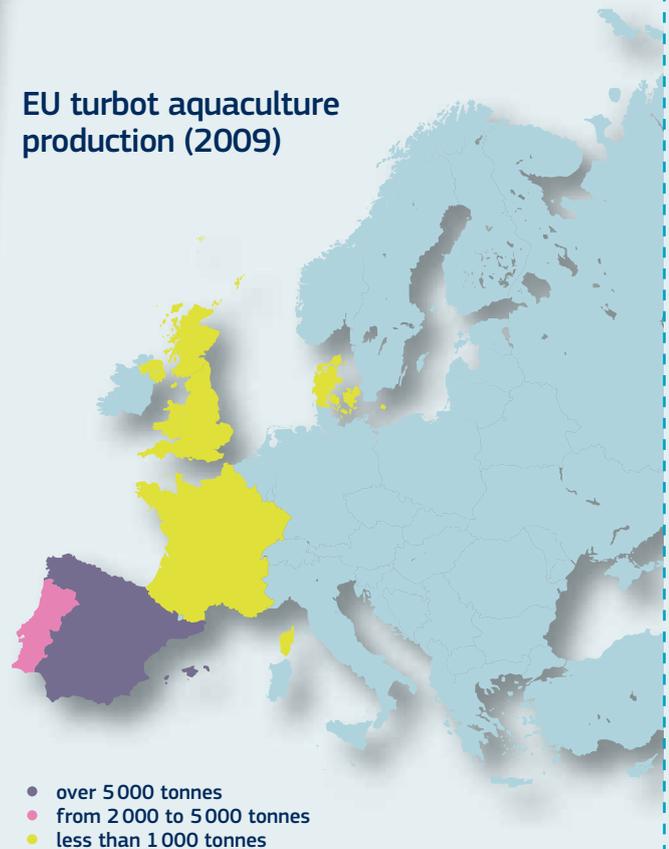
- 600 g turbot fillets
 - 150 g Arborio or Carnaroli rice
 - 2 shallots
 - 200 ml chicken stock
 - 100 g wild mushrooms
 - 100 ml white wine
 - 50 g parmesan
 - 50 g butter
 - 1 sprig of dill
 - Olive oil
 - Salt and pepper
- For the herb-infused oil:
- 400 ml olive oil
 - 1 bunch of flat-leaf parsley
 - 1 garlic clove
 - 20 basil leaves
 - 1 green chilli

Method

1. For the herb-infused oil: Put all the ingredients in a blender, strain, then place in the fridge.
2. For the risotto: Melt the butter in a saucepan with the chopped shallots, add the rice and blanch. Pour in the wine and reduce. Add the stock to the pan in small quantities and at regular intervals, stirring continuously. Simmer for around 13 minutes.
3. Fry the mushrooms separately and add them to the risotto with a little grated parmesan and a knob of butter. The rice should be *al dente*.
4. Season the turbot fillets with salt and pepper and pan fry in a little olive oil.
5. To serve, place a spoonful of risotto in the centre of each plate. Lay the salmon on the rice, drizzle the spiced oil around the risotto and garnish with dill.

Recipe courtesy of chef Eric Patigny (Euro-Toques Belgium)

EU turbot aquaculture production (2009)



Source: Eurostat.