

Marine Fish and Culture

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Gilthead seabream - *Sparus aurata*
Linnaeus, 1758 [Sparidae]



Taxonomic and biological features: Distinguishing characters

- Body oval, rather deep and compressed. Head profile regularly curved. Eye small. Total gill rakers on first arch 11 to 13, 7 or 8 lower and 5 (rarely 4) to 6 upper. Dorsal fin with 11 spines and 13 to 14 soft rays. Anal with 3 spines and 11 or 12 soft rays. Cheeks scaly, preopercle scaleless. Scales along lateral line 73 to 85. Colour silvery grey; a large black blotch at origin of lateral line extending on upper margin of opercle where it is edged below by a reddish area; a golden frontal band between eyes edged by two dark areas (not well defined in young individuals); dark longitudinal lines often present on sides of body; a dark band on dorsal fin; fork and tips of caudal fin edged with black. The longevity of gilthead seabream in the wild has been reported to be about 11 years (Campillo, 1992), with a weight-length relation of $Wt (g) = 0.0096 \times Length (cm)^{3.02}$.

Biological features

- Body oval, rather deep and compressed. Head profile regularly curved. Eye small. Mouth low, very slightly oblique. Lips thick. Four to 6 canine-like teeth anteriorly in each jaw, followed posteriorly by blunter teeth which become progressively molar-like and are arranged in 2 to 4 rows (teeth in the 2 outer rows stronger). Total gill rakers on first arch short, 11 to 13, 7 or 8 lower and 5 (rarely 4) to 6 upper. Dorsal fin with 11 spines and 13 to 14 soft rays. Anal with 3 spines and 11 or 12 soft rays. Cheeks scaly, preopercle scaleless. Scales along lateral line 73 to 85. Colour silvery grey; a large black blotch at origin of lateral line extending on upper margin of opercle where it is edged below by a reddish area; a golden frontal band between eyes edged by two dark areas (not well defined in young individuals); dark longitudinal lines often present on sides of body; a dark band on dorsal fin; fork and tips of caudal fin edged with black.

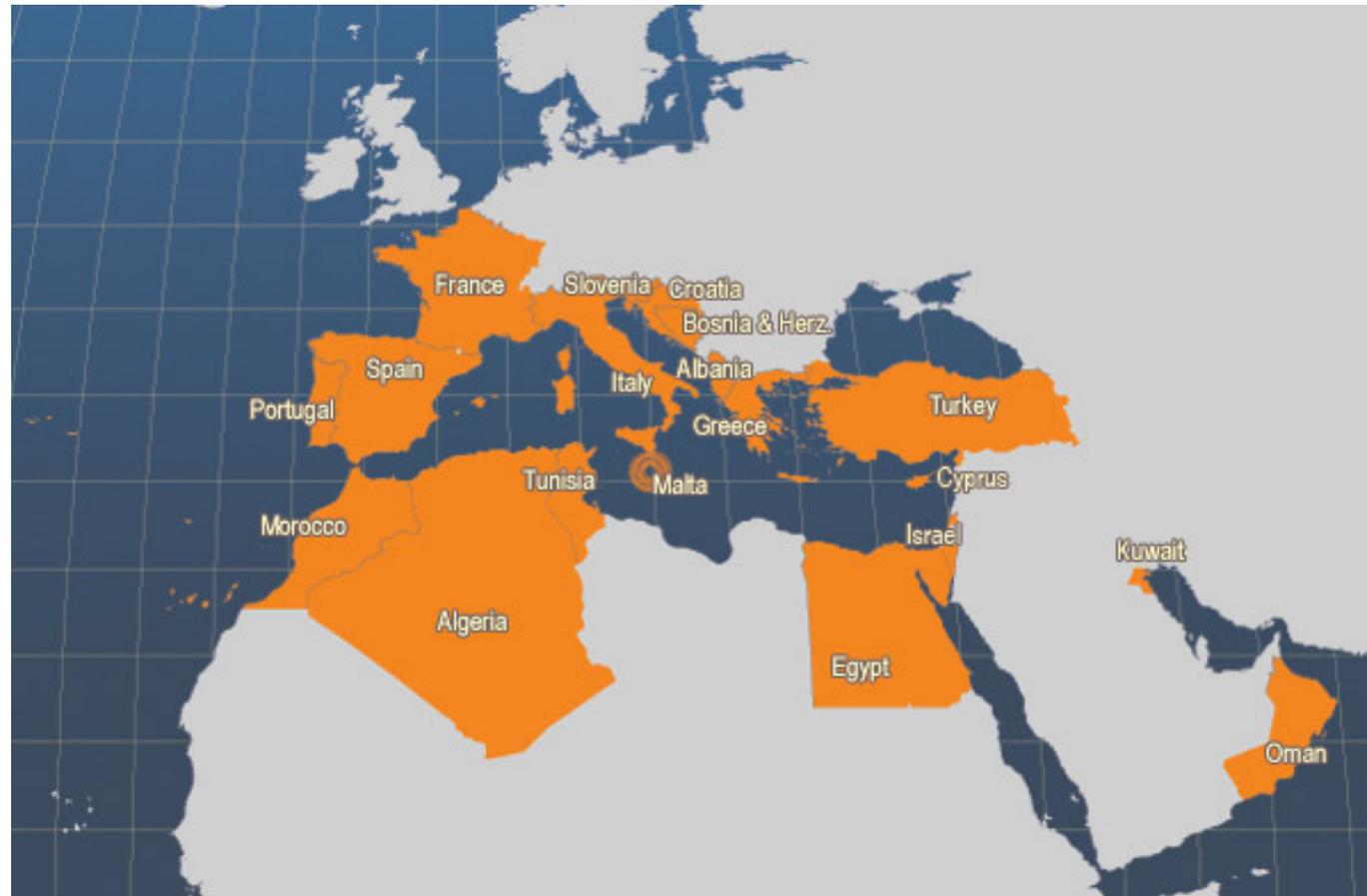


Historical background

- Traditionally, gilthead seabream were cultured extensively in coastal lagoons and saltwater ponds, until intensive rearing systems were developed during the 1980s. The Italian 'vallicoltura' or the Egyptian 'hosha' are extensive fish rearing systems that act like natural fish traps, taking advantage of the natural trophic migration of juveniles from the sea into coastal lagoons. Gilthead seabream are very suitable species for extensive aquaculture in the Mediterranean, due to their good market price, high survival rate and feeding habits (which are relatively low in the food chain).

Artificial breeding was successfully achieved in Italy in 1981-82 and large-scale production of gilthead seabream juveniles was definitively achieved in 1988-1989 in Spain, Italy and Greece. The hatchery production and farming of this fish is one of the success stories of the aquaculture business. This species very quickly demonstrated a high adaptability to intensive rearing conditions, both in ponds and cages, and its annual production increased regularly until 2000, when it reached a peak of over 87 000 tonnes.

Main producer countries



Habitat and biology

- *Sparus aurata* is common in the Mediterranean Sea, present along the Eastern Atlantic coasts from Great Britain to Senegal, and rare in the Black Sea. Due to its euryhaline and eurythermal habits, the species is found in both marine and brackishwater environments such as coastal lagoons and estuarine areas, in particular during the initial stages of its life cycle. Born in the open sea during October-December, juveniles typically migrate in early spring towards protected coastal waters, where they can find abundant trophic resources and milder temperatures. Very sensitive to low temperatures (lower lethal limit is 4 °C), in late autumn they return to the open sea, where the adult fish breed. In the open sea gilthead seabream are usually found on rocky and seagrass (*Posidonia oceanica*) meadows, but it is also frequently caught on sandy grounds. Young fish remain in relatively shallow areas (up to 30 m), whereas adults can reach deeper waters, generally not more than 50 m. This species is a protandrous hermaphrodite. Sexual maturity develops in males at 2 years of age (20-30 cm) and in females at 2-3 years (33-40 cm). Females are batch spawners that can lay 20 000-80 000 eggs every day for a period up to 4 months. In captivity, sex reversal is conditioned by social and hormonal factors.