

Black Sea Bream

Spondyllosoma cantharus (L.)



Size	Commonly 35cm, up to 60cm
Lifespan	Approximately 15 years
Size at reproductive maturity	20 cm as female, 30-40cm as male
Age at reproductive maturity	2 - 3 years as female, 5-6 years as male
Fecundity	31,000 eggs in a 18.5cm female to 554,000 in a 33.5cm female
Larval phase	Demersal (stationary) egg phase followed by a 30 day planktonic larval phase
Adult mobility	Free swimming (demersal)

Species description

Black bream have an elliptical, compressed body shape with a single dorsal fin which is spiny-rayed at the front, a tail fin which is forked and a small mouth which does not extend back to the level of the eye. The adult colouration is silver, tinged with blue and may have broken golden longitudinal lines.

Reproductive behaviour

Black bream are protogynous hermaphrodites (mature as female and later change to be male). Sexual maturity as female takes place at approximately 20cm in length and the sex change from female to male is likely to occur between 30 and 40 cm. The larger individuals in the population are mature males and they exhibit a humped shoulder, a concave forehead and, during the breeding season, may appear dark silver to black with an iridescent blue-grey band between the eyes.

They actively seek specific types of seabed upon which to spawn. Habitats which have been identified are: open gravel areas, gravel areas adjacent to chalk reefs, gravel within sandstone reefs and gravel associated with ship's wreckage. The common feature of these habitats is a thin layer of mobile gravel over a hard surface. The males use their tail to remove the surface gravel layer and expose the bedrock or compacted gravel beneath, thus creating a 'nest' between 1 - 2m wide and 5-30cm deep. It is suggested that the males use their nests in intraspecific competition to attract a female. The females lay their eggs in a thin layer within the nest. The eggs are sticky and they become strongly attached to the rock surface. Following this, the male will fertilise the eggs and subsequently guard the nest.

The juvenile bream remain in the vicinity of the nest until they are 7 - 8cm in length. Following this, they disperse slightly but continue to remain in the inshore areas for 2 - 3 years (approximately 20cm in length), when they become sexually mature and recruit to the adult stock.

The hermaphroditic nature of black bream may have important consequences for the sustained reproductive capacity of the stock. Between 1977 and 1979, the modal size of the black bream decreased from 37-38cm to 28-30cm as the bream fishery expanded (the fishing practices used to catch black bream selectively targets larger individuals). This has the potential to affect the sex-ratio of the population and thus reproduction and repopulation.

Migratory behaviour

The adult black bream stock overwinter in deep water (50-100m) west of a line from Alderney to Start Point. As the water temperature of the English Channel increases in spring, the bream migrate east and it is suggested that they follow the 9°C isotherm. They arrive in Sussex in March and inhabit the shallow inshore areas (<5m) to feed prior to reproducing. Around April, they generally move to the area in between the south of the Winter Knoll and Kingmere Rocks (off the coast of Littlehampton). This area has been identified as a black bream breeding ground; it is 5 - 10m deep and consists of the habitats associated with black bream nesting areas. Egg laying takes place from early May until early June and they remain in this area until early July. Black bream can also be found in smaller quantities throughout the district during this time (in particular around Selsey Bill and the Royal Sovereign Shoals near Eastbourne). Post spawning the bream continues to feed inshore, migrating east to the southern North Sea. In November they begin their return migration west, arriving in the western Channel in January then return offshore to the deeper waters.

Predators and prey

Black bream predominantly feed upon seaweed and invertebrates for which they have specially adapted teeth. In addition, the stomach contents of fish which inhabit a known cuttlefish nursery ground were investigated; they found black bream to be a main predator of young cuttlefish (8 - 61mm mantle length) but not upon cuttlefish eggs. Male black bream stay in the close vicinity of their 'nest' until their eggs hatch. The purpose of this behaviour is believed to be guarding the eggs from predators. Likely predators on black bream eggs are the clawed crustaceans; spider crabs and brown crabs in particular which are migrating inshore through the black bream breeding sites at that time of year. Adult black bream have few predators; however a few are likely to be taken by seabirds and marine mammals.

Fishing activity

Black bream are present within the Sussex IFCA district from March to November, being most prolific from April until early July. Upon arrival in the district, they inhabit the shallow inshore hard ground areas to feed before breeding and it is during this time that they are targeted by small inshore boats using fixed nets. The fish then move onto their breeding grounds where nest making, breeding and subsequent guarding of the nests occurs. During this time, they are targeted by the pair trawlers, stern trawlers and commercial and recreational anglers. Post-breeding (early July) the majority of the fish leave the Sussex district, however some are still caught by anglers in the area until September and further offshore at the Outer Owers until November.

