Cuttlefish

*Sepia officinalis*

Cuttlefish are cephalopod molluscs, a group which includes octopus and squid. There are more than 100 species that live in tropical, subtropical and temperate waters in all oceans and seas, except the coasts of the Americas.

The name cuttlefish may be used for all species of the genus *Sepia*, of which *Sepia officinalis* is the most common in North East Atlantic waters. The similar bob tailed squid (*Rossia macrosoma*) can also be sold as cuttlefish in UK (1). Reported catches in the North East Atlantic have been between 12 and 30,000 tonnes per annum over the past 20 years.

**Biology**

Cuttlefish have an internal shell, their eyes have large V-shaped pupils, and they have eight arms and two tentacles furnished with suckers. Cuttlefish are sometimes referred to as the chameleon of the sea. Individuals are capable of very rapid colour change, especially when threatened; the animal may also take on the colour or patterning of its background for camouflage.

As well as being found just above the seabed, they can also bury themselves in soft sand or mud, and attach themselves to hard substrates. It is believed that they make use of tidal flows in mid water to migrate.

Cuttlefish feed on small molluscs, crabs, shrimp, fish, octopus, worms and other cuttlefish. They are voracious predators with a very rapid growth rate. In the English Channel they grow from hatchlings to adults of around 20-30 cm and 1-2 kg weight, in 18 to 22 months.

In the English Channel they overwinter in deeper areas, moving into shallow coastal waters (rarely more than 40 m depth); such as Lyme Bay, The Solent, or Baie du Seine to breed in spring and summer (2,3).

Cuttlefish breed once, and die soon after laying their eggs. They mate head to head, with the males depositing capsules of sperm in a sack below the females mouth. The females lay relatively small numbers of large ovoid eggs (150 – 4000 eggs/female) which are 1.2 - 1.4 cm in diameter shortly after mating. The eggs, stained with cuttlefish ink, are laid in clusters on hard structures and take on the appearance of grapes; hence their common name of ‘sea grapes’.

Reported catches of cuttlefish (tonnes) in the North East Atlantic 1989-2010 (source ICES statistics).
Young cuttlefish hatch (in optimal conditions after about a month’s incubation) as miniature adults (6-9 mm) and live close to the seabed, growing rapidly during their first summer, moving offshore and recruiting into the offshore beam trawl fishery in the autumn at about 15 cm. After this stage the cuttlefish begin to develop their reproductive organs, reaching adulthood at 18 - 22 months. Because they die once they spawn, this effectively means Channel cuttlefish have two populations which spawn alternate years. Other populations of cuttlefish have annual, rather than biannual, cycles.

Fisheries and gears
In English Channel waters, cuttlefish are mainly caught offshore by beam trawlers during their growing and overwintering period; October to March. Fisheries using trawls, gill and trammel nets and traps operated by inshore vessels, catch the cuttlefish during their spring and summer migrations onto coastal spawning grounds during the period March to August. Traps are able to operate in rougher areas where trawls cannot reach, catching spawning cuttlefish by luring the male cuttlefish with a live female as bait (2,3).

Stock assessment and management
The main issues concerned with the management of cuttlefish stocks are:

- Avoiding depletion of the population before it has a chance to spawn. The species only spawns once and is of relatively low fecundity, so there is a need to ensure that a sufficient number are allowed to mature.
- Ensuring that conditions on the spawning grounds do not inhibit egg development.

There is no routine stock assessment of cuttlefish in UK waters and a full assessment would require inclusion of the French fisheries. However, in the 1990s some basic calculations were made, to examine what proportion of the Channel cuttlefish population were captured by the beam trawler fleet. This suggested that at this time the population was probably fully exploited (4).

Whilst these results were from an one-off incomplete assessment (because of the absence of information from the French fleet) they indicate that conservation measures which constrained the beam trawl effort; such as days at sea and other measures, would probably have a beneficial effect on the conservation of cuttlefish.

Ensuring a suitable environment for egg development relates to how the inshore fishery and coastal waters are managed. There have been issues with trap fisheries and the protection of cuttlefish eggs. During the breeding season females actively seek out structures on the seabed for shelter and for attachment of their eggs. Baited traps will attract egg-laying females, as well as male cuttlefish.

Advisory measures have been adopted in Brittany, Poole and Christchurch to protect cuttlefish eggs. These measures include leaving egg encrusted cuttlefish traps in sheltered areas of the sea to allow the eggs to hatch.

If management of the cuttlefish stock were considered necessary, it has been suggested (4) that this might be most successfully applied in the inshore grounds during the spring. When a relatively small year class was present, conservation measures aimed at reducing mortality on the adult breeding stock, such as seasonal closed areas, could be considered.
**Product Characteristics**

Cuttlefish have a large head with a bone-like structure and small tentacles. They produce copious amounts of black ink that is harvested for use in pasta and risotto. Whilst messy to prepare the head once skinned is brilliantly white and can be thinly sliced then pan-fried or poached. The tentacles are best casserole. Cuttlefish is especially popular in Italy.

**Supply chain standards**

There are supply chain standards from capture to retailer:

- **Seafish Responsible Fishing Scheme.** Sets best practice standards for fishing vessels: (BSi: PAS 72:2006).
- **British Retail Consortium (BRC) Global Standard/Safe and Local Supplier Approval (SALSA) certification.** Designed to raise standards in the seafood processing and wholesaling sectors.

**References and sources**

5. [http://www.fishonline.org/fish/cuttlefish-349](http://www.fishonline.org/fish/cuttlefish-349)

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**Responsible Sourcing Services**

This guide is one of a series of Seafish Responsible Sourcing Guides.


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