

THE SCALLOP FISHERY

There are two methods commonly used for the fishing of scallops although others do exist. Beam trawlers have been used to fish for scallops, as they have various suction dredges, but these methods are not used in local waters. Dredging is the most effective method for catching scallops. A typical dredge used locally is about 80cm wide, weighs about 100kg, with 9 teeth which dig into the sand and has a chain mail belly see picture below. These will be towed in groups of 4 to 6 behind a beam. Modern dredges today have spring loaded teeth meaning the whole tooth bar will fold back on hitting a rock and return to the original position once the obstacle had passed.

The other main method of scallop fishing in Jersey is scuba-diving. The scallop divers' philosophy has been to lift only market size scallops, leaving all other benthic life undisturbed. Unlike the dredge there is no real evidence of where the diver has been and regeneration is quick as juvenile scallops are not damaged. Arguably the scallop is also in better condition for market using this method.

HOW ARE SCALLOP STOCKS BEING CONSERVED AND MANAGED?

- Anybody wishing to sell scallops must possess a valid fishing license. This controls fishing effort.
- Anybody wishing to dive for scallops, either commercially or recreationally, must possess a scallop diving permit.
- Dredging and trawling are banned from a number of inshore areas, which protects not only scallop stocks but the sensitive coastal zone.
- The department has seeded local waters with juvenile scallops on two occasions. The seeded scallops will spawn at least once before reaching market size and supplement local stocks.

Several other management measures have also been discussed including closed seasons and areas to protect spawning stocks, and an increase in minimum landing size.

	MINIMUM SIZE	BAG LIMIT	SEASON
Commercial	102mm	Unlimited	None
Recreational		24 scallops per day	None

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These details are correct at time of printing. Copies of appropriate legislation are available from the States Greffe and Fisheries website.

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King Scallop *Pecten maximus*

Biology and Regulations in Jersey



Fisheries and Marine Resources

THE GREAT or KING SCALLOP

Pecten maximus

Scallops are an important fishery in Jersey. 372 tonnes of scallops were landed by the fleet in 2007 worth £0.75M. 90% of scallops are caught using dredges with the remainder being dived for, either commercially or recreationally. They are excellent eating and are also receiving interest from the aquaculture industry as it is a good species for fish farming. King scallops can grow to over 200 mm in diameter and have been estimated to be up to 25 years old.

WHAT IS A SCALLOP?

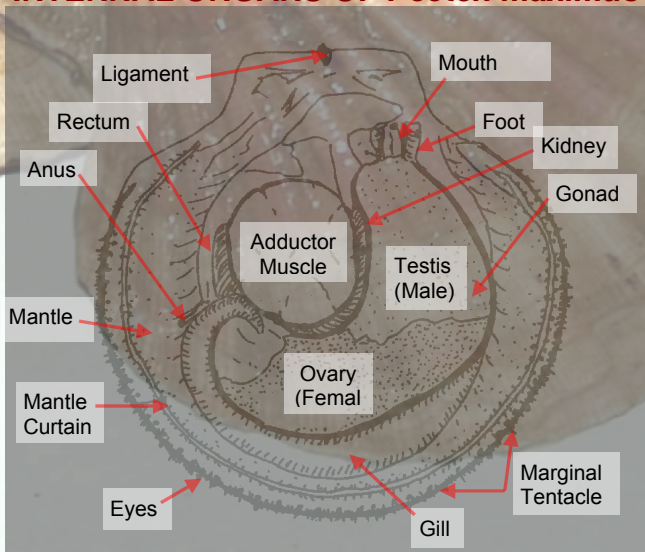
There are roughly 360 species of scallops worldwide and most of these are found in coastal waters to a depth of around 100m. However, in Channel Island waters, the only two of significance are the King scallop and the Queen scallop, *Chlamys opercularis*.

The scallop belongs to the *Phylum Mollusca*, which includes other marine animals such as snails, limpets, cuttlefish, oysters and mussels. They are bivalves, characterised by two calcareous shell valves enclosing and protecting a soft fleshy body.

Scallops are filter feeders, sieving out plankton from the rich waters around Jersey. They are **hermaphrodite** meaning they have both male and female gonads, but occasionally an individual is found that is distinctly one sex. Cross fertilisation is normal for successful reproduction but it is possible for self fertilisation to occur. The roe contains the sexual products (gametes) and a clear line shows the border between the orange ovary and the creamy white testis. As scallops are broadcast spawners, successful fertilisation relies on the presence of high densities of scallops to give great numbers of gametes in the surrounding water. The scallop first spawns around three years of age or possibly sooner around Jersey. Both sperm and eggs are emitted within 3 hours of each other with a slow movement of the upper shell. The larvae remain in the water column for about one month, if the sea temperature is around 16°C.

A rise in temperature of about 2°C can reduce this period by approximately a week. Scallops are among the few bivalves which have the ability to swim. In *Pecten maximus* it can seem rather unnatural for the large individuals but the smaller ones can travel through the water by means of jet propulsion, the water being taken in at the ventral edge and forced out at either side of the dorsal hinge. Scallops have more than 100 eyes around the outer edge of the mantle, which, if damaged, can re-grow within 2 months. They also have tentacles which are touch, taste and smell sensitive. Secretions from predators such as starfish and octopus act on these organs causing the scallop to move away or close up. The scallop can orientate itself using an organ known as a **statocyst**. This is a sphere of cells with sensitive hairs on the inside. A small calcareous stone (the statolith) is free to move inside the sphere and if it touches certain hairs a message is passed to the nervous system instructing the scallop to alter position. Like many bivalves, scallops are predated upon by many other animals in the sea. These include crab, dog whelk and octopus with starfish at the top of the list.

INTERNAL ORGANS OF *Pecten maximus*



As the scallop grows its vulnerability decreases because predators will not be able to pierce its thicker shell.

HOW DO SCALLOPS GROW?

Shell growth is by the secretion of lamellae on the inside of the shell by the mantle, which forms the distinctive rings (striae) at the edge. The cessation of growth each year, caused by the decrease in water temperature during the winter, forms the rings which can be used to age the scallop. These growth rings are translucent white in colour and bolder than the shock rings. Shock rings are formed if the scallop is disturbed. In Jersey, due to the warmer weather, the scallop grows faster than in the UK. Scallops reach the minimum landing size of 102mm in about two and half years and mature at around the same time.

WHERE DO SCALLOPS LIVE?

The King scallop is found in the temperate coastal waters of the North Eastern Atlantic and its range extends from Northern Norway south to the Iberian Peninsula. It has also been found off West Africa, the Azores, the Canary Islands and Madeira. As far as habitat is concerned, it has been shown that as long as there is a good water flow and adequate food scallops will remain on almost any type of seabed. Juvenile scallops appear to be more sensitive to substrate than adults. However, King scallops are usually found on a sandy seabed, ranging from fine sand to sandy gravel. Other factors, including hydrodynamics, depth, wave action and physio-chemical conditions, will also affect the growth rate and survivability of scallops. Scallops recess themselves into the seabed to the depth of the concave valve so that only the flat valve is above the surface. This is usually covered with sand as camouflage from predators. Scallops will orientate themselves into the prevailing current thus maximising water flow and food supply.