

FACTSHEET No. 1

DESCRIPTIONS OF SHELLFISH TYPES

Lobsters: the lobster belongs within a large class of invertebrate animals called Crustacea. Crustacea which are destined for human consumption are usually called 'shellfish', because of their hard external shell (exoskeleton). A characteristic of crustacean is that they shed their hard external skeleton at intervals in order to grow, (known as moulting). The claws of the lobster are used for feeding, with one claw shaped for crushing, the other for cutting.

Lobsters have a 'head' (carapace) containing most of the animal's viscera (heart, digestive organs, sex organs), and a 'tail' (abdomen) containing the intestine and anus. The eye, mouth parts and brain (cerebral ganglion) are found beneath the carapace. However, lobsters do not have a centralized brain area as mammals do. Instead they have large ganglia (a large cluster of nerve cells, only something like a brain), above and below the mouth, and smaller ganglia at each segment in the body. It is possible that the lobster feels pain at any one of these points. The central nervous system is a nerve cord that lies along the ventral midline, quite close to the shell. The five pairs of legs attached to the body below the margin of the carapace are a feature of the group of crustacean known as the Decapoda (ten-legged). This group includes most of the commercially exploited species of crustacean such as crabs and prawns.

Lobsters have been known to live for up to 100 years in the wild and can cover more than 100 miles each year, using complicated to explore and establish social relationships. They tend to feed on the ocean bottom, and their bodies often have high concentrations of heavy metals such as lead and mercury.

The two most important species of clawed lobster are *Homarus gammarus*, the European lobster, which can be found in the Eastern Atlantic waters from the Arctic Circle to the Mediterranean, the British Isles being the centre of distribution, and *Homarus americanus*, the American lobster, found on the eastern seaboard of North America from Newfoundland down to Delaware. Although similar in appearance, there are differences, both in colour and in habits.

European lobster: has no spine (sharp points, not to be confused with vertebrae) on the lower rostrum margin (area beyond the eye); the claws (chelipeds, which are a modified first) have spines (sharp points) white or white-tipped, with the underside of the claw creamy white or very pale red.

American lobster: has a well-developed spine on the lower rostrum margin, the claw spines are red or red-tipped and the underside of the claw is orange/red.

Rock lobsters (or spiny crayfish, *Panulirus*, *Palinurus* and *Jasus* differ from the other decapod crustacean in having spiny antennae, possibly compensating for the lack of the strong claws seen in crabs and more familiar crayfish.

Crayfish: Up until the 1980s the native British crayfish were once widespread in most river catchments in the North and south Wessex and were also found in Devon, but there has been a drastic decline in recent years, largely due to crayfish plague, carried

by the American signal crayfish. They are now known only to occur in the Bristol Avon catchment (North Wessex) and the rivers Ebbles, Stour and Piddle (South Wessex). Native crayfish grow to approximately 10cm in length. Signal crayfish are now farmed extensively for the *haute cuisine* market.

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Crabs: Crabs, like lobsters, are complicated and their sensory organs are highly developed. They have two main nerve centres, at the middle front and at the rear, and their responses to certain stimuli are immediate and vigorous. Some feed on molluscs, some live in discarded mollusc shells and some, such as the spider crab, who feed off dead fish, grow to have a body the size of a man's hand and have a 3 metre leg span. Crabs can shed their claws in response to a stressful or dangerous situation.

Like lobsters, crabs shed their shells each time they grow, leaving their bodies soft and extremely vulnerable to predators. Most crabs crawl into a crevice, pump themselves up with water, and then wait until the new shell is hardened. However, the spider crabs huddle together in large gangs. According to Dr. Ken Collins of Southampton University's oceanography centre, the large males moult first and lie on top of the pile, allowing the smaller ones to shed their shells in safety underneath. (Daily Mail, August 13, 1997) Unlike other varieties, spider crabs are rarely eaten in Britain, but are considered a delicacy in France and China.

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THE SMALLER CRUSTACEA

Prawns: these animals hide in individual holes on the sea bed. In the UK, the main breeding grounds are in Scottish waters. Many prawns are now farmed, and in the third World the promotion of intensive prawn aquaculture in mangrove forests has proven to be the most destructive activity to the mangrove ecosystems in many countries, including Thailand, the Philippines, Indonesia, Ecuador and others. Large tracts of mangroves are cut down to make way for the ponds where prawns are raised for export. Many of these creatures end up in the US market. The vast trade in 'black-tiger', 'jumbo' and 'white' prawns is contributing to the downfall of mangrove forests and wildlife.

Shrimp: these are of the genus *Crangon* and are closely related to the prawn. They are long tailed, long legged, chiefly marine crustacea. The Common Shrimp inhabits the sand on the coasts of Great Britain.

MOLLUSCS

The dictionary definition of shellfish is 'sea animals covered with shell', and therefore molluscs are included in this category. Most molluscs are free-living in marine environments but there are some who prefer to burrow, attach themselves to rocks or to crawl. There are also some who live in freshwater.

The body of the mollusc is covered by a shell, attached at various sites. A fluid-filled cavity between the animal and the shell is where mineral deposits gather and calcify, continuing the shell-forming process. Molluscs have a muscular foot, for crawling, a head, a tongue-like structure, eyes, tentacles and sensory organs. They also have a heart, gills and an intestine. Research has shown that even the 'simplest' invertebrates exhibit responses to aversive stimuli (dangerous or painful situations). Creatures included in this research are sea anemones, earthworms, medicinal leeches, insects, gastropod snails and cephalopod molluscs, such as the octopus. Although the sensation of pain in such animals, and molluscs in general, cannot be proved, and the findings are scientifically inconclusive, many scientists suggest that it should be assumed that they are capable of feeling pain, and their well-being should therefore be promoted.

Animals in this category include: mussels, oysters, winkles and limpets (a gastropod, which has only one shell and can stick its head and foot out at the same time to move and feed. Bivalves have two shells, hinged together). Limpets change from male to female with age, can live for 20 years and eat by scraping algae from the rocks.

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