

Sepioteuthis sepioidea (Caribbean Reef Squid)

Order: Teuthida (Squid)

Class: Cephalopoda (Octopuses, Squid and Cuttlefish)

Phylum: Mollusca (Molluscs)



Fig. 1. Caribbean reef squid, *Sepioteuthis sepioidea*.

[<http://www.arkive.org/caribbean-reef-squid/sepioteuthis-sepioidea/image-G76785.html>, downloaded 10 March 2016]

TRAITS. The mantle (body mass) is wide and relatively flattened, with a length of 114mm in adult males and 120 mm in adult females (Moynihan and Rodaniche, 1982). A skeleton is absent but a cartilaginous layer is normally found beneath the surface of the mantle which enables movement (Mather et al., 2010). Two fins span the length of the lateral mantle margins (Fig. 1). The head is slightly pointed to its anterior end, with eight arms and two tentacles which encircle the mouth (Mather et al., 2010). Suckers are positioned along the inner region of arms and tentacle clubs. The mantle is fleshy when relaxed and the skin is very fragile (Moynihan and Rodaniche, 1982). The colour patterns of the skin can change periodically, due to the existence of light-reflective and iridescence-inducing cells (Mather, 2010).

DISTRIBUTION. Distributed throughout the West Indian islands, including Trinidad and Tobago; widespread along the Central and South American coasts adjacent to the Caribbean Sea and also found in Bermuda and Florida (Moynihan and Rodaniche, 1982).

HABITAT AND ACTIVITY. Found in highly saline, clear waters of marine habitats at varying depths and distances from shoreline (Wood et al., 2008). The depth and habitat they are observed at depends on their growth stage (Mather et al., 2010). Newly hatched squid are found within 20-100cm beneath surface, and can be about 10m above the sea bottom, in a habitat of sand, debris, coral and little vegetation (Moynihan and Rodaniche, 1982). The habitat of older juveniles involves turtle grass (*Thalassia testudinum*) flats in relatively shallow areas. Medium-sized and non-breeding adults tend to be found more at mid-depth, while breeding squid are closely affiliated with coral reef habitats (Moynihan and Rodaniche, 1982). The Caribbean reef squid exhibits both diurnal and nocturnal activity which distinguishes them from other cephalopods which are primarily nocturnal (Mather, 2010).

FOOD AND FEEDING. Individuals feed mostly on small fish and arthropods, such as small shrimp, during both day and night. Species consumed the most include *Anchoa lyolepis*, *Jenkinsia lamprotaena* and *Atherinomorus stipes* (Moynihan and Rodaniche, 1982). A few others are consumed less frequently including redear sardine (*Harengula humeralis*) and small grunts (*Pomadasyidea*), the former being hunted during both day and night and the latter being hunted strictly at night (Moynihan and Rodaniche, 1982). During the day, individuals of *S. sepioidea* hunt in schools but feed one at a time, whereas during the night time they hunt and feed alone (Wood et al., 2010). They identify prey based on visualization and use a number of strategies to successfully acquire prey, including luring them by changing posture, arm positions and skin colour patterns. At night, individuals rise to the surface, often in response to ship lights. It is uncertain whether they respond directly to the light or they surface because populations of small arthropods and fish are attracted to the lights as well (Moynihan and Rodaniche, 1982). When a *S. sepioidea* squid spots its prey, it usually tries to confuse it, and as it gets nearer will strike at the prey using its tentacles. The suckers that cover the tentacles' distal ends aid in the capture process and feeding since from there the prey is then directed to the mouth (Moynihan and Rodaniche, 1982).

POPULATION ECOLOGY. Newly hatched individuals are solitary. Juveniles associated with the turtle grass flats are often found in groups, as are medium-sized and non-breeding individuals (Mather et al., 2010). Full-grown breeding adults are often found in large mixed population groups (which can number more than 150 squid) during the day. These assume different formations while moving, to enable successful feeding and protection of individuals against predators. Older squid tend to separate temporarily during the night, singly or in pairs (Moynihan and Rodaniche, 1982).

REPRODUCTION. Reproduction occurs following copulation in the form of egg laying (Mather et al., 2010). Multiple offspring are produced after eggs hatch but there is no parental care from either male or female, the young individuals are left to fend for themselves (Moynihan and Rodaniche, 1982).

BEHAVIOUR. Juvenile behaviour: Newly hatched squids are described as planktonic which means that they are often found floating near the surface. They are not able to produce distinct colour patterns but they can turn dark or pale, and produce ink when threatened. They can exhibit different postures such as the V posture, which involves the use of two arms held in front of the squid's eyes in a V-position (Mather et al., 2010). Juveniles at later stages have fully developed

organs and are capable of swimming and displaying different colour patterns (Moynihan and Rodaniche, 1982).

Antipredator behaviour: The squid exhibits several mechanisms to defend itself from predators such as the snapper or French grunts. These include paling followed by swimming rapidly away, inducing colour pattern changes to establish camouflage, and the secretion of coloured ink (Moynihan and Rodaniche, 1982). The secretion of ink by squid help to cloud the predator's vision, decrease the scent of the squid, and the ink also contains chemicals that are unpalatable to predators (Wood et al., 2010).

Communication: the squid uses a series of gestures and also colour pattern changes on various parts of the body to communicate with other individuals (Moynihan and Rodaniche, 1982). The ink may also function as an alarm to other squid (Wood et al., 2008).

APPLIED ECOLOGY. This species is yet to be assessed by the IUCN (Mather, 2010) however, in some Caribbean communities, fishermen often use this species for bait (Moynihan and Rodaniche, 1982). It is suspected that water pollution and disruption of coral reef habitats due to human activity may eventually pose a threat to populations (Mather, 2010).

REFERENCES

- Mather, J.A. (2010). Vigilance and antipredator responses of Caribbean Reef Squid. *Marine and Freshwater Behaviour and Physiology*. **43**: 357-370.
- Mather, J.A., Griebel, U., and Byrne, R.A. (2010). Squid dances: an ethogram of postures and actions of *Sepioteuthis sepioidea* squid with a muscular hydrostatic system. *Marine and Freshwater Behaviour and Physiology*.**43**: 45-61.
- Moynihan, M. and Rodaniche, A.F. (1982). The Behaviour and Natural History of the Caribbean Reef Squid *Sepioteuthis sepioidea*. Berlin: Paul Parey.
- Wood, J.B., Maynard, A.E., Lawlor, A.G., Sawyer, E.K., Simmons, D.M., Pennoyer, K.E. and Derby, C.D. (2010). Caribbean Reef Squid, *Sepioteuthis sepioidea*, use ink as a predatory defence against French grunts, *Haemulon flavolineatum*. *Journal of Experimental Marine Biology and Ecology*. **388**: 20-27.
- Wood, J.B., Pennoyer, K.E. and Derby, C.D. (2008). Ink is a conspecific alarm cue in the Caribbean reef squid, *Sepioteuthis sepioidea*. **367**: 11-16.

Author: Sarah Goodial

Posted online: 2016