PHYLUM: BRACHIOPODA

Authors

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Phylum: BRACHIOPODA

Lamp shells

Brachiopods are exclusively marine, sessile invertebrates ranging in size from 1-100 mm in length. They consist of two unequal hard valves (shells) enclosing the soft tissues dorso-ventrally instead of laterally, as in bivalves.

Brachiopods are a relatively minor group in modern oceans but occupy a wide range of habitats, from intertidal rocky shorelines to abyssal depths, with the majority of species occurring on continental shelves. They are distributed from equatorial to polar waters, and may be locally abundant. Most species avoid areas with strong currents and waves and prefer to live in habitats such as rocky overhangs, caves, crevices and in deep waters (i.e. cold with low light). Globally, approximately 391 species of brachiopods are known with about 30 species (15 endemic) reported in South Africa.

Most live epifaunally, attached by a fleshy stalk (or pedicle), which exits the shell through a foramen in the larger ventral valve, to a hard substrate, such as rock or other shells. Some forms actually cement one valve to the hard substrate, while others are adapted to live on a soft sea floor and are essentially free-living. One unusual form lives in a burrow (not addressed further in this guide).

Like bivalve molluscs, brachiopods have two shells, or valves, that enclose and protect the soft body tissues. In a relatively large mantle cavity, the feeding organ (the lophophore) uses ciliated tentacles to filter food from sea water. The lophophore and the mantle also play a vital role in absorbing oxygen and eliminating carbon dioxide. Most brachiopods possess a shell composed of calcium carbonate but some forms have a shell made of calcium phosphate.

In the articulated brachiopods (rhynchonelliforms), the two valves are hinged at the posterior end. Teeth in the ventral valve fit into sockets in the dorsal valve and the valves are opened and closed using two sets of muscles (diductors and adductors respectively) to allow feeding to take place. In the inarticulated brachiopods (linguliforms and craniiforms), the valves do not have a hinge mechanism and are opened and closed by a complex system of muscles.

Although brachiopods were once thought to be unimportant prey items, there is a growing body of evidence to suggest they may be preyed upon by a range of predators, including crustaceans, echinoderms, gastropods and fish. Many specimens show holes drilled in the shell by predators and/or parasites. However, there is debate as to whether brachiopods were the preferred, or intended prey in observed instances.

References

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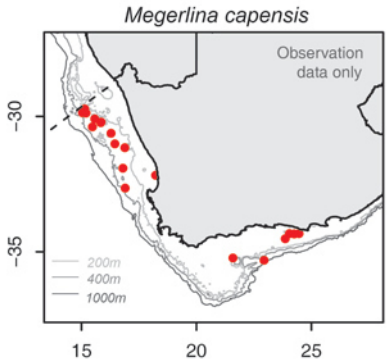
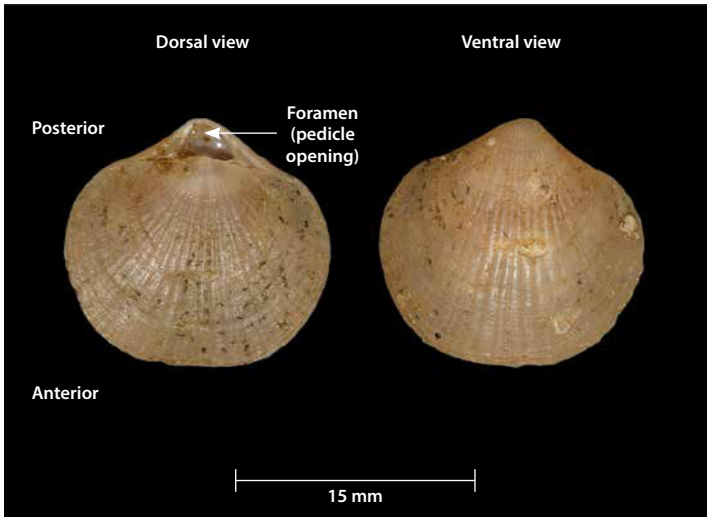
Megerlina capensis (MegCap)

Phylum:	Brachiopoda
Class:	Rhynchonellata
Order:	Terebratulida
Family:	Kraussinidae
Genus:	*Megerlina*
Species:	*capensis*
Common name:	Ribbed Lamp shell





Distinguishing features

Small rounded sub-pentagonal to sub-quadrate shells with length and width about equal. Ventral valve (shell) slightly deeper than dorsal valve. Anterior commissure (line along which the valves meet, viewed from the anterior) gently sulcate (i.e. with a broad U-shaped deflection). Relatively large pedicle opening bounded laterally by small, flat, triangular inter-areas. Fine concentric growth lines and 24-33 rounded radial ribs visible exteriorly from the 5-mm growth stage.

Colour

Usually pinkish or reddish but may be white or cream, sometimes with red margins.

Size

Usually not more than 15 mm in length.

Distribution

West, South and East Coasts of South Africa.

Similar species

Looks most like the shallower water form *Kraussina rubra* (Pallas, 1766) but this can be distinguished by its larger size and coarser ribbing. Specimens frequently have the posterior end abraded by close attachment to a rocky substrate resulting in enlargement of the pedicle opening.

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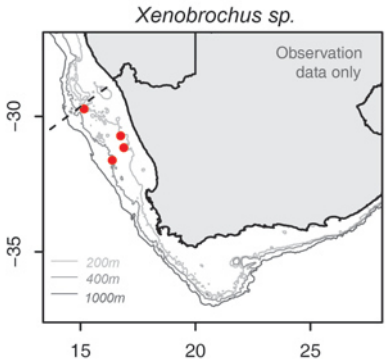
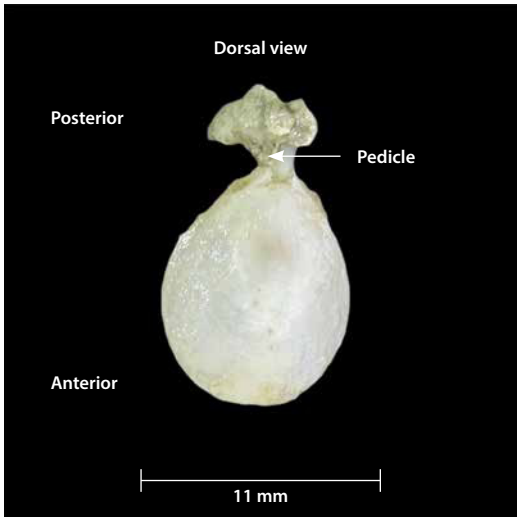
Xenobrochus sp. (Xenobr)

Phylum:	Brachiopoda
Class:	Rhynchonellata
Order:	Terebratulida
Family:	Dyscoliidae
Genus:	*Xenobrochus*
Species:	sp.
Common name:	Smooth Lamp shell





Distinguishing features
Small, elongate oval, strongly biconvex shells. Ventral valve (shell) deeper than dorsal valve. Anterior commissure (line along which the valves meet, viewed from the anterior) straight (rectimarginate). Pedicle opening small, sub-circular. Shell surface smooth except for fine concentric growth lines. Shell material very thin.

Colour
White.

Size
Usually around 11 or 12 mm in length.

Distribution
West, South and East coasts of South Africa.

Similar species
The small size and smooth shell readily distinguishes this species from most others known in South African waters apart from others in the genus. Specimen shown in photograph on this page most likely *Xenobrochus agulhasensis*. *Gryphus capensis* Jackson, 1952 (not shown in this guide) is superficially similar but differs in the form of the internal structures of the dorsal valve.

References
Hiller N. 1986. The South African Museum's *Meiring Naude* cruises. Part 16. Brachiopoda from the 1975–1979 cruises. *Annals of the South African Museum* 97:97-140.

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