PEN SHELLS
Family: PINNIDAE

Atrina inflata (Dillwyn, 1817)
Atrina pectinata (Linnaeus, 1767)
Atrina vexillum (Born, 1778)
Pinna bicolor Gmelin, 1791
Pinna muricata Linnaeus, 1758

Reported by other workers and not included in this catalogue

Streptopinna saccata (Linnaeus, 1758)
- Kirtisinghe, 1978

Shells large, thin and brittle, the two valves equal, not much inflated, much longer than high. Triangular in shape with a pointed anterior, the posterior expanded and rounded or blunt. Ventrally and posteriorly gaping. The umbones at anterior end. Externally with shallow ribs that are smooth or with open scales. Periostracum absent. The long ligament is recessed in a groove along the dorsal margin. The hinge is without teeth. Internally there is a nacreous layer confined to the anterior part of the shell. The anterior muscle scar is small in the anterior angle, the posterior scar is large and situated at about mid-length. There is no pallial sinus.

Pen shells are sedentary animals that live partially buried vertically in soft substrates, firmly attached to buried stones etc. by byssal strands that issue from their anterior ends. Only their gaping posterior ends are visible above the sand or silt. Some species are edible and relished in parts of the Indo-west Pacific.

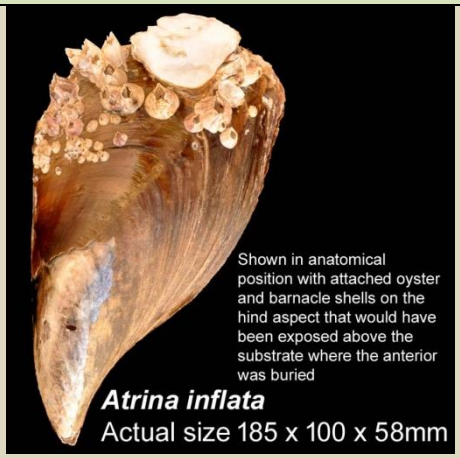
The pen shells in the genera *Atrina* and *Pinna* are superficially similar. They can be differentiated by the following characters:

Atrina: Outer surface of valves without a median radial keel even for the young stages, internal nacreous layer undivided.

Pinna: Outer surface of valves with a median keel at least for the early stages of growth; internal nacreous layer divided in two lobes by a median groove (Poutiers, 1998 in Siddiqui et al, 2007).

Species differentiation is according to the characters of the nacreous layer and the shape and position of the posterior muscle scar in relation to it. These are detailed in the species descriptions.

Atrina



MF778: Jaffna, Mandaitivu, fishing trash. Collected 21.9.2017, never seen previously.
A pair of separated valves, 3 paired valves with posterior damage and encrusting oysters (*Dendostrea cristata*) and barnacles.
153 x 90 x 55; 175 x 100 x 70; 190 x 115 x 66; 190 x 115 x 70 mm.

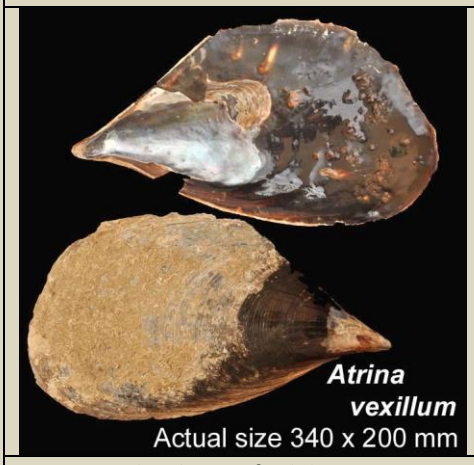
- Google picture pages images from Conchology.com - collections from the Philippines.

Atrina inflata
Shells thin, strong, translucent, strongly inflated along a broad, wide, rounded ridge from anterior to postero-ventral angle. Hinge margin nearly straight, ventral margin sinuate, posterior expanded, broadly rounded to flattened, highest at postero-ventral angle. Nacreous area thin, muscle scar wholly within it. Exterior brown, smooth, with growth lines. No radial ribs or spines.

Left - MF665:
Right - MF589:
Only two specimens in the collection, with no location data for either. Both juveniles.
Appears to be an uncommon species.

Kirtisinghe's specimens measured 88 and 110 mm in length.

Atrina pectinata Scaled Atrina, Comb Pen Shell.
Dorsal margin almost straight, posterior more or less truncate, postero-ventral rounded, antero-ventral concave. Nacreous area occupies anterior 2/3, undivided. The semi-circular posterior muscle scar wholly within the nacreous area. Fifteen scaly radial ribs externally with corresponding grooves in the interior. Pink-brown colour, paler anteriorly.
- Poutiers, 1998p. 178; Kirtisinghe, 1978 p. 21; Siddiqui et al, 2007 p. 266.



A common shell, found in muddy sand. The shell thick and heavy.3 to 15 m, by diving.

MF368: Wellawatte, Kinross lagoon, 2 m, empty, 180 x 110 mm. Post end encrusted.

MF369 & 370: Mount Lavinia, Bellangala, inshore, 5 m, 115 x 70; 185 x 115 mm.

MF411: Colombo, Palagala, 15 m, empty, 140 x 90, 105 x 61 mm.

MF605: Trinco harbour, Gt. Sober Is shallows, 3m, empty, muddy-sand, 150 x 130 x 48 mm, with attached oyster. Many alive.

MF410: Colombo, no find data.

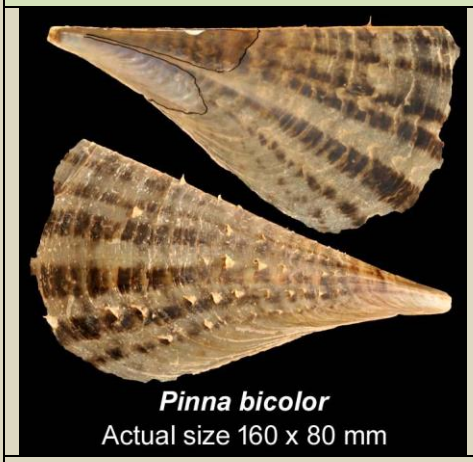
Continued next page

Atrina vexillum Flag Pen Shell, Indo-Pacific Pen Shell.

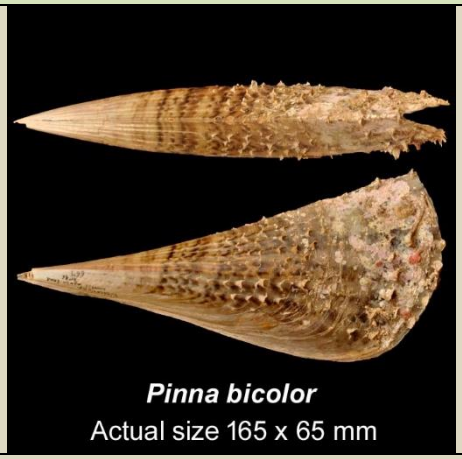
Shell thick, the hinge margin about half the total length, mostly straight, concave towards the posterior. Domed posterior margin, highest at midline. Ventral margin concave anteriorly, convex posteriorly. The outer surface has radial ribs, low, rounded, mostly smooth but some develop open scales projecting perpendicular to the shell surface. Scales seen generally in young shells, the older ones being encrusted and eroded, except for the buried portions. Outer surface brown, interior chocolate brown. The undivided nacreous area occupies the anterior one-half, the rounded muscle scar protruding posteriorly.

- Kirtisinghe, 1978 p. 21; Siddiqui et al, 2007 p. 267.

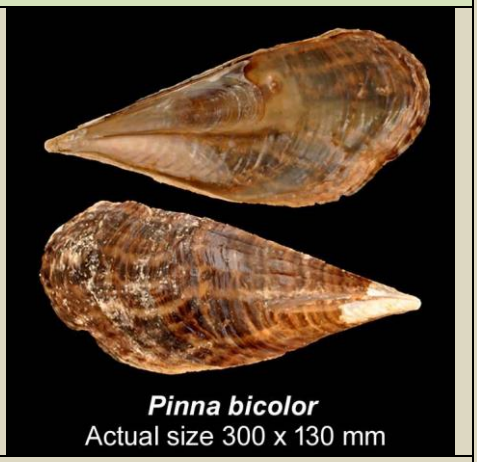
Pinna



MF371: Mount Lavinia, Bellangala, to sea-ward, 8 m, empty.



MF667: Wellawatte, Kinross lagoon, 3m, empty on bottom.



MF413: Mount Lavinia, Bellangala, inshore, 5 m, in rock cleft.

A common shell, many collected by free diving in Wellawatte and Mount Lavinia, at depths of 5 to 8 m, partially buried in sand in clefts of rocky reefs or empty on the sand bottom. Also found in fishing trash at Anawasala in Kalpitiya and elsewhere on the Puttalam lagoon shore.

A recent activity is targeted fishing for *P. bicolor* for sale of the meat to local hotels. The images at right, made in November, 2018, show *Pinna bicolor* shells trashed after extracting the meat. The largest was 390 mm long.

Pinna bicolor Bicoloured pen shell

Shells thin, slender, expanding gently from anterior to posterior. Hinge margin (dorsal) straight, becoming convex. Posterior margin truncated or rounded, length at midline hardly longer than hinge margin length. Ventral margin concave anteriorly, convex posteriorly. A median keel present externally, but may be indistinct, especially in older shells.

Shells mostly eroded and encrusted. One uneroded shell (160 mm) has 5 radial rows of prominent, erect scales; another (135 mm) has 10 low, rounded ribs with scale scars. Light tan in colour with prominent blackish-brown rays. Interior brown, the external pattern showing through. The nacreous area confined to the anterior half, divided into two lobes by a prominent median groove; the external median keel that corresponds to the groove is not prominent. The posterior muscle scar is large and rounded and bulges slightly beyond the dorsal lobe of the nacreous area.

- Kirtisinghe, 1978 p. 21; Poutiers, 1998 p. 180

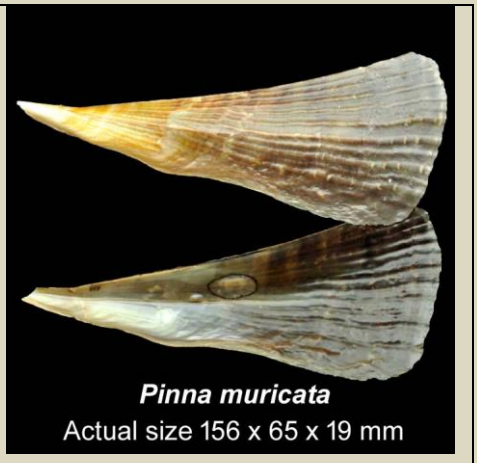
Pinna muricata Prickly pen shell.
P. muricata reported in Kirtisinghe, 1978 pp. 20-21 are mis-identifications.

Shell thin, light, translucent, narrowly trigonal in shape. Dorsal margin concave, ventral sinuous, posterior squarely truncate. External median keel anteriorly with divided nacreous area. 15 scaly radial ribs. Nacreous area divided into two sub-equal lobes, the posterior adductor scar semi-circular, wholly within the dorsal lobe.

The single shell in the collection was overlooked for many years till determined and registered in September, 2014.

Shell length equals the common size given by Poutiers 1998, the maximum recorded being over 300mm.

- Siddiqui et al, 2007 p. 267-268'; Poutiers, 1998 p. 180.



MF666: No collection data.

BIBLIOGRAPHY

Lemer S.,Buge B., Bemis A. & Giribet G. 2014. *First molecular phylogeny of the circumtropical bivalve family Pinnidae (Mollusca, Bivalvia): Evidence for high levels of cryptic species diversity*. Molecular Phylogenetics and Evolution**75:** 11-23. Available at: https://doi.org/10.1016/j.ympev.2014.02.008

MolluscaBase eds. (2020). MolluscaBase. Pinnidae Leach, 1819. Accessed through: World Register of Marine Species at: https://www.marinespecies.org/aphia.php?p=taxdetails&id=1776 on 2020-04-23

Poutiers, J. M., 1998. Bivalves (Acephala, Lamellibranchia, Pelecypoda). In: Carpenter, K. E. and Niem, V. H. (eds.), *FAO Species Identification Guide for Fishery Purposes. The Living Marine Resources of the Western Central Pacific. Vol. 1*. pp.124-362.

Siddiqui, K.U., Islam, M.A., Kabir, S.M.H., Ahmad, M., Ahmed, A.T.A., Rahman, A.K.A., Haque, E.U., Ahmed, Z.U., Begum, Z.N.T., Hassan, M.A., Khondker, M. and Rahman, M.M. (eds.), 2007. *Encyclopedia of Flora and Fauna of Bangladesh, Vol. 17. Molluscs*. 415pp. Asiatic Society of Bangladesh, Dhaka.

MF: 29.7.2016, 1.8.2016; 2.3.2017; 12.6.2017; 25.9.2017; 24.4.2020.