

## TROUGH or SURF SHELLS, MACTRA CLAMS

### Families: MACTRIDAE and ANATINELLIDAE

#### Mactridae

- Lutraria rhynchaena* Jonas, 1844
- Lutraria sieboldii* Reeve, 1854
- Mactra achatina* Holten, 1802
- Mactra cygnus* Gmelin, 1791
- Mactra grandis* Gmelin, 1791
- Mactra lilacea* Lamarck, 1818
- Mactra violacea* Gmelin, 1791
- Meropesta nicobarica* (Gmelin, 1791)
- Oxyperas bernardi* (Pilsbry, 1904)
- Oxyperas lentiginosum* (Gould, 1852)
- Simomactra chionia* (Tomlin, 1921)
- ? *Simomactra* sp. 1
- ? *Spisula* sp. 1

**Reported by other workers  
and not included in this catalogue**

- Lutraria maxima* Jonas, 1844 [misidentification of *L. rhynchaena*?]
- Mactra cuneata* Gmelin, 1791
- Mactra turgida* Gmelin, 1791
- Mactrella striatula* [as *Mactrinula laevis* (Chemnitz)]
- Spisula* sp.

- Kirtisinghe, 1978

#### Anatinellidae

- Raeta pellicula* (Reeve, 1854)

Shells with equal valves, oval, oblong or triangular in shape, some gaping behind. Umbones prominent, more or less central. Externally smooth or with concentric sculpture, a periostracum may be present. The external ligament short and not prominent, just behind the umbones; a well-developed internal ligament (=resilium) is present in each valve set in a deep pit on the hinge plate pointing towards the umbo—the resilifer. The hinge is characteristic, consisting of 2 cardinal teeth and smooth or striated anterior and posterior lateral teeth in each valve. The cardinal teeth of the left valve join to form an inverted V-shape. The interior is porcellaneous with two adductor muscle scars. The pallial line has a well-developed sinus, the inferior limb being confluent with the pallial line or not.

These clams are active burrowers in sandy to muddy bottoms. They are suspension filter feeders.

- Poutiers, 1989 p. 273



Deep pallial sinus in *Lutraria*



Left valve

Hinge in *Mactra*



## Subfamily LUTRARIINAE

Lateral teeth absent in subfamily Lutrariinae

### Lutraria



**Lutraria rhynchaena**

Actual size:  
90.44 x 46 x 27 mm



**Lutraria rhynchaena**

Actual size: 105 x 46.7 mm

Left - MF115: Galle Harbour, "Pipe Wreck" site, 7 m, empty on mud bottom.

Right - MF784: Jaffna, Mandaitivu, fishing trash, single valve, heavily encrusted.

Also, MF116, Galle Harbour, "Pipe Wreck"; MF117: Tangalle, Unakura & Rocky Patch, singles by diving; MF118: Mount Lavinia, beached singles.

### **Lutraria rhynchaena** Surf Clam

Long narrow shells with umbo at anterior one-third, anterior dorsal margin concave. Projecting, scoop-shaped chondrophore, two cardinal teeth in each valve - wide inverted 'V' in right, narrow inverted 'V' in left. No lateral teeth. Pallial sinus deep with long confluent ventral limb. No cruciate muscle scars. Shell gaping widely at both ends. Shell white under a flaky, dark brown periostracum.

- Kira, 1962 p. 167 PI 59 describes *L. arcuata* Reeve as having an "excavated and curved" dorsal margin. *L. maxima* has straight dorsal margin.

- WoRMS: *L. arcuata* is synonym of *L. rhynchaena* Jonas, 1844.



**Lutraria sieboldii**

Actual size: 62 x 30 x 28.72 mm

### **Lutraria sieboldii**

#### Siebold's otter clam

Collected as an articulated shell, the valves held together by the internal ligament.

Shell moderately thin, sub-rectangular, elongated. Low umbones anterior, projecting above the dorsal margins. Antero-dorsal margin straight, sloping, postero-dorsal longer, straight, slightly sloping. Anterior narrowly rounded, posterior wider, obliquely truncate, ventral smoothly convex from the anterior end, nearly straight towards the rear. Widely gaping anteriorly and posteriorly, the valves meeting at the hinge and ventrally. Hinge with large resilifer, 2 cardinal teeth each valve, no lateral teeth, deep pallial sinus, ventral limb confluent with pallial line along its whole length. Exterior with growth lines, periostracum papery, brown, rubbed off the umbral area, projecting beyond valve margin behind.

- Images in El Rincón de Malacólogo by Jose Liétor Gallego, Femorale.com / WoRMS This has been separated from *L. Rhynchaena* on the following grounds: shell thinner, growth lines not coarse. Umbones projecting above the antero-dorsal. Posterior distinctly truncate, ventral straightish, postero-dorsal straightish. Different habitat - this from a coral area near clean sand. *L. Rhynchaena* collections from muddy-sand of Galle Harbour, Colombo (presumably carried in from Palagala area) and Tangalle.

The images viewed are from Viet Nam and Japan. The species identity needs confirming.

### Meropesta

#### **Meropesta nicobarica** (Gmelin, 1791)

[*Macra nicobarica* Gmelin, 1791 – original name]

Only single valves in the collection.

Shell thin but strong, triangulo-ovate, moderately inflated. Umbones small, in front of the midline. Anterior short, broadly rounded, posterior longer, tapering, narrowly rounded. Hinge with resilifer pit for internal ligament, 2 cardinal teeth, absent laterals. Muscle scars unequal: anterior elongated, posterior rounded. Pallial sinus deep, oval, reaching to level of umbo. External surface rough, strongly ribbed with radial threads that are thinner behind a barely perceptible keel extending from the umbo to the postero-ventral angle. Somewhat translucent, porcelain white.

44.84 x 30.0, 43.36 x 28.66, 38.4 x 23.34, 29 x 19.4 mm.

MF638: Kayankerni, 2-3 m, single valves on muddy sand, by diving;

MF802: Jaffna, Mandaitivu, fishing trash.



**Meropesta nicobarica**

Actual size 29 x 19.4 mm

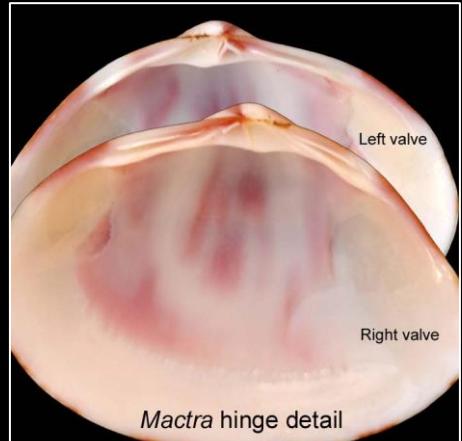
**Subfamily MACTRIINAE**



MF242: Kirinda, Little Basses Ridge, 15m, empty on sand bottom, by diving.



MF348: No collection data, single left valve.



Cardinals in inverted V-shape, long laterals, one l/v, two r/v, either side.

**Mactra achatina Holten, 1802**

Ornate Mactra

[*Mactra ornata* Gray, 1837 - synonym]

Shell oval, somewhat inflated, with rounded anterior, postero-dosal margin slopes down to join ventral margin at an angle. Beaks central. Growth lines close-set, uneven, giving the surface a wrinkled appearance. Ground colour cream with about 7 double rays of fawn colour, smudged and indistinct in parts. Interior white with deep rose smudges confined to the area enclosed by the muscle scars and the pallial line. Pallial sinus small, semi-circular.

Kira says ".. Irregularly arranged red spots & sometimes with rays on the yellowish background. Umbo stained rosy orange."

- Abbott & Dance, 1982 p. 334; Kira, 1962 p. 167 Pl 59 #7 – as *M. ornata*; Wong, 2009 p. 284.



MF125: Kalpitiya peninsula, Puttalam lagoon shore, beached single valves.



MF769: Trincomae, Yard Cove, exposed at low tide.

**Mactra cygnus Gmelin, 1791**

Swan trough shell

[*M. lurida* Philippi, 1850 – synonym]

Shell inflated, trigonal, post drawn out and pointed. Lunule & escutcheon rough, rest of shell smooth with faint growth lines. Thin brownish periostracum. Ground colour dirty white to grey, umbonal area bluish-purple, some with same coloured concentric bands. Interior deep purple. Pallial sinus small.

- Fernando, 1977 p. 50 as *M. lurida*.



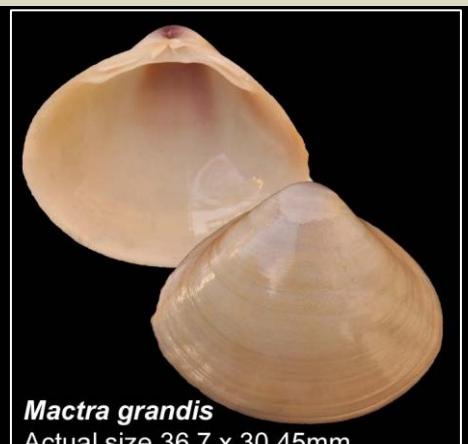
***Mactra grandis***  
Actual size 33 x 26mm

MF119: Colombo, Palagala (reef), 14 m, single right valve, by diving.



***Mactra grandis***  
Actual size 32 x 25mm

MF611: Wattala, Dikkowita, beached single left valve.



***Mactra grandis***  
Actual size 36.7 x 30.45mm

MF646: Kayankerny, Thennadi Bay, beached single right valve. Also found Negombo, Mount Lavinia, Kalmunai

***Mactra grandis* Gmelin, 1791**

[*Mactra mera* Reeve, 1854 - synonym]

Shell triangulo-ovate, anterior more rounded than posterior. Antero- and postero-dorsal aspects rough, rest of shell polished smooth. Faint growth lines at margin. Exterior and interior horn coloured, umbo purplish, the colour extending as a diverging ray some distance down shell. Pallial sinus small, with a short confluent limb.

36.7 x 30.45, 33 x 26, 29.6 x 23.55, 25 x 19, 20 x 15 mm

Negombo, 15 m, sand, by diving; Wattala, Dikkowita, beached; Colombo, Palagala (reef), 14 m, by diving; Mount Lavinia, beached; Kalmunai, beached. All single valves.

- Kirtisinghe, 1978 p. 37 as *Mactra mera*; images in idscaro.net



***Mactra lilacea***  
Actual size 24.25 x 17.4 x 12.8mm

MF124: Trincomalee, Kinniya.  
24.25x17.4x12.8; 20.37x14.74x10.22 mm. 6 singles: 28.34x20.32 - 18.15x12.72 mm.



***Mactra lilacea***  
Actual sizes up to 28.34 x 20.32mm

***Mactra liliacea* Lamarck, 1818**

[*Mactra taprobanensis* Preston, 1904 - synonym, amongst a number of others]

Shells inflated, triangulo-ovate, posterior drawn out, narrow. Lunule and escutcheon rough, rest of shell polished and smooth except for the anterior half of the more recent parts of the shell that are concentrically ridged, extending over the lunule. Ground colour greyish with narrow light brown rays radiating from the umbo. Growth ridges on lunule & escutcheon dark brown. Umbo bluish-purple, the colour suffusing the surroundings. Interior grey and mauve-purple in varying proportions.

**Note:** *M. dissimilis* similar, but concentric sculpture over entire median aspect. In 'lilacea' confined to anterior.

- idscaro, distr. Indian Ocean.



MF647: Kayankerny, Thennadi Bay, beached single right valve.



MF672: Trincomalee, Nilaveli, Erakkandy lagoon mouth, beached single left valve.

### ***Mactra violacea* Gmelin, 1791**

[*Mactra subrostrata* Reeve, 1854 - synonym]

Shell triangulo-ovate, posterior more rounded than anterior. Antero- and postero-dorsal aspects rough, rest of shell smooth with coarse growth lines, more marked at margin. Exterior and interior cream coloured, umbos mauve, the colour blushing the medial aspect of the shell to some extent. Pallial sinus small, rounded with a very short, blunted, confluent limb.

This shell is very similar in shape to *M. grandis*.

Single valves only - 65 x 55, 57.27 x 47.34, 55 x 49, 36.35 x 31.54 mm (l x ht)

Kayankerny, Thennadi Bay, beached; Trincomalee, Nilaveli, NBH, beached; Trincomalee, Erakkandy, lagoon mouth, beached.

- NMR picture pages; Wong, 2009 p. 286.



MF156: No collection data found empty.

### ***Oxyperas bernardi* (Pilsbry, 1904)**

[*Spisula bernardi* Pilsbry, 1904 – original name]

Shell light, trigonal-ovate in shape, small umbones in front of mid-line, gaping behind. Anterior and posterior rounded, the anterior a bit broader, ventral convex. Lunule and escutcheon not defined. Two cardinal teeth in each valve, striated lateral teeth one anterior and posterior in the left valve, two in the right. Large oval-shaped pallial sinus, the ventral limb confluent with the pallial line. Sculpture of concentric grooves with flat, irregular ridges in between. Shell white in colour, glossy interior, the exterior covered by an off-white periostracum with irregular black-brown macules and a brown marginal band.

47.5 x 29 x 14.5 mm

- Kira, 1962 p. 167 Pl 59 # 8.

NMR Picture pages – a shell from Japan, where the umbo is nearer the midline.



### ***Oxyperas lentiginosum* (Gould, 1852)**

Triangular Surf Clam

[*Spisula lentiginosa* Gould, 1852 – original name; *Mactra triangularis* Lamarck, 1818 – synonym.]

Shell equivalve, nearly equilateral, beaks in front of midline, incurved, pointing forwards, umbones not prominent. Trigonal with straight antero-dorsal and postero-dorsal margins that are more or less equal in length; ventral margin convex. Anterior and posterior symmetrically rounded. Antero-dorsal slope flattish, bounded by ridges; likewise, the postero-dorsal slope, that is however raised along the midline.

(Left) MF396: Purchased, shell vendor at Mount Lavinia. Location unknown.

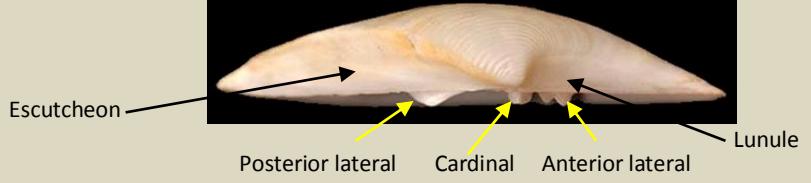
(Right) MF568: Maggona, Thudawa SBFH, fishing trash.

MF414: sub-fossil, Negombo, 'Fossil Reef', 14 m, sand bottom.

Many beached single valves at Wattala, Pegasus Reef Hotel beach.

Sculpture of thick, rounded, somewhat irregular concentric ridges with wide grooves. Hinge with spoon-shaped chondrophore, inverted "V"-shaped cardinal teeth and long lateral teeth – one l/v, two r/v anterior and posterior. Pallial sinus deep, directed forwards, apex rounded, inferior limb fused with pallial line. Pure white under a light brown periostracum with scattered dark brown spots.

57 x 32 x 17, 36.09 x 19.74 x 11.47 mm; Single valves – 47 x 24.52, 47.0 x 26.0 mm.

 <p><b>Simomactra chionia</b> (Tomlin, 1921) [<i>Macrinula chionia</i> B. Tomlin, 1921 – original name; <i>Macra complanata</i> Reeve, 1854 – synonym.] (<i>Macra complanata</i> Deshayes in Kirtisinghe, 1978 is the same taxon, described by Reeve based on a manuscript name by Deshayes.)</p>	<p><b>Simomactra chionia (Tomlin, 1921)</b> [<i>Macrinula chionia</i> B. Tomlin, 1921 – original name; <i>Macra complanata</i> Reeve, 1854 – synonym.] (<i>Macra complanata</i> Deshayes in Kirtisinghe, 1978 is the same taxon, described by Reeve based on a manuscript name by Deshayes.)</p>  <p>A single l/v in the collection. Shell thin but strong, trigonal, compressed. Umbo in front of midline, beak hooked, pointing forwards. Anterior broadly rounded, the posterior narrowly rounded, sub-truncate. Lunule narrowly elliptic, the margin grooved. Escutcheon indistinct. The postero-dorsal slope defined by a line, margin ridged, surface rough, convex, visible in lateral view. Cardinal teeth form an inverted V-shape, the anterior limb long, the posterior short. Lateral teeth single, elevated, the anterior bi-fid, posterior single, rounded. Pallial sinus wide, rounded, U-shaped, the inferior limb confluent with the pallial line. Exterior with growth lines, interior glossy, white.</p> <p>– Reeve, 1854, drawing and description of <i>Macra complanata</i>. – Kirtisinghe, 1978 p. 37 as <i>Macra complanata</i>.</p>
<p>MF643: Kayankerni, Thennadi Bay, single left valve, beached.</p>	
 <p><b>? Simomactra sp.</b> Actual size 45.6 x 33.25 mm</p>	<p><b>?</b> <i>Simomactra</i> sp. 1</p> <p>A single beached right valve.</p> <p>Shell medium, thick, trigonal, nearly equilateral, umbo in front of mid-line. Inflated, anterior and posterior rounded, the posterior somewhat beaked. Lunule not demarcated, the postero-dorsal slope marked by a rounded keel. Exterior ligament attachment poorly visualised, probably separated from resilifer by a gap. Resilifer not projecting ventrally. Two divergent cardinal teeth, the posterior marginally longer than the thicker anterior tooth. Two long lateral teeth on both sides. Adductor muscle scars subequal. Pallial sinus wide with projecting narrowed apex, ventral limb not confluent. Exterior smooth with growth lines and concentric ridges posteriorly towards the margin. Milky white, remnants of thin, light brown periostracum present.</p>
<p>MF775: Trincomalee, Nilaveli, beached single right valve.</p>	
 <p><b>Spisula</b> sp. 1 (?) Actual size 25.22 x 18.97 mm</p>	<p><b>Undetermined sp.</b></p> <p>A single beached left valve.</p> <p>Shell small, trigonal with short broadly rounded anterior and long, tapering, narrowly rounded posterior. Umbo broad, beak incurved, pointing forward. Lunule not defined, escutcheon vaguely defined. The postero-dorsal slope marked by a line, with changing sculpture. External ligament attachment not identified. Resilifer not projecting ventrally. Cardinal teeth united into an inverted V-shape. Single long lateral teeth both sides. Muscle scars indistinct. Pallial sinus appears to be small and U-shaped.</p> <p>MF659: Kalpitiya, Puttalam Lagoon, 2 m, single valve on muddy sand, by diving.</p>

## Anatinellidae Deshayes, 1853

Subfamily – Anatinellinae Gray, 1853 one genus *Anatinella* G. B. Sowerby II., 1833

Subfamily – Kymatoxinae Stenzel & Krause, 1957 two genera: *Anatina* Schumacher, 1817 and *Raeta* Gray, 1853



### Raeta pellicula (Reeve, 1854)

[*Mactra pellicula* Reeve, 1854 – original name; *Raeta abercrombiei* Melville, 1893, *Raeta indica* Dall, 1895, *Raeta jickelii* Sturany, 1905 – some of the synonyms.]

An articulated shell with paired valves gaping behind. With broad anterior and narrow posterior. Has a resilifer, cardinal teeth joined in inverted V shape and lateral teeth, with a pallial sinus, the inferior limb of which is not confluent with pallial line. Family Anatinellidae, Sub-family Kymatoxinae.

MF656: Kalpitiya, Thihaliya, Puttalam lagoon, empty, muddy mangrove lagoon shore.

A weathered, slightly damaged shell, absent periostracum.

Shell thin, ovate, elongated. Small umbones anterior, projecting above the dorsal margins. Antero-dorsal margin short, sloping, confluent with broadly rounded anterior. Postero-dorsal long, concave, sloping, joining narrowly rounded posterior margin. Ventral smoothly convex. Gaping posteriorly. Hinge with large triangular resilifer sloping backwards and projecting ventrally, 2 cardinal teeth each valve joined in inverted V-shape. Single long posterior & shorter anterior 'lateral teeth' each valve, the shorter anterior ones being aligned with the anterior cardinal teeth. Muscle scars unequal, the anterior narrow, elliptical, the posterior shorter, pear-shaped. Pallial sinus deep, pointing forward, apex rounded, limbs near parallel, not confluent with pallial line. Exterior rough with growth lines, grooves and wrinkles involving the whole shell thickness, the interior too being rough, porcellaneous.

35 x 22 x 13 mm

Kalpitiya, Thihaliya, Puttalam lagoon shore, empty on muddy lagoon shore, a single articulated pair.

**Note:** This collection is referred to *Raeta pellicula* as the most likely name. It is a more elongated shell than those illustrated in the few articles seen, but this taxon is described as being variable, and distributed in the Indian Ocean.

"...This species has a very wide range, from the shores of the Red Sea, to India, China and Japan. It evidently shows some variation in form, particularly in the length and acuteness of the rostrum..." – Harry, 1969.

Harry's drawing of *Raeta indica* shows a shell with a longer posterior than the drawing of *Raeta abercrombiei* from Bombay (Melville, 1893) and that of *Raeta jickelii* (Sturany, 1905). These three names are now accepted as synonyms of *R. pellicula* (WoRMS).

- Wong, 2009 p. 287.

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<http://www.elrincondelmalacologo.com/Web%20fotos%20marinos%20no%20gasteropodos/Mactridae.htm>

Femorale Shell Photos available at -  
<http://www.femorale.com/shellphotos/detail.asp?species=Lutraria+sieboldii+Reeve%2C+1854&url=%2Fshellphotos%2Fthumbpage%2Easp%3Ffamily%3Dmactridae%26cod%3D3067>

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MF: 21.11.2016; 27.7.2017; 23.4.2018; 14.4.2020; 14.12.2020.