

A brief guide to molluscs of Moreton Bay

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Queensland Government

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Summary

The foreshores of Moreton Bay have historically been harvested at relatively low levels by recreational fishers for bivalve (clams, oysters etc.) and gastropod (snails) molluscs. For some time, this was manageable in the northern Moreton Bay area from an enforcement and educational perspective.

However, in 2017, a significant rise in recreational marine mollusc harvest raised community concerns, resulting in increased enforcement action undertaken on the foreshores of northern Moreton Bay, primarily at Sandstone Point.

A targeted enforcement and education program took place during 2017–2019, which demonstrated from both an enforcement and sustainability perspective that a closure was necessary.

In 2018, the issue of over-collection of molluscs in Moreton Bay was discussed by the Moreton Bay working group as part of the *Queensland Sustainable Fisheries Strategy: 2017–2027*. In December 2018 a survey on the issue was released for public consultation, and in April 2019 the Moreton Bay mollusc closure came into effect.

The effects of the closure soon became evident, with a significant reduction in the number of complaints received and the number of recreational fishers harvesting molluscs on the foreshores of Moreton Bay. However, the mollusc population will take a significant amount of time to recover.

Moreton Bay is home to an estimated 350 species of bivalve molluscs and 1023 species of gastropod molluscs (Healy and Potter 2010; Healy, Potter and Carless 2010). Aside from being a food source for a vast array of other animals (e.g. fish, birds, crustaceans), molluscs play key roles in marine ecosystems within Moreton Bay (Davie 2011; Healy and Potter 2010; McPhee 2017). For example, most bivalves filter their food from the ocean and by so doing cleanse the water of suspended particles (as do other filter-feeding animals such as sea squirts, sponges and barnacles).

In addition, bivalves such as oysters and mussels form shell reefs, which not only stabilise sea floor sediments and to some degree shorelines, but also provide much-needed habitat for a large number of small creatures (such as worms, crustaceans, fish and other molluscs). Some bivalve species are also important to commercial fishing in Moreton Bay, including rock oysters and various species of scallops.

Similarly, marine gastropods fulfil a variety of roles. Many are predators of other invertebrates, some clean up decomposing organisms and many graze on algae or feed on organic surface deposits. Hence marine molluscs such as bivalves and gastropods are truly vital to the continuing health of Moreton Bay.

This guide has been designed as an educational and identification tool, aimed specifically at the most collected mollusc species within Moreton Bay.

For the most up-to-date mollusc recreational fishing rules, download the free Qld Fishing 2.0 app from the App Store or Google Play, or visit fisheries.qld.gov.au.

Australian mud ark (*Anadara trapezia*: family Arcidae)

- Shell oblong-angulate, thick, with numerous radial ribs; hinge with numerous, tiny teeth
- Colour: white but usually covered with dark brown skin (periostracum); interior white (sometimes stained green)
- Length to 80 mm (average 50–60 mm)
- Lives partially embedded in muddy sand in intertidal and shallow subtidal areas; filter-feeder
- Misidentification: cockles (Cardiidae) also ribbed but hinge teeth are few and large



Figure 1: Shells – exterior and interior



Figure 2: Living specimen amongst eel grass



Figure 3: Young growing inside dead valve of adult Australian mud ark

Pearl oysters or quampie (*Pinctada* spp.: family Pteriidae)

- Shell almost circular, flat, relatively thin, very brittle at margins
- Colour: exterior varies with species (beige, light brown or green), often covered with tan-brown skin; interior iridescent (‘pearly’), translucent peripherally
- Length to 140 mm (average 100–120 mm)
- Lives usually attached by threads to rocks or shells on muddy sand in intertidal and shallow subtidal areas; filter-feeder
- Misidentification: not easily confused with other bivalves



Figure 4: Shells – exterior and interior



Figure 5: Live specimen living in dead Australian mud ark shell



Figure 6: Live specimen removed from water with live attached Australian mud ark

Razor clams (family Pinnae)

Most common species in South East Queensland: *Atrina pectinata* and *Pinna bicolor*

- Shell elongate, fan-shaped, thin and fragile, with radiating ridges often ornamented with delicate short spines
- Colour: exterior light brown (horn) (*A. pectinata*) or black (*P. bicolor*), usually darkened by brownish skin; interior partly iridescent
- Length 300 mm or more (average 150–200 mm)
- Lives deeply and vertically embedded in muddy sand in intertidal and shallow subtidal areas, with only rounded (broad) end projecting above sediment; filter-feeder
- Misidentification: not easily confused with other bivalves

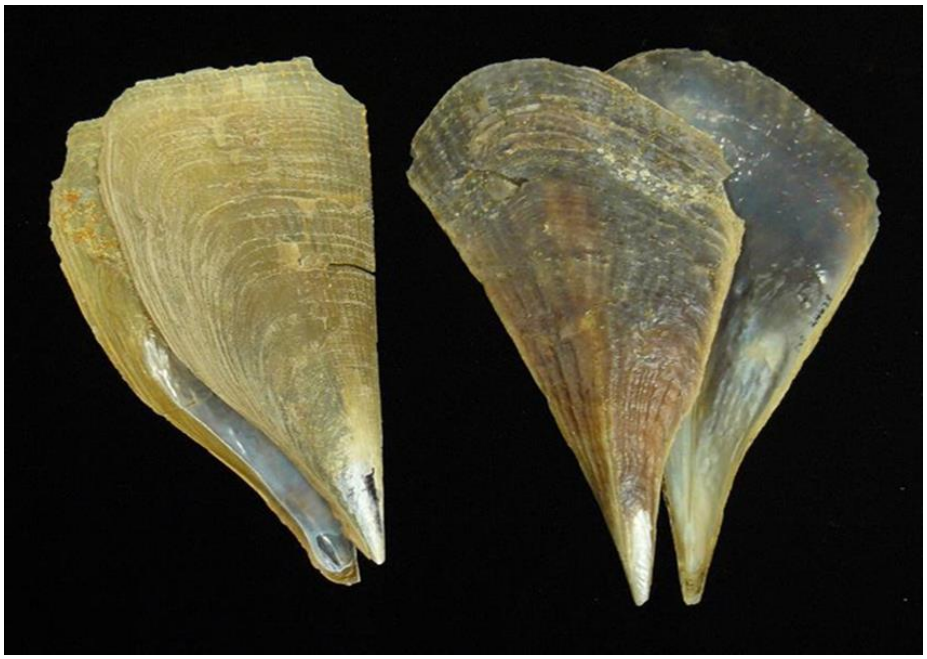


Figure 7: Shells – exterior and interior (left: *Atrina pectinata*; right: *Pinna bicolor*)



Figure 8: Living specimen deeply embedded in muddy sand



Figure 9: Specimen removed from sediment showing exposed versus buried parts

Orange cockle (*Vasticardium vertebratum*: family Cardiidae)

- Shell ovate, inflated, thick, with numerous radial ribs; hinge teeth few and well developed
- Colour: exterior reddish orange, but usually discoloured by with brown/black skin; interior white with orange-red margin
- Length to 80 mm (average 50–60 mm)
- Lives partially embedded in muddy sand in intertidal and shallow subtidal areas; filter-feeder
- Misidentification: Australian mud ark (*Anadara trapezia*) has a white, angulate shell and hinge teeth are tiny and numerous



Figure 10: Shells – exterior and interior



Figure 11: Orange cockle (left) compared to Australian mud ark (right)



Figure 12: Arrows indicating orange cockles in a bag of Australian mud arks

Australian wedge clam (*Paphies angusta*: family Mesodesmatidae)

- Shell elongate-triangular, compressed, relatively thin but strong; hinge teeth few and well developed
- Colour: exterior white but almost always covered by smooth, tan/yellow skin; interior white
- Length to 30 mm (average 20–25 mm)
- Lives in sand in surf zone; a very active burrower; filter-feeder
- Misidentification: Australian pipi (*Plebidonax deltoides*) is larger, broader and often shows much colour variation (externally and internally)



Figure 13: Shells – exterior and interior (left: with yellow skin intact)



Figure 14: Pipis (top) in comparison to Australian wedge clams (bottom)



Figure 15: Australian wedge clams on sand demonstrating colour variance with skin removed

Striated wedge clam (*Atactodea striata*: family Mesodesmatidae)

- Shell ovate-triangular, thick, with numerous narrow, concentric ridges; hinge teeth few and well developed
- Colour: exterior white but usually partially covered with yellowish-brown skin; interior white
- Length to 40 mm (average 20–30 mm)
- Lives partially embedded in muddy sand in intertidal and shallow subtidal areas; filter-feeder
- Misidentification: not easily confused with Australian wedge clam (*Paphies angusta*)



Figure 16: Shells – exterior and interior



Figure 17: Live specimens with algae growth on exposed extremities

Chemnitz's Venus clam (*Antigona chemnitzii*: family Veneridae)

- Shell ovate, inflated, thick; surface covered in concentric raised lamellae and radial ridges; margins crinkled; hinge teeth few and well developed
- Colour: exterior cream but usually covered with light brown skin; interior white to cream
- Length to 90 mm (average 60–70 mm)
- Lives partially embedded in muddy sand in intertidal and shallow subtidal areas; filter-feeder
- Misidentification: lamellate sculpture and crinkled margins easily separate this species from tapestry Venus clam (*Tapes conspersus*) and gaping Venus clam (*Marcia hiantina*)



Figure 18: Shells – exterior and interior

Tapestry Venus clam (*Tapes conspersus*: family Veneridae)

- Shell ovate, slightly inflated, with numerous low, concentric ridges; margins smooth; hinge teeth few and well developed
- Colour: exterior cream to light brown often with radiating darker brown patches and/or v-shaped markings; overlain with thin, tan skin; interior cream to white
- Length to 90 mm (average 60–70 mm)
- Lives partially embedded in muddy sand in intertidal and shallow subtidal areas; filter-feeder
- Misidentification: gaping Venus clam (*Marcia hiantina*) is usually smaller with pointed posterior end



Figure 19: Shells – exterior and interior

Gaping Venus clam (*Marcia hiantina*: family Veneridae)

- Shell ovate, slightly inflated, with numerous low, concentric ridges; margins smooth; hinge teeth few and well developed
- Colour: exterior cream to light brown, often with diffuse rays; overlain with thin, tan skin; interior cream to white
- Length to 60 mm (average 40–50 mm)
- Lives partially embedded in muddy sand in intertidal and shallow subtidal areas; filter-feeder
- Misidentification: tapestry Venus clam (*Tapes conspersus*) is usually larger with blunt posterior end



Figure 20: Shells – exterior and interior

Australian pipi or eugarie (*Plebidonax deltoides*: family Psammobiidae)

- Shell slightly elongate-triangular, compressed, relatively thin but strong
- Colour: exterior white, grey, mauve, yellow, brown/purple, with tan/translucent skin (often partly eroded); interior mottled with blue/purple and white
- Length to 70 mm (average 50–60 mm)
- Lives in sand in surf zone; very active burrower; filter-feeder
- Misidentification: Australian wedge clam (*Paphies angusta*) is slimmer, smaller and shows no colour variation



Figure 21: Shells – exterior and interior showing colour variation



Figure 22: Live specimens with siphons protruding from shells



Figure 23: Live specimens showing colour variation

Sydney rock oyster (*Saccostrea glomerata*: family Ostreidae)

- Shell oval to oblong; top valve usually flat; lower (attached) valve with coarse, deep ridges; margin of valve interior with row of tiny tubercles (chomata)
- Colour: exterior white with purple, brown skin (often eroded); interior white with purple margin
- Length to 100 mm or more (average 80–100 mm)
- Lives attached to rocks, shells or any other hard surface; filter-feeder
- Misidentification: not often confused with other bivalves but can be hard to identify due to extreme shell shape variability

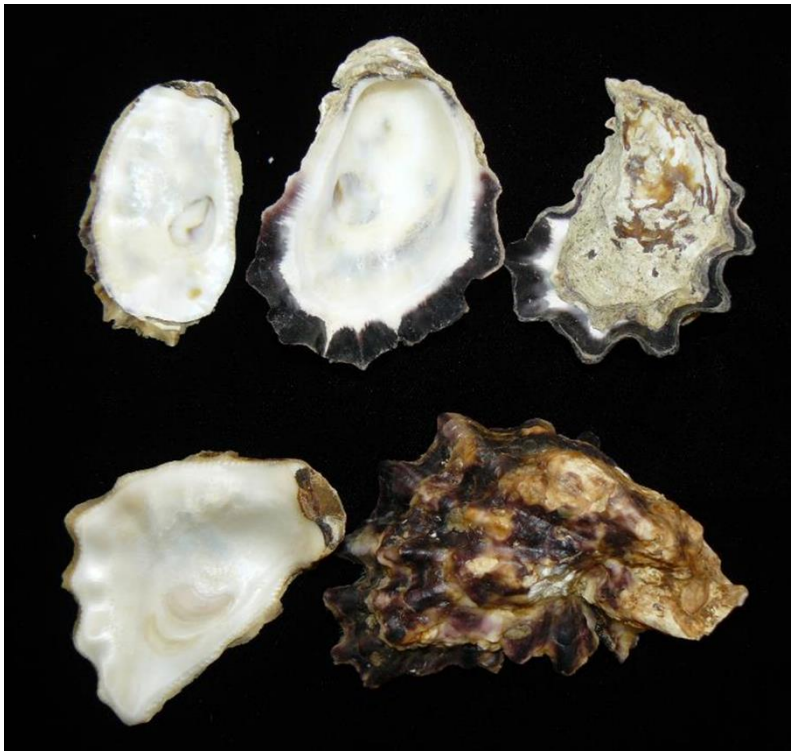


Figure 24: Shells – exterior and interior



Figure 25: Small live oyster clump



Figure 26: Large live oyster clump

Hercules club mud whelk (*Pyrazus ebeninus*: family Batillariidae)

- Shell elongate-conical, thick, ornamented with fine spiral ridges and periodically spaced knobs; aperture with flared lip (thin and/or not flared in juveniles)
- Colour: exterior grey-brown, overlain with thin light brown skin
- Length to 100 mm (average 70–90 mm)
- Lives on, or partially buried in, muddy sand in intertidal and shallow subtidal areas; feeds on surface detritus and algae
- Misidentification: juveniles often confused with Australian mud whelk (*Batillaria australis*), a coexisting (smaller) species of the same family



Figure 27: Specimens with operculum (trapdoor) sealing aperture



Figure 28: Live specimens with movement trails on mud flats



Figure 29: Live specimens with operculum withdrawn into shell

Leaden sand snail (*Conuber sordidus*: family Naticdae)

- Shell globular, with low spire
- Colour: exterior grey-blue, orange band around spire; orange glaze near aperture
- Length to 50 mm (average 25–30 mm)
- Lives on, or partially buried in, muddy sand in intertidal and shallow subtidal areas; active predator of other molluscs (drills shell holes) and occasionally soldier crabs
- Misidentification: coexisting conical sand snail (*Conuber conicum*) has paler, taller shell with brown glaze near aperture



Figure 30: Shells depicted from various angles (note orange glaze near aperture)



Figure 31: Live specimens at various growth stages



Figure 32: Crescent-shaped jelly egg mass containing sand grain–sized, unhatched embryos

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