**PECTINIDAE**

**Scallops**

- **Diagnostic characters:** Shell more or less inequivalve, usually with one valve more convex than the other; **ovate to subcircular** in outline with median low, orthogyrate umbones and a **straight dorsal margin forming wing-like ears** at both ends. Anterior ears generally well developed, often with **a byssal notch and a ctenolium at right valve**. Outer surface smooth or with mostly radial sculpture. One or both valves often brightly coloured. Periostracum absent. **Ligament** mostly **internal, in a small trigonal pit pointing under the umbones**; external ligament thin, stretching along the hinge line. **Hinge without teeth**, or with faint marginal ridges. **Interior of shell** porcelaneous, sometimes with a subnacreous appearance. A **single, asymmetrical, (posterior) adductor muscle scar**. **Pallial line without a sinus**. Internal margins generally undulate or crenulate. **Gills** of filibranchiate type, with folded or smooth branchial sheets. **Foot reduced. Byssus persistent or disappearing with growth. No siphons. Mantle margins free, with eyes and short tentacles.**

**Habitat, biology, and fisheries:** Well represented in the warm, tropical to subtropical shallow waters of the Indo-Pacific, either by byssally attached species living among corals, and by free-living species capable of swimming by clapping the valves together, particularly as an escape from predators. Pectinidae are actively exploited within the area. A few species represent important commercial species in the scallop market which is characterized by an increasing demand.

**Similar families occurring in the area**

- **Limidae:** shell equivale, often drawn out anteroventrally; **anterior ears generally reduced; a wide trigonal cardinal area, with a median ligamental groove, between umbones and dorsal margin.**

- **Spondylidae:** shell cemented to substrate by right valve; a large cardinal area between umbones and dorsal margin, generally bigger in the right valve than in the left; hinge with 2 strong teeth and 2 deep sockets, symmetrically arranged in relation to the internal ligament.

**Key to species of interest to fisheries occurring in the area**

1a. Shell nearly smooth externally, but with distinct internal radial ribs (Fig. 1a) . . . . . . . . . . → 2

1b. Shell with distinct radial ribs externally and internally (Fig. 1b) . . . . . . . . . . → 3

---

Fig. 1
2a. Shell medium sized (attaining commonly 8 cm in length); right (lower) valve with 22 to 34 internal radial ribs (Fig. 2) ................................. *Amusium pleuronectes*

2b. Shell large sized (commonly exceeding 10 cm in length); right (lower) valve with 42 to 54 internal radial ribs (Fig. 3) ................................. *Amusium japonicum*

3a. Right (lower) valve convex, left (upper) valve nearly flat to somewhat concave (Fig. 4a) ........................................... *Minnivola pyxidata*

3b. Both valves convex (Fig. 4b) .................................... → 4

4a. Radial ribs densely sculptured with numerous, strongly projecting concentric lamellae (Fig. 5) ................................. *Gloripallium pallium*

4b. Radial ribs with a different sculpture; concentric elements, if present, relatively fine and low, or scattered ........................................... → 5

5a. Ears markedly unequal in size, the posterior ones much shorter than the anterior. ................................. → 6

5b. Ears about the same size .................................... → 7

6a. Each valve with 7 to 10 strong, prominently scaled, radial ribs, interspersed with smaller ribs (Fig. 6) .................................... *Chlamys squamata*

6b. Each valve with 20 to 26 radial ribs, all about the same size and evenly sculptured (Fig. 7) ........................................... *Chlamys senatoria*

7a. Shell subcircular in outline; ribs without radial sculpture ........................................... → 8

7b. Shell elongate-ovate in outline; ribs radially striate ........................................... → 9
8a. Shell relatively large (up to 10 cm long), with 18 to 20 radial ribs on each valve; byssal notch of right valve obsolete (Fig. 8) ..................... Annachlamys flabellata
8b. Shell relatively small (up to 6 cm long), with 20 to 23 radial ribs on each valve; byssal notch of right valve deep (Fig. 9) .............................. Volachlamys singaporina

9a. Radial threads on ribs or interspaces strongly scabrous; shell higher than long . . . . . . . . . → 10
9b. Radial threads on ribs or interspaces finely lamellous; shell nearly as long as high (Fig. 10) ........................................ Decatopecten amiculum

10a. Ears with distinct radial ridges; left (upper) valve whitish, with concentric patterns of brown blotches and spots (Fig. 11) ......................... Decatopecten radula
10b. Ears with obsolete radial ridges (more distinct on right anterior ear); left (upper) valve yellow, orange or brown, with whitish blotches (Fig. 12) ........... Bractechlamys vexillum
List of species of interest to fisheries occurring in the area

The symbol 🏕️ is given when species accounts are included.

火花 Amusium japonicum (Gmelin, 1791)
火花 Amusium pleuronectes (Linnaeus, 1758)
火花 Annachlamys flabellata (Lamarck, 1819)
火花 Bractechlamys vexillum (Reeve, 1853)
火花 Chlamys senatoria (Gmelin, 1791)
火花 Chlamys squamata (Gmelin, 1791)
火花 Decatopecten amiculum (Philippi, 1851)
火花 Decatopecten radula (Linnaeus, 1758)
火花 Gloripallium pallium (Linnaeus, 1758)
火花 Minnivola pyxidata (Born, 1778)
火花 Volachlamys singaporina (Sowerby, 1842)

References

Amusium japonicum (Gmelin, 1791)

Frequent synonyms / misidentifications: Amusium balloti (Bernardi, 1861); A. japonicum formosum Habe, 1964; A. japonicum taiwanense Dijkstra, 1988 / None.

FAO names: En - Saucer scallop; Fr - Peigne lisse de Nouvelle-Calédonie.

Diagnostic characters: Shell thin, medium to large sized (commonly exceeding 10 cm in length), laterally compressed, almost circular in outline, gaping anteriorly and posteriorly. Both valves somewhat convex, the right (lower) valve only a little more inflated and larger than the left (upper) valve. Ears small, subequal in size and shape, with the right anterior ear faintly sinuated at anteroventral margin and devoid of ctenolium. Surface of left valve with 2 broad and very shallow depressed areas radiating from the umbo to anteroventral and posteroventral margins. Outside of shell polished and nearly smooth, with many very fine, concentric and radial lines. Interior of both valves with distinct radial ribs, usually in pairs, much narrower than the flat interspaces and becoming obsolete on umbonal area. Right valve with 42 to 54 internal radial ribs (46 to 54 in the typical subspecies A. japonicum japonicum, and 42 to 48 in the southern A. japonicum balloti).

Colour: outside of left valve reddish brown, with variable shades along the concentric growth marks; outer colour pattern of subspecies balloti also with small, yellowish and dark brown spots along radial lines on umbonal area and often with a few irregular, larger dark spots towards periphery. Interior of left valve glossy white, with yellowish or pinkish margins and sometimes with a brown blotch under the hinge. Right valve white to pale yellow externally and internally; subspecies balloti with an additional external brown scattering along some concentric growth marks.

Size: Maximum shell length 14 cm, commonly to 11 cm.

Habitat, biology, and fisheries: On sandy to muddy bottoms of lagoons, often associated with brown seaweeds. Sublittoral, mainly from shallow waters to about 30 m, but also deeper to more than 80 m. Sexes separate. Spawning occurs in the cool season, from June to November. Growth is relatively rapid (about 7 to 8 cm in the first year), but the number of individuals reaching a 3 or 4 years age is small, because of a high rate of natural mortality. Can actively swim by clapping the valves when disturbed, with a speed of about 2 knots and for a distance of some 10 m. Economically important species, commercially trawled in New Caledonia, central Queensland and the southern half of Western Australia. Hatchery culture in Western Australia and Queensland.

Distribution: Restricted to the Western Pacific; from China to Japan (typical subspecies), and from southern and eastern Australia to New Caledonia (subspecies balloti).
**Amusium pleuronectes** (Linnaeus, 1758)

**Frequent synonyms / misidentifications:** *Amusium pleuronectes australiae* Habe, 1964 / None.

**FAO names:** En - Asian moon scallop; Fr - Peigne lisse asiatique.

**Diagnostic characters:** Shell thin, medium sized (commonly attaining 8 cm in length), laterally compressed, almost circular in outline, gaping anteriorly and posteriorly. Both valves somewhat convex, the right (lower) valve only a little more inflated and larger than the left (upper) valve. Ears moderately small, subequal in size and shape, with the right anterior ear slightly sinuated anteroventrally and devoid of ctenolium. Surface of left valve with 2 broad and very shallow depressed areas radiating from the umbo to anteroventral and posteroventral margins. **Outside** of shell polished and nearly smooth, with only many faint concentric and radial lines. **Interior of both valves with distinct radial ribs, usually in pairs,** much narrower than the flat interstices and becoming obsolete on umbal area. **Right valve with 22 to 34 internal radial ribs** (usually 26 to 34 in the typical subspecies *Amusium pleuronectes pleuronectes*, and 22 to 24 in the southern subspecies *A. pleuronectes australiae*). **Colour:** outside of left valve with light to deep pinky brown of varying shades along concentric growth marks, and with darker radial lines and tiny white dots on umbal area. **Interior** of left valve whitish, often with a pinkish hue on margins and central area, and with a brown blotch under the hinge. **Right valve white** externally and internally.

**Size:** Maximum shell length 10 cm, commonly to 8 cm.

**Habitat, biology, and fisheries:** On sand and mud bottoms. Sublittoral, from depths of 10 to 80 m. Active local exploitation in Thailand. This species is commercially fished in Taiwan Province of China.

**Distribution:** Eastern Indian Ocean and tropical western Pacific, from Myanmar and Indonesia to Papua New Guinea; north to Taiwan Province of China and southern Japan, and south to Queensland.
Chlamys senatoria (Gmelin, 1791)

Frequent synonyms / misidentifications: Mimachlamys senatoria (Gmelin, 1791); Paltium senatoris Chemnitz, 1784 (Invalid name); Pecten aurantius Lamarck, 1819 / Chlamys nobilis (Reeve, 1852).

FAO names: En - Senatorial scallop; Fr - Pétoncle sénateur.

Diagnostic characters: Shell solid, medium sized, higher than long and rounded-ovate in outline. Both valves convex and subequal, the right (lower) valve a little flatter than the left (upper) valve. Ears markedly unequal in size, the anterior ones more than twice the length of the posterior ones. Ventral side of right anterior ear with a deep byssal notch and a ctenolium. Main sculpture of each valve of 20 to 26 rounded radial ribs with relatively fine and densely set transverse scales. Interspaces about as broad as the ribs, often with fine secondary radial threads, and with microscopic lines, obliquely diverging on anterior and posterior sides of valves. Ears strongly ribbed, the dorsalmost rib of right anterior ear somewhat protruding and adorned with erect spines. Interior shiny, with low, rounded radial ribs corresponding to the outer sculpture. Colour: outside of shell variable, dull purple, brown or orange, frequently variegated with paler blotches. Interior similarly coloured, suffused with white on hinge and umbonal cavity.

Size: Maximum shell height 8 cm, commonly to 6 cm.

Habitat, biology, and fisheries: On sandy or muddy-sand bottoms with gravel, coral rubble, shell debris or rocks. Attached by its byssus to hard elements, even in the adult stages. Local exploitation, where it is abundant. Recreationally fished in New Caledonia.

Distribution: Widespread in the Indo-West Pacific, from East Africa, including Madagascar, the Red Sea and the Persian Gulf, to Melanesia; north to the Philippines and south to Queensland and New Caledonia.
**Decatopecten amiculum** (Philippi, 1851)

**Frequent synonyms / misidentifications:** *Comptopallium amiculum* (Philippi, 1851); *Pecten flabelloides* Reeve, 1852 / None.

**FAO names:** En - Cloak scallop; Fr - Pétoncle mantelet.

**Diagnostic characters:** Shell solid, small, nearly as long as high, inequivalve, the outline somewhat **elongate** dorsally and **subcircular** ventrally. **Both valves convex,** the right (lower) valve more inflated than the left (upper) valve which is moderately flattened towards the umbo. **Ears small, subequal** in size and shape. **Right anterior ear with an obsolete anteroventral byssal notch, devoid of ctenolium.** Outer sculpture of each valve with **about 9 to 11** rounded **radial folds,** with **numerous,** much smaller, secondary **radial riblets** that are **finely lamellous** on ribs or interspaces; transverse lamellous sculpture **delicate** and easily eroded on top of ribs. **Hinge line short,** about 1/3 to 1/2 of shell length, with rather strong oblique ridges and pits on either side of the internal ligament. **Interior of valves shiny,** with a flattened radial sculpture corresponding with the outer folds. **Colour:** **outside** of shell off-white to beige, **variously mottled with chestnut brown,** tan or reddish purple, mainly **on the left valve** which is more vividly coloured than the often nearly uniform cream right valve. **Interior whitish,** frequently tinged with **dark brown** on hinge areas and broad rims, in 1 or both valves.

**Size:** Maximum shell height 6 cm, commonly to 5 cm.

**Habitat, biology, and fisheries:** Lying free on sandy bottoms. Intertidal and sublittoral to a depth of 25 m. Common in Thailand where it is locally exploited.

**Distribution:** Indo-West Pacific, from East Africa, including Madagascar, the Red Sea, to the Philippines; north to southern Japan and south to the Malay Peninsula.
**Decatopecten radula** (Linnaeus, 1758)

**Frequent synonyms / misidentifications:** *Comptopallium pauciplicatum* Iredale, 1939; *C. radula* (Linnaeus, 1758); *C. radula griggi* (Webb, 1957); *Pecten argenteus* Reeve, 1853 / None.

**FAO names:** En - Flatribbed scallop; Fr - Pétoncle râpe.

**Diagnostic characters:** Shell solid, medium sized, higher than long, elongate-ovate in outline. Both valves convex, the right (lower) valve more inflated than the left (upper) valve. Ears subequal in size and shape. **Right anterior ear with a slight byssal notch** anteroventrally, **devoid of ctenolium.** Outer sculpture of **about 10 or 11 rounded radial folds** (9 to 13) on each valve, **with numerous**, much smaller, secondary **radial riblets** that are set with densely and finely imbricated transverse scales, giving a rather **strongly scabrous** aspect. **Surface of ears with distinct radial ridges** (more developed on right anterior ear). **Hinge line quite long**, about 2/3 of shell length, with shallow marginal ridges. **Interior of valves shiny,** with a flattened radial sculpture corresponding with the outer folds. **Colour:** outside of shell **off-white** to cream, **with variable, dull brown concentric mottling on left valve,** mainly on top of the main radial ribs. **Interior** satin **white,** with **dark brown on the hinge line.**

**Size:** Maximum shell height 9.5 cm, commonly to 7 cm.

**Habitat, biology, and fisheries:** Attached to rock, coral and other hard objects. Common on coarse sand, in coral reef areas. Intertidal and shallow subtidal waters, to a depth of 20 m. Locally exploited where abundant. Of potential commercial value in New Caledonia.

**Distribution:** Indo-West Pacific, from India to Melanesia; north to Japan and south to Queensland and New Caledonia.
**Gloripallium pallium** (Linnaeus, 1758)

**Frequent synonyms / misidentifications:** *Chlamys pallium* (Linnaeus, 1758); *Cryptopecten pallium* (Linnaeus, 1758); *Pecten novaeguinae* Tenison-Woods, 1878; *P. speciosus* Reeve, 1853 / None.

**FAO names:** En - Royal cloak scallop; Fr - Pétoncle manteau.

**Diagnostic characters:** Shell solid, medium sized, about as long as high and subcircular in outline. Both valves subequal and moderately convex. Ears unequal in size, the anterior ones about 1.5 times longer than the posterior. Byssal notch of the right anterior ear moderately deep and with a ctenolium. Outer surface of each valve with about 13 strongly sculptured radial folds (12 to 15). Radial ribs densely set with numerous, strongly projecting concentric lamellae tending to split in 3 towards periphery of shell. Ribs interspaces with fine secondary radial threads bearing minute scales, generally 2 per interspace. Surface of ears radially ridged, with many strongly projecting scales or nodes. Dorsalmost ridge of right anterior ear somewhat protruding and adorned with erect spines. Interior of valves with low radial sculpture corresponding with the outer folds. Colour: outside of shell variable, often very brilliant in colour, from light red to orange or deep purple brown, generally whitish on umbonal area and with wavy, roughly concentric bands or blotches in lighter colours. Interior glossy white, with margins the same colour as the exterior.

**Size:** Maximum shell height 11 cm, commonly to 8.5 cm.

**Habitat, biology, and fisheries:** Attached by its byssus under coral heads and rocks. Frequently encrusted by sponges, bryozoans, algae, and other marine growths. Able to swim actively for some distance when detached. Common in the intertidal and shallow subtidal zones to a depth of 5 m, but also deeper to about 20 m. Collected for food and shell trade.

**Distribution:** Widespread in the Indo-West Pacific, from East Africa, including Madagascar, Mauritius and Réunion islands, and the Gulf of Aden, to eastern Polynesia; north to Japan and south to Queensland and New Caledonia.
**Annachlamys flabellata** (Lamarck, 1819)

**Frequent synonyms / misidentifications:** *Aequipecten flabellatus* (Lamarck, 1819); *Annachlamys kuhnholtzi* (Bernardi, 1860); *A. leopardus rena* Iredale, 1939; *A. melica* Iredale, 1939; *Chlamys leopardus* (Reeve, 1853) / None.

**En** - Leopard scallop; **Fr** - Pétoncle léopard.

Maximum shell length 10 cm, commonly to 8 cm. On sandy bottoms. Sublittoral, from shallow waters to depths of about 125 m. Locally collected by recreational fishermen in Australia and New Caledonia. Of potential interest where abundant. Western Pacific, from Indonesia to Australia and New Caledonia.

---

**Bractechlamys vexillum** (Reeve, 1853)

**Frequent synonyms / misidentifications:** *Bractechlamys evecta* Iredale, 1939; *Comptopallium vexillum* (Reeve, 1853); *Semipallium vexillum* (Reeve, 1853) / *Chlamys distans* (Lamarck, 1819).

**En** - Distant scallop; **Fr** - Pétoncle étendard.

Maximum shell height 6 cm, commonly to 4.5 cm. Lying free on fine sand, silt or mud bottoms, commonly in association with marine grasses, coral rubble, and rocks. Sublittoral, from shallow subtidal waters to depths of about 55 m. Able to swim about in a jerky motion when disturbed. Occurs frequently in fairly large numbers. Locally collected for food, and probably of commercial interest. Tropical West Pacific, from Indonesia, the Philippines, and Marshall Islands to New Caledonia.
**Chlamys squamata** (Gmelin, 1791)

**Frequent synonyms / misidentifications:** Azumapecten squamatus (Gmelin, 1791); Scaeochlamys squamata (Gmelin, 1791) / Pecten rastellum Lamarck, 1819.

**En** - Scaly Pacific scallop; **Fr** - Pétoncle écailleux.

Maximum shell height 7.5 cm, commonly to 5 cm. Attached to hard objects, on various soft to hard bottoms. Sublittoral, from depths of 1 to 50 m. Occasionally collected for food. East Indian Ocean and tropical West Pacific, from Myanmar and Thailand to the Philippines; north to Japan and south to Malaysia.

**Minnivola pyxidata** (Born, 1778)

**Frequent synonyms / misidentifications:** Pecten crebricostatus Philippi, 1844; P. pyxidatus Born, 1778 / None.

**En** - Box scallop; **Fr** - Coquille Saint-Jacques pyxide.

Maximum shell length 5 cm, commonly to 3.5 cm. On sandy bottoms. Gregarious. Sublittoral and shelf zones, from depths of 5 to 100 m. Incidental catch of shrimp trawlers. Indian Ocean and tropical western Pacific, from Madagascar and Sri Lanka to Indonesia; north to China and Taiwan Province of China, and south to Queensland.
**Volachlamys singaporina** (Sowerby, 1842)

Frequent synonyms / misidentifications: *Chlamys singaporina* (Sowerby, 1842); *Pecten cumingii* Reeve, 1853 / *P. tranquebaricus* Gmelin, 1791.

**En** - Singapore scallop; **Fr** - Pétoncle de Singapour.

Maximum shell length 6 cm, commonly to 3.5 cm. On sandy bottoms with shell debris or coral rubble. Intertidal and shallow subtidal zones to a depth of 10 m. Locally collected for food. Eastern Indian Ocean and tropical West Pacific, from Myanmar and Indonesia to the Philippines; north to the South China Sea and south to Queensland.

![exterior of right valve](after Abbott and Dance, 1983)