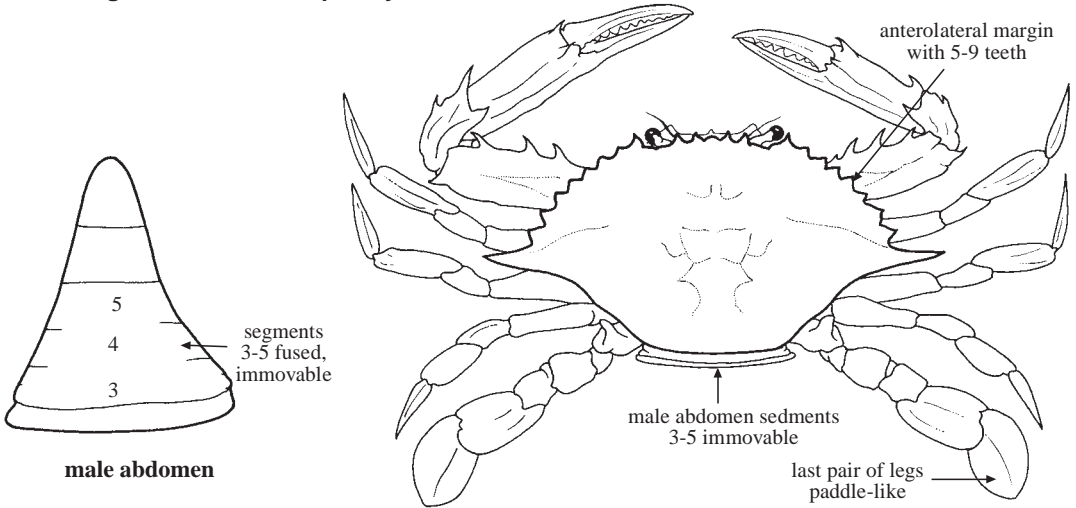


PORTUNIDAE

Swimming crabs

Diagnostic characters: Carapace hexagonal, transversely ovate to transversely hexagonal, sometimes circular; dorsal surface relatively flat to gently convex, usually ridged or granulose; front broad, margin usually multidentate; usually 5 to 9 teeth on each anterolateral margin, posterolateral margins usually distinctly converging. **Endopodite of second maxillipeds with strongly developed lobe on inner margin.** Legs laterally flattened to varying degrees, last 2 segments of last pair paddle-like. **Male abdominal segments 3 to 5 completely fused, immovable.**



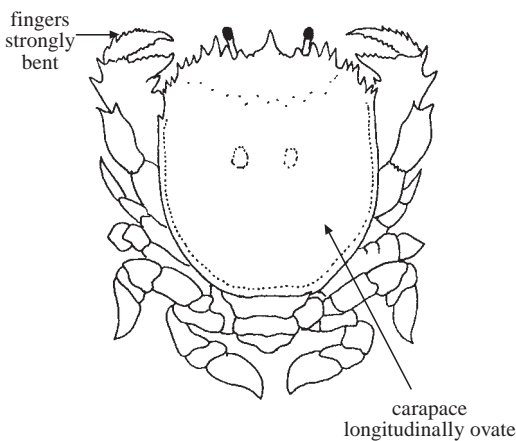
Habitat, biology, and fisheries: Benthic to semipelagic crabs with diverse habits. Many species of great fishery value, notably *Scylla serrata*, *Portunus pelagicus*, *P. sanguinolentus*, *P. trituberculatus*, and *Charybdis feriatus*.

Similar families occurring in the area

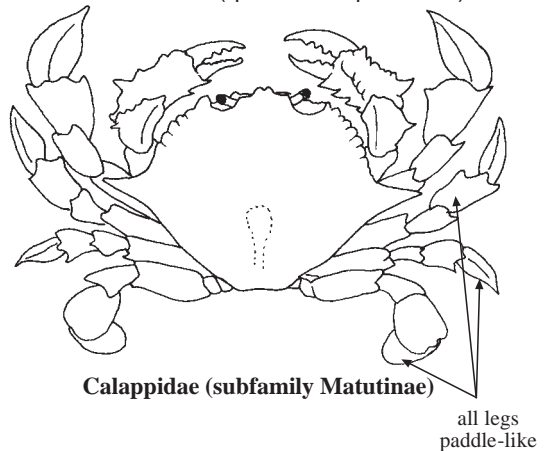
Portunids may be confused with spanner crabs (Raninidae) and moon crabs (Calappidae: Matutinae), which also possess paddle-like legs. They can be separated from portunids as follows:

Raninidae: carapace usually longitudinally ovate; sternum very narrow; fingers of chela strongly bent; meri of third maxillipeds triangular (quadrate in portunids).

Calappidae (subfamily Matutinae): carapace circular to subcircular; at least last 3 pairs of legs paddle-like, (not only the last pair); meri of third maxillipeds triangular in cross-section (quadrate in portunids).



Raninidae



Calappidae (subfamily Matutinae)

Key to species of interest to fisheries occurring in the area

- 1a. Carapace with 2 anterolateral teeth; eyes very long, reaching lateral edge of carapace (Fig. 1) *Podophthalmus vigil*
- 1b. Carapace with more than 2 anterolateral teeth; eyes normal in size → 2
- 2a. Carapace rounded; ventral surface of palm with stridulatory (sound-producing) ridges (Fig. 2a) *Ovalipes punctatus*
- 2b. Carapace transversely ovate; palm without any stridulatory (sound-producing) ridges (Fig. 2b) → 3

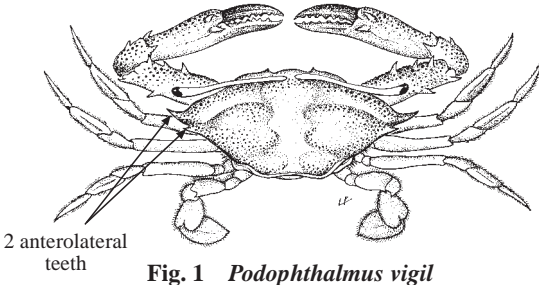


Fig. 1 *Podophthalmus vigil*

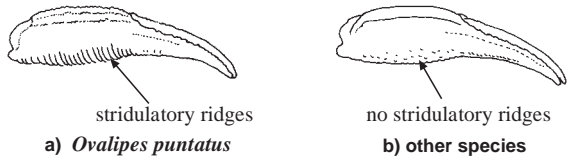


Fig. 2 chela in ventral view

- 3a. Five to 7 teeth on each anterolateral margin (Fig. 3a-c) → 4
- 3b. Nine teeth on each anterolateral margin (Fig. 3d) → 12

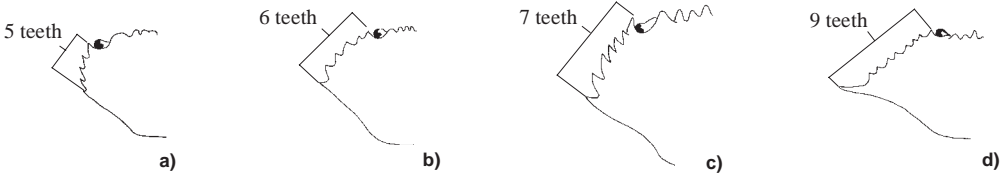


Fig. 3 lateral margin of carapace (dorsal view)

- 4a. Width of fronto-orbital border not much less than greatest width of carapace; 5 teeth on each anterolateral margin (first tooth sometimes with accessory denticle) (Fig. 4a) → 5
- 4b. Width of fronto-orbital border distinctly less than greatest width of carapace; 6 or 7 teeth on each anterolateral margin (Fig. 4b) → 6
- 5a. Basal antennal segment with a smooth or granulated ridge (Fig. 5a) *Thalamita crenata*
- 5b. Basal antennal segment with several sharp spines (Fig. 5b) *Thalamita spinimana*

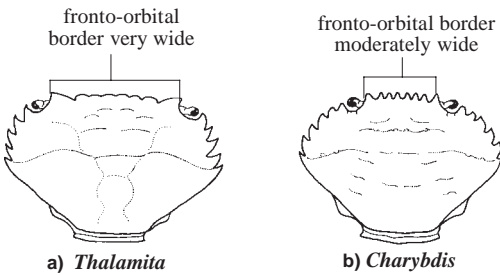


Fig. 4 carapace (dorsal view)

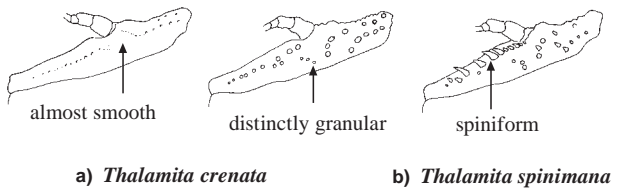
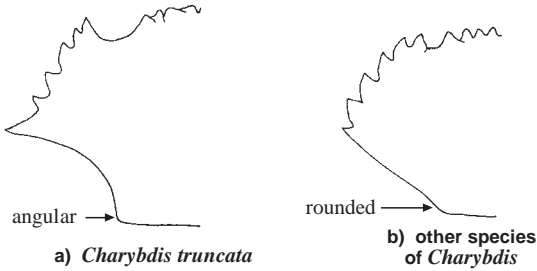


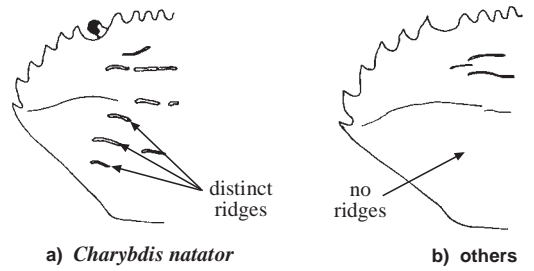
Fig. 5 basal antennal segment

- 6a. Posterior border of carapace forming an angular junction with posterolateral border (Fig. 6a); merus of cheliped without distal spine on posterior border *Charybdis truncata*
- 6b. Posterior border of carapace forming a curve with posterolateral border (Fig. 6b); merus of cheliped with distal spine on posterior border → 7
- 7a. Carapace with distinct ridges or granular patches behind level of last pair of anterolateral teeth (Fig. 7a) *Charybdis natator*
- 7b. Carapace without distinct ridges or granular patches behind level of last pair of anterolateral teeth (Fig. 7b) → 8



a) *Charybdis truncata* b) other species of *Charybdis*

Fig. 6 left side of carapace (dorsal view)

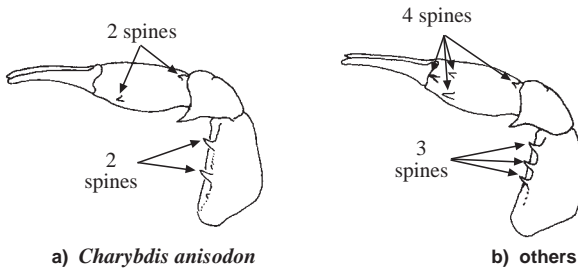


a) *Charybdis natator* b) others

Fig. 7 left side of carapace (dorsal view)

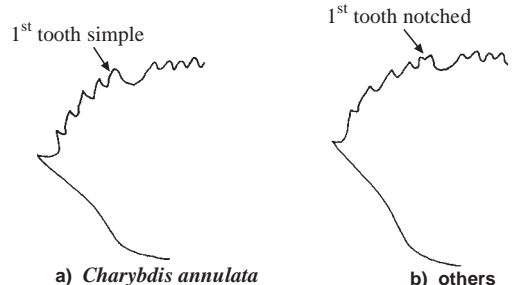
- 8a. Merus of cheliped with 2 spines on anterior border; palm with 2 spines on upper surface (Fig. 8a) *Charybdis anisodon*
- 8b. Merus of cheliped with 3 or 4 spines on anterior border; palm with more than 2 spines on upper surface (Fig. 8b) → 9

- 9a. First anterolateral tooth not truncate or notched (Fig. 9a) *Charybdis annulata*
- 9b. First anterolateral tooth truncate or notched (Fig. 9b) → 10



a) *Charybdis anisodon* b) others

Fig. 8 right cheliped (dorsal view)



a) *Charybdis annulata* b) others

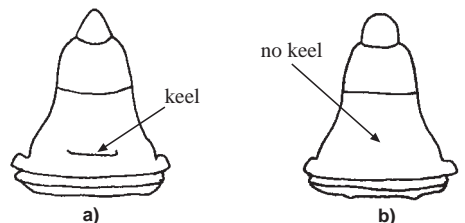
Fig. 9 lateral margin of carapace (dorsal view)

- 10a. Palm of cheliped with 4 spines on upper surface (Fig. 10a); male abdominal segment 4 keeled (Fig. 11a) *Charybdis feriatus*
- 10b. Palm of cheliped with 5 spines on upper surface (Fig. 10b); male abdominal segment 4 not keeled (Fig. 11b) → 11



a) b)

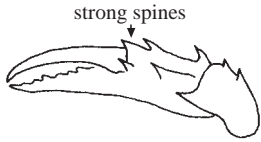
Fig. 10 right cheliped (dorsal view)



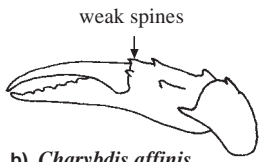
a) b)

Fig. 11 male abdomen

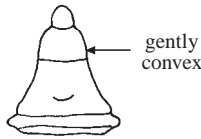
- 11a. Palm with well-developed spines (Fig. 12a); male abdominal segment 6 with convex lateral borders (Fig. 13a); last anterolateral tooth smallest and spiniform, not projecting beyond preceding tooth (Fig. 14a) *Charybdis japonica*
- 11b. Palm with poorly developed spines (Fig. 12b); male abdominal segment 6 with lateral borders parallel in proximal half (Fig. 13b); last anterolateral tooth elongate, projecting laterally beyond preceding tooth (Fig. 14b) *Charybdis affinis*
- 12a. Last anterolateral tooth subequal in size to others (Fig. 15a) → 13
- 12b. Last anterolateral tooth at least 2 times larger than others (Fig. 15b) → 16



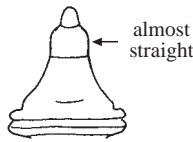
a) *Charybdis japonica*



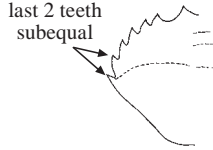
b) *Charybdis affinis*



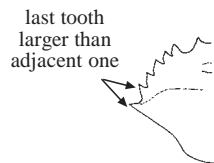
a) *Charybdis japonica*



b) *Charybdis affinis*



a) *Charybdis japonica*



b) *Charybdis affinis*



a) *Scylla*



b) *Portunus*

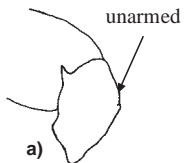
Fig. 12 right cheliped

Fig. 13 male abdomen

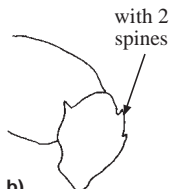
Fig. 14 anterolateral teeth

Fig. 15 anterolateral teeth

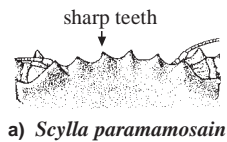
- 13a. Carpus of cheliped with only 1 low to very low granule on outer surface, never spiniform (Fig. 16a); colour of palm usually with at least some patches of orange or yellow in life → 14
- 13b. Carpus of cheliped with 2 distinct spiniform or sharp granules or spines on outer surface (Fig. 16b); colour of palm in life green to purple → 15
- 14a. Frontal margin usually with sharp teeth (Fig. 17a); palm usually with distinct, sharp spines (Fig. 18a) *Scylla paramamosain*
- 14b. Frontal margin usually with rounded teeth (Fig. 17b); palm usually with reduced, blunt spines (Fig. 18b) *Scylla olivacea*
- 15a. Frontal margin usually with rounded teeth (Fig. 19a); sharp granules on palm and carpus never spiniform; colour in life: carapace usually very dark green to black, outer surface of palm purple and never with marbled pattern, last legs marbled only in males *Scylla tranquebarica*
- 15b. Frontal margin usually with sharp teeth (Fig. 19b); sharp granules on palm and carpus often spiniform; colour in life: carapace usually green to olive-green, outer surface of palm green and often with marbled pattern, last legs marbled both in males and females *Scylla serrata*



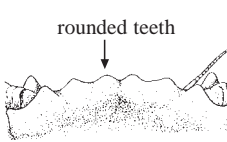
a)



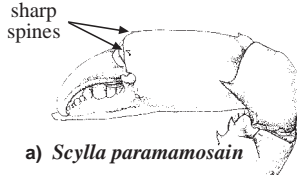
b)



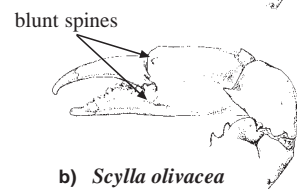
a) *Scylla paramamosain*



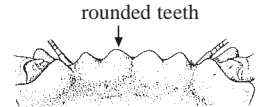
b) *Scylla olivacea*



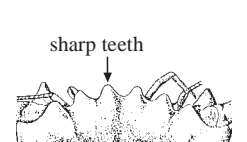
a) *Scylla paramamosain*



b) *Scylla olivacea*



a) *Scylla tranquebarica*



b) *Scylla serrata*

Fig. 16 carpus of cheliped

Fig. 17 frontal margin of carapace (dorsal view)

Fig. 18 right cheliped

Fig. 19 frontal margin of carapace (dorsal view)

- 16a. Carapace with 3 purple to red spots on posterior half (Fig. 20) . . . *Portunus sanguinolentus*
- 16b. Carapace marbled or with uniform coloration → 17
- 17a. Front with 4 teeth (Fig. 21a); inner margin of merus of cheliped with 3 spines (Fig. 22a) *Portunus pelagicus*
- 17b. Front with 3 teeth (Fig. 21b); inner margin of merus of cheliped with 4 spines (Fig. 22b) *Portunus trituberculatus*

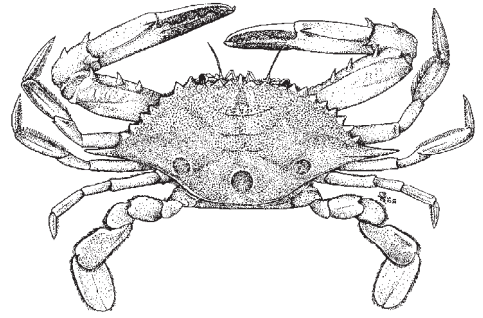


Fig. 20 *Portunus sanguinolentus*



Fig. 21 frontal margin of carapace (dorsal view)

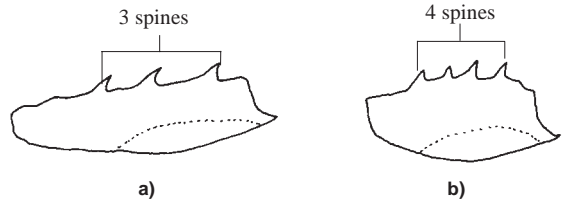


Fig. 22 merus of cheliped (inner margin)

List of species of interest to fisheries occurring in the area

The symbol is given when species accounts are included.

- Charybdis affinis* Dana, 1852
- Charybdis anisodon* (De Haan, 1850)
- Charybdis annulata* (Fabricius, 1798)
- Charybdis feriatius* (Linnaeus, 1758)
- Charybdis japonica* (A. Milne Edwards, 1861)
- Charybdis natator* (Herbst, 1794)
- Charybdis truncata* (Fabricius, 1798)
- Ovalipes punctatus* (De Haan, 1833)
- Podophthalmus vigil* (Fabricius, 1798)
- Portunus pelagicus* (Linnaeus, 1758)
- Portunus sanguinolentus* (Herbst, 1783)
- Portunus trituberculatus* (Miers, 1876)
- Scylla olivacea* (Herbst, 1796)
- Scylla serrata* (Forsskål, 1775)
- Scylla paramamosain* Estampodor, 1949
- Scylla tranquebarica* (Fabricius, 1798)
- Thalamita crenata* (Latreille, 1829)
- Thalamita spinimana* (Dana, 1852)

References

Keenan, C.P., P.J.F. Davie, and D.L. Mann. 1998. A revision of the genus *Scylla* De Haan (Crustacea: Decapoda: Brachyura: Portunidae). *Raffles Bull. Zool.*, 46(1):in press.

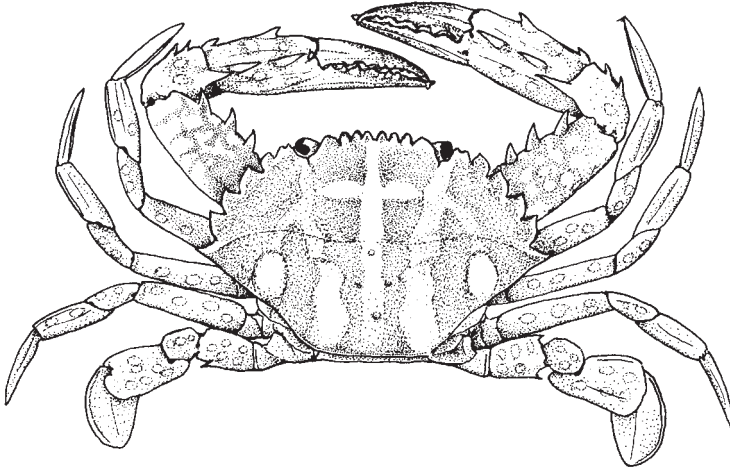
Leene, J.E. 1938. The Decapoda Brachyura of the Siboga Expedition. VII. Brachygnatha: Portunidae. *Siboga Exped. Monogr.*, 39c(131):1-156.

Stephenson, W. 1972. An annotated check list and key to the Indo-West Pacific swimming crabs (Crustacea: Decapoda: Portunidae). *Royal Society of New Zealand Bulletin*, 10:1-64.

Charybdis feriatus (Linnaeus, 1758)

Frequent synonyms / misidentifications: *Charybdis crucifer* (Fabricius, 1792); *C. cruciata* (Herbst, 1794) / None.

FAO name: En - Crucifix crab.



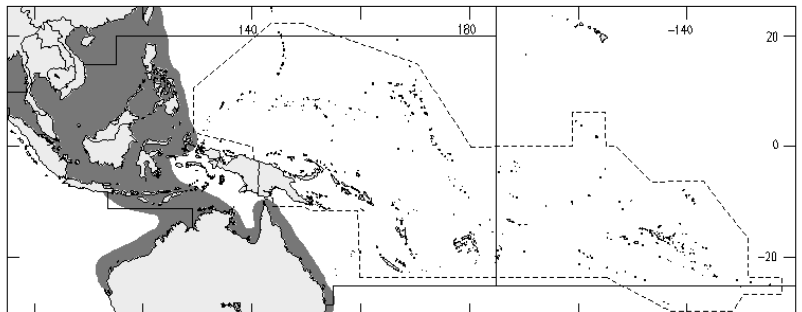
Diagnostic characters: Carapace ovate; 5 distinct teeth on each anterolateral margin. **Colour:** distinctive pattern of longitudinal stripes of maroon and white, usually with distinct white cross on median part of gastric region; legs and pincers with numerous scattered white spots.

Size: Maximum carapace width 20 cm.

Habitat, biology, and fisheries: Prefers sandy to sandy-muddy substrates, at depths from 30 to 60 m. Collected mainly by bottom trawls, sometimes by traps and nets. The commercially most important species of *Charybdis*. Like *Portunus* spp., *Charybdis feriatus* is more delicate than *Scylla*, and is frequently sold frozen. The lucrative and booming live-seafood market, however, is seeing the increased use of aquaria to keep these species alive. The crucifix crab is especially important in markets in East Asia where it commands substantially higher premium prices than *Portunus* spp., being sold for US\$8 to US\$15 per kg.

Distribution: Widely distributed in the Indo-West Pacific, reaching Japan and Australia.

Remarks: There are several species of *Charybdis* in the area which are also occasionally fished and infrequently appear in markets. These include *C. affinis* Dana, 1852, *C. acuta* (A. Milne Edwards, 1869), *C. anisodon* (De Haan, 1850), *C. annulata* (Fabricius, 1798), *C. natator* (Herbst, 1789) and *C. truncata* (Fabricius, 1798). They are all easily distinguished by carapace and cheliped armature features.



Charybdis japonica (A. Milne Edwards, 1861)

Frequent synonyms / misidentifications: None / None.

FAO name: En - Japanese swimming crab.

Diagnostic characters: Carapace without transverse ridges behind last anterolateral tooth; frontal teeth acutely triangular; anterolateral teeth all acutely triangular. Posterior border of propodus of legs serrated. Palm with 5 sharp spines, longitudinal ridges on palm granulated.

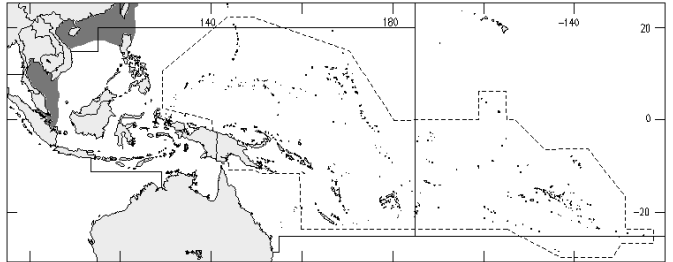
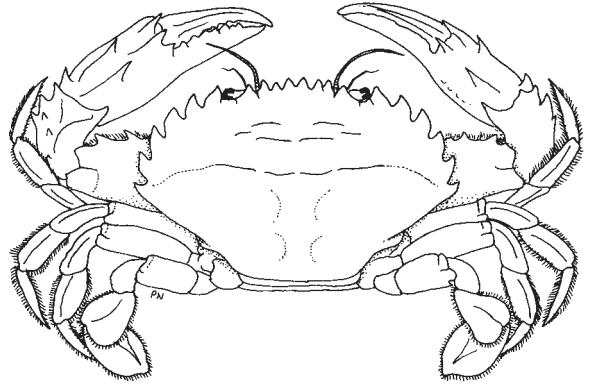
Colour: carapace white with large greyish patches, tips of anterolateral teeth reddish brown; fingers red and white.

Size: Maximum carapace width 7 cm.

Habitat, biology, and fisheries: Occurs just off-shore on muddy, sandy, or stony substrates. Taken mainly by trawlers or in nets as incidental catch. Although locally common, there is no sustained fishery for this species. Fished mainly in Japanese and Chinese waters.

Distribution: Japan, China, Taiwan Province of China, Thailand, and Malaysia.

Remarks: See *Charybdis feriatius*. The above characters and coloration of *C. japonica* readily distinguish it from all other species of *Charybdis*.



Charybdis natator (Herbst, 1789)

Frequent synonyms / misidentifications: None / None.

FAO name: En - Ridged swimming crab.

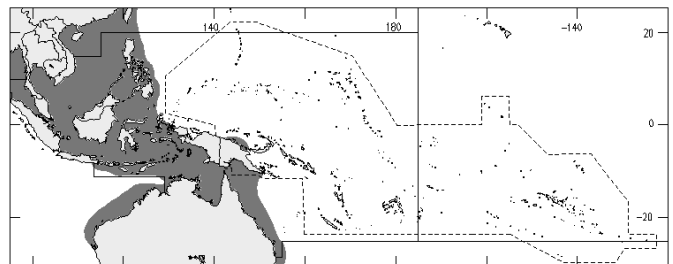
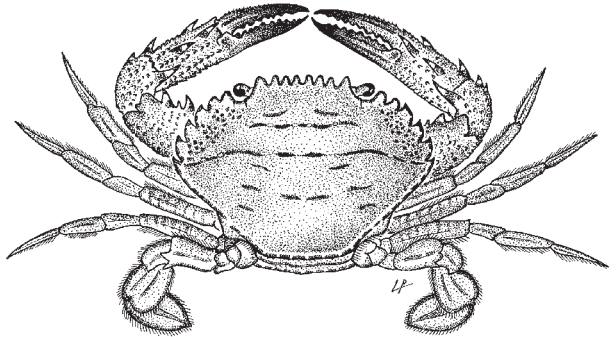
Diagnostic characters: Carapace with densely covered with very short pubescence which is absent on several distinct transverse granulated ridges in anterior half. **Colour:** orangish red overall, with ridges on carapace and legs dark reddish brown.

Size: Maximum carapace width 17 cm.

Habitat, biology, and fisheries: Near or in rocky-sandy substrates, sometimes near reefs, from depths of 5 to 40 m. *Charybdis natator* is caught incidentally by trawlers, and has some commercial value because of its large size.

Distribution: China, Taiwan Province of China, Philippines, Thailand, Indonesia, Malaysia, Singapore, and Australia.

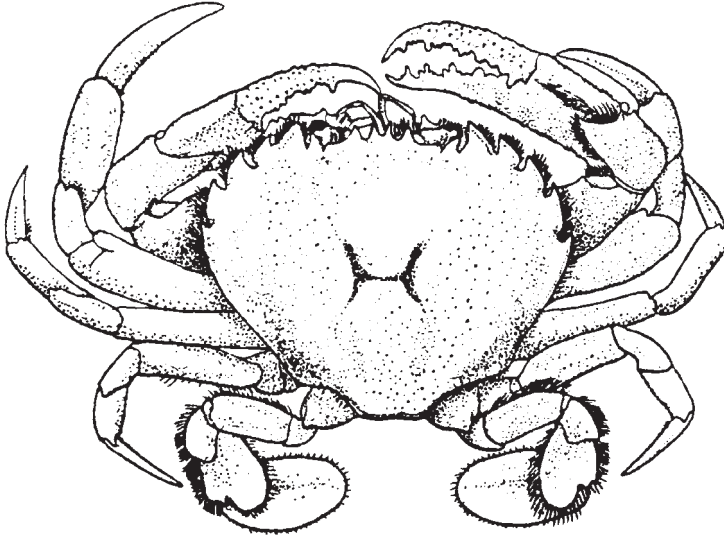
Remarks: See *Charybdis feriatius*.



Ovalipes punctatus (De Haan, 1833)

Frequent synonyms / misidentifications: None / None.

FAO name: En - Sand crab.



(after Shen and Dai, 1964)

Diagnostic characters: Carapace rounded, surfaces finely granular, appearing almost smooth; 4 well-developed teeth on each anterolateral margin; stridulatory ridges present on ventral surface of palm.

Colour: carapace reddish brown to maroon, margins lighter coloured, with scattered dirty-white and darker spots, white gastric depression, margins lighter coloured; dactylus of fourth walking leg bluish purple.

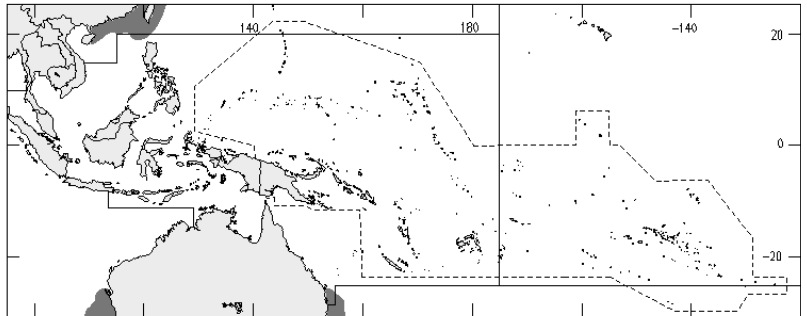
Size: Maximum carapace width 9.5 cm.

Habitat, biology, and fisheries: Found from depths of 30 to 50 m. Caught mainly by trawls or dredges, and fished intensively in southern Japan, Taiwan Province of China, and China (mainly off southern China and Japan). Usually, only the chelae are sold in markets, where they command premium prices.

Distribution: Throughout the northern and southern hemispheres in the Pacific. In the area, it occurs in the northern part of the South China Sea and in Queensland (Australia).

Remarks: Several species of *Ovalipes* of minor commercial importance are known, notably *O. australiensis* Stephenson and Mees, 1968, from Australia, which, however, does not occur in the Western Central Pacific. It can easily be

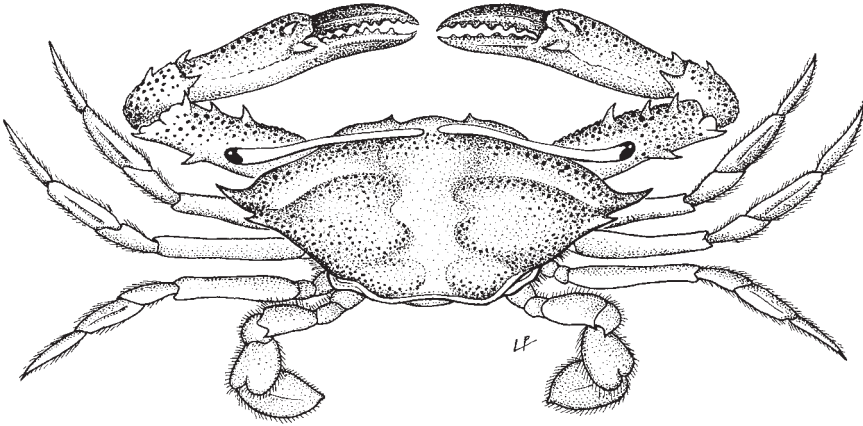
separated from *O. punctatus* by the condition of the carapace surface (finely granular in *O. punctatus*, but coarsely granular in *O. australiensis*). In addition, *O. australiensis* has 2 large, clear pigmented ovate spots on the posterolateral region (absent in *O. punctatus*).



Podophthalmus vigil (Fabricius, 1798)

Frequent synonyms / misidentifications: None / None.

FAO name: En - Sentinel crab.



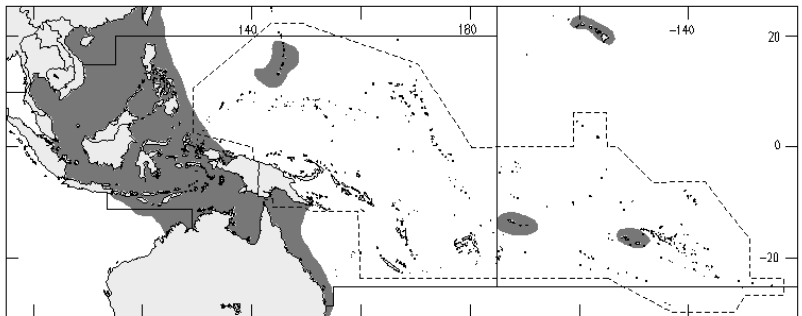
Diagnostic characters: Carapace distinctly broader than long; anterior margin much broader than posterior margin, with posterolateral margins converging strongly towards narrow posterior carapace margin; orbits very broad. Eyes very long, reaching to or extending beyond edge of carapace. **Colour:** carapace green; chelipeds and parts of legs violet to maroon in adults.

Size: Maximum carapace width 15 cm.

Habitat, biology, and fisheries: On sandy to muddy substrates in offshore waters. Occasionally caught by offshore trawlers, although rarely in large numbers. When marketed, it commands prices similar to those for *Portunus pelagicus*.

Distribution: Indo-West Pacific.

Remarks: Three species of *Podophthalmus* are known. *P. vigil* is the only large species that shows the colour pattern described above, and the only species of the genus with commercial value.



Portunus pelagicus (Linnaeus, 1758)

SCD

Frequent synonyms / misidentifications: *Portunus mauritanus* Ward, 1942 / *Portunus trituberculatus* (Miers, 1876).

FAO name: En - Flower crab.



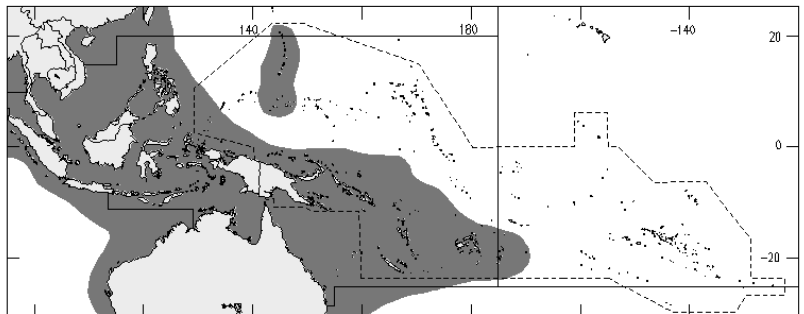
Diagnostic characters: Carapace rough to granulose, regions discernible; front with 4 acutely triangular teeth; 9 teeth on each anterolateral margin, the last tooth 2 to 4 times larger than preceding teeth. Chelae elongate in males; larger chela with conical tooth at base of fingers; pollex ridged. **Colour:** males with blue markings, females dull green.

Size: Maximum carapace width 20 cm for males (including lateral teeth).

Habitat, biology, and fisheries: Prefers sandy to sandy-muddy substrates in shallow waters down to a depth of 50 m, including areas near reefs, mangroves, and in seagrass and algal beds. Juveniles tend to occur in shallow intertidal areas. The crabs mature at about 1 year. Collected mainly by artisanal traps, trawls, beach seines, cylindrical wire traps, folding traps, pots, hop nets, drop nets, and sunken crab gill nets. In shallow waters, beach seines, rakes, and dab nets are used. Although sold for lower prices than *Scylla*, crabs of *Portunus* are taken in much larger quantities. They are caught in enormous numbers for sale in local markets (frozen or fresh) and for the crab-flesh canning industry. Many species of *Portunus* are commercially collected in the area. Among the 3 more frequently collected species included here, *P. pelagicus* is most widely sold in markets in Southeast Asia, including the Philippines. The market price varies from US\$3 to US\$5 per kg for fresh crabs, and from about US\$5 to US\$8 for live crabs. The fisheries for this species is well managed in Australia. From 1990 to 1995, the reported yearly catch of *P. pelagicus* from the Western Central Pacific (Australia, Indonesia, and Thailand) ranged from around 36 700 to 48 000 t (FAO Yearbook of Fishery Statistics).

Distribution: Throughout Indo-West Pacific.

Remarks: May be confused with *P. trituberculatus*, which resembles a large stocky female of *P. pelagicus*. *P. trituberculatus*, however, can easily be distinguished by having only 3 frontal teeth (4 teeth in *P. pelagicus*), and by the presence of 4 spines on the inner margin of the chelipedal merus (only 3 spines in *P. pelagicus*).



Portunus sanguinolentus (Herbst, 1783)

Frequent synonyms / misidentifications:
None / None.

FAO name: En - Three-spot swimming crab.

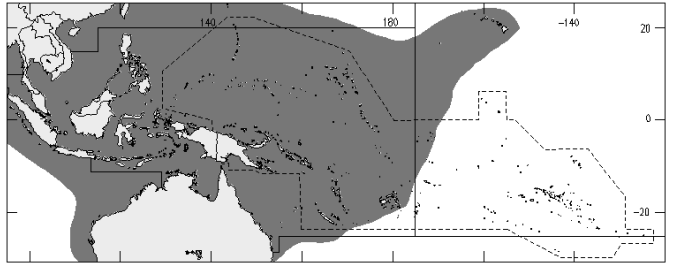
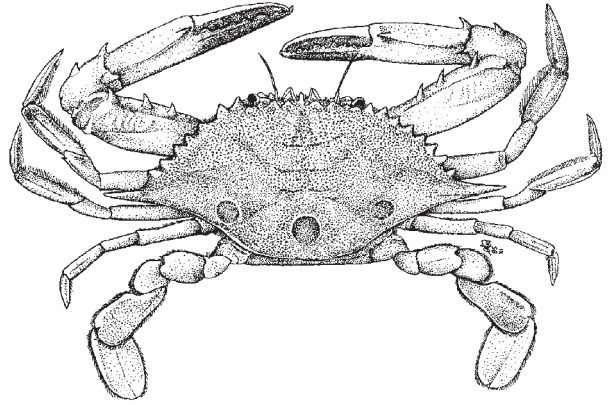
Diagnostic characters: Carapace finely granu-
lose, regions just discernible; 9 teeth on each
anterolateral margin, the last tooth 2 to 3 times
larger than preceding teeth. Chelae elongated in
males; larger chela with conical tooth at base of
fingers; pollex ridged. **Colour:** olive to dark
green, with 3 prominent maroon to red spots on
posterior 1/3 of carapace.

Size: Maximum carapace width 20 cm.

Habitat, biology, and fisheries: Occurs
on sandy to sandy-muddy substrates, from
the intertidal zone (especially juveniles) to
depths of 30 m. Collected mainly by nets or
seines. This species is less common than
Portunus pelagicus, and appears only oc-
casionally in markets. It is priced similarly
to, or for slightly lower prices as, *P. pela-
gicus*.

Distribution: Indo-West Pacific.

Remarks: This species can be easily sepa-
rated from all other *Portunus* species by its
very distinctive colour markings.

***Portunus trituberculatus*** (Miers, 1876)

Frequent synonyms / misidentifications:
None / *Portunus pelagicus* (Linnaeus, 1758).

FAO name: En - Horse crab.

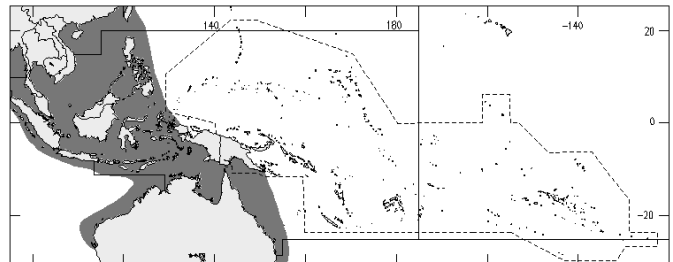
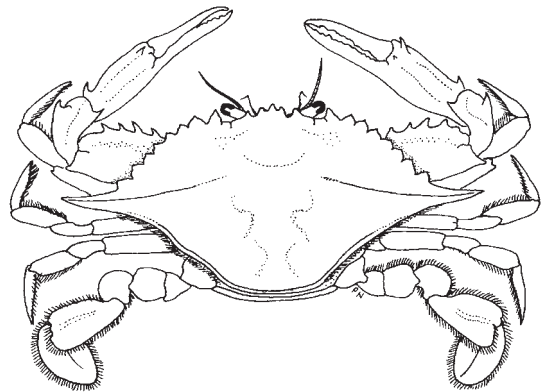
Diagnostic characters: Carapace rough to
granulose, regions discernible; front with 3
acutely triangular teeth; 9 teeth on each antero-
lateral margin, the last tooth much larger than
preceding teeth. Larger chela with conical tooth
at base of fingers; pollex ridged. **Colour:**
carapace dull green to brown.

Size: Maximum carapace width 15 cm (males).

Habitat, biology, and fisheries: Prefers sandy to
sandy-muddy substrates in shallow waters, up to
depths of 50 m. Caught mainly by trawls. A com-
mercially very important species in Japan and
collected in large numbers in some areas.

Distribution: Indo-West Pacific.

Remarks: This species is perhaps closest
to *Portunus pelagicus* in its general appear-
ance, resembling a large stocky female of
that species. *P. pelagicus*, however, is eas-
ily distinguished by having 4 frontal teeth
(only 3 teeth in *P. trituberculatus*) and by
the presence of 3 spines on the inner mar-
gin of the chelipedal merus (4 spines in *P.
trituberculatus*).



Scylla serrata (Forsskål, 1775)

MUD

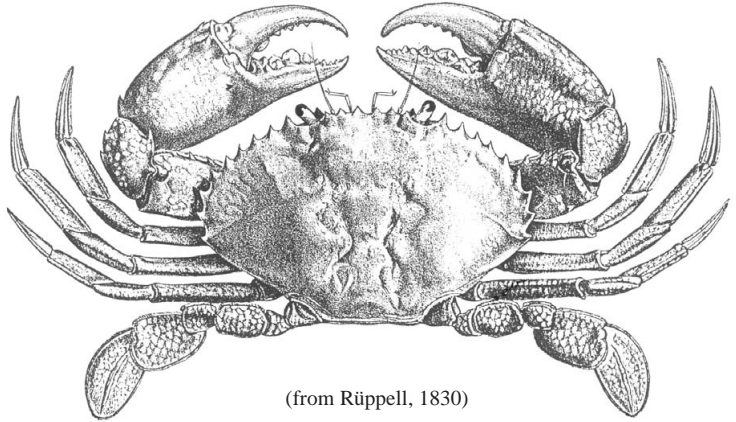
Frequent synonyms / misidentifications: *Acheolus crassimanus* MacLeay, 1838; *Scylla serrata* var. *oceanica* Dana, 1852 / see **Remarks**.

FAO name: En - Giant mud crab.

Diagnostic characters: Carapace smooth, with strong transverse ridges; H-shaped gastric groove deep; relatively broad frontal lobes, all more or less in line with each other; broad anterolateral teeth, projecting obliquely outwards. Well-developed spines present on outer surface of chelipedal carpus and anterior and posterior dorsal parts of palm.

Colour: carapace green to almost black; legs may be marbled.

Size: Maximum carapace width between 25 and 28 cm (males); maximum weight between 2 and 3 kg.



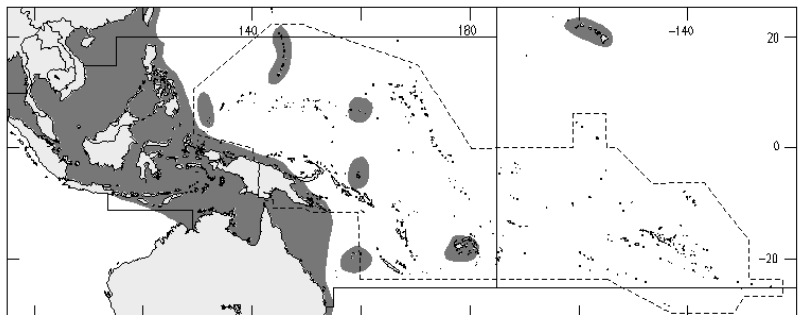
(from Rüppell, 1830)

Habitat, biology, and fisheries: *Scylla serrata* prefers more oceanic waters, usually found just offshore on soft muddy bottoms. Crabs can be caught up to 50 km offshore as they migrate there to spawn. The other 3 species of *Scylla* included here prefer mangroves in continental shelves with less saline waters. All species of *Scylla* dig deep burrows in mangroves and soft substrates in shallow or intertidal waters. Species of *Scylla* are collected mainly using trawls, traps, baited wire mesh pots, hooking, and by hand throughout their ranges. From 1990 to 1995, the reported yearly catch of *Scylla serrata* from the Western Central Pacific ranged from around 6 150 to 18 600 t (FAO Yearbook of Fishery Statistics). It must be pointed out, however, that these figures cover all 4 species of *Scylla* recognized here (see remarks on that problem below). Species of *Scylla* are almost always marketed alive. At present, the main markets are Taiwan Province of China, Hong Kong (China), and Singapore, where large crabs (so-called "meat crabs") and females with ripe ovaries ("roe crabs") command premium prices. For both kinds of crabs, current demand still far exceeds the supply. They are always sold for high prices, ranging from US\$5 to US\$10 per kg. "Roe crabs" can even cost 25 to 50% more. In Australia, they are sold for an average price of US\$6 per kg. Currently, the largest exporters of mud crabs in Asia are Indonesia, Sri Lanka, India, and Bangladesh, with the markets in Myanmar, Viet Nam, and Pakistan picking up rapidly. *S. serrata* and *S. olivacea* are also the main food species in Australia. There is no clear management for the 4 species of *Scylla* in Southeast and East Asia. In Australia, the fishery for *S. serrata* and *S. olivacea* is quite intense (700 t collected between 1989 to 1990, mainly from Queensland with over 400 t) but is reasonably well managed. There have been attempts to culture the crabs in captivity, but none of the closed-cycle enterprises have gone commercial. Many *Scylla* crab farms rely on the tide to bring megalopae or late zoeae into ponds, where the crabs grow out. Alternatively, many farms in Southeast Asia keep smaller or freshly moulted crabs (so-called "water crabs" because of the consistency of their flesh) caught from natural stocks to grow them out or add on more flesh. Similarly, female crabs of all 4 species are kept until their ovaries are full to improve their market prices.

Distribution: All 4 species of *Scylla* apparently have a wide Indo-West Pacific distribution. *Scylla serrata*, has been introduced to Hawaii from Samoa 55 years ago, and has become established there.

Remarks: The taxonomy of the genus *Scylla* has been terribly confused and is still difficult. While generally a single, supposedly widely distributed species is recognized, namely

S. serrata, it is now known that the genus includes 4 species. Recent research in Australia (Keenan et al., 1998) has clearly shown, using morphological, DNA, and allozyme data, that there are 4 species of *Scylla*.



The differences in allozyme and mtDNA are substantial, but the morphological features which separate the 4 species are rather subtle and sometimes difficult to recognize in smaller specimens. The distal parts of the male gonopods are also slightly but distinctly different (unpublished data). Given that all 4 species of *Scylla* are marketed throughout their range by the extensive export market, the existing catch figures and fishery management practices currently applied to a single species (*S. serrata*) obviously have to be revised.

The very large species depicted above (often called the “Sri Lanka crab” in South, Southeast and East Asia) is the “real” *Scylla serrata* and has a wide distribution, with preference for more saline waters. It varies from green to almost black, has a smooth carapace with distinct transverse ridges, deep H-shaped gastric groove, relatively broad frontal lobes, all of which are more or less in line with each other, broad anterolateral teeth which project obliquely outwards, and has very well-developed spines on the outer surface of the chelipedal carpus and palm.

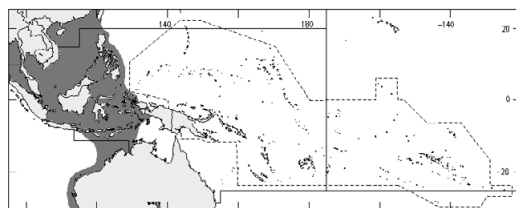
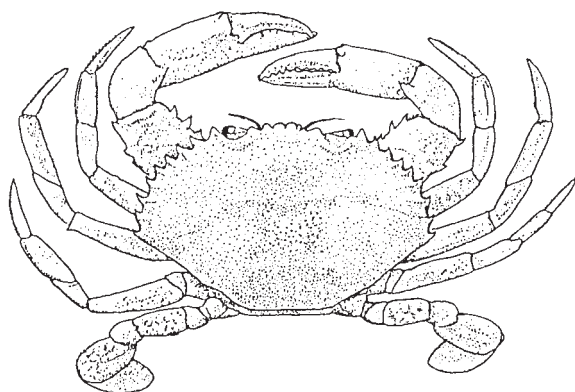
Two of the species are smaller and more closely associated with mangroves than the real *S. serrata*, and occur more or less in the same region, but generally prefer less saline conditions and are more common in continental shelf waters. *S. serrata* is not known to occur inside the Sunda Shelf, but it is the only species of *Scylla* known from the Red Sea. *Scylla olivacea* (Herbst, 1796) is usually brownish to brownish green in colour (sometimes orangish). It has a smoother, more evenly convex carapace with very low transverse ridges, a shallow H-shaped gastric groove, the median pair of the frontal lobes more rounded and projecting slightly forwards of the lateral ones, the anterolateral teeth gently curving anteriorly, giving the carapace a less transverse appearance. It also has very low spines on both the outer surface of the chelipedal carpus and the dorsal surface of palm. (See abbreviated species account below). The second mangrove species, *Scylla tranquebarica* (Fabricius, 1798) (= *Lupa lobifrons* H. Milne Edwards, 1834) varies from brown to almost black in coloration, and has very well-developed spines on the outer surfaces of the chelipedal carpus and the palm (as seen in *S. serrata*). It differs from *S. serrata*, however, by having the frontal teeth more acutely triangular, the median pair projecting slightly forwards of the lateral pair, and the anterolateral teeth gently curving anteriorly, giving the carapace a less transverse appearance. (See abbreviated species account below).

The fourth *Scylla* species, *Scylla paramamosain* Estampador, 1949, seems to prefer areas which are more rocky or near reefs, although it is also known from estuarine ponds and mangrove forests. It seems to be intermediate between *S. serrata* and *S. olivacea* both in morphology and coloration but can usually be distinguished by the form of its frontal margin and cheliped armature (see key). (See abbreviated species account below).

Scylla olivacea (Herbst, 1796)

En - Orange mud crab.

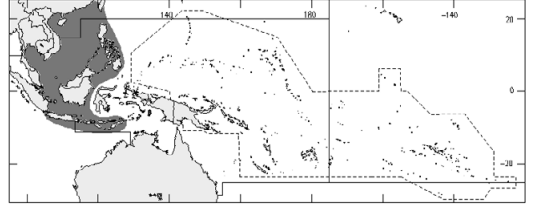
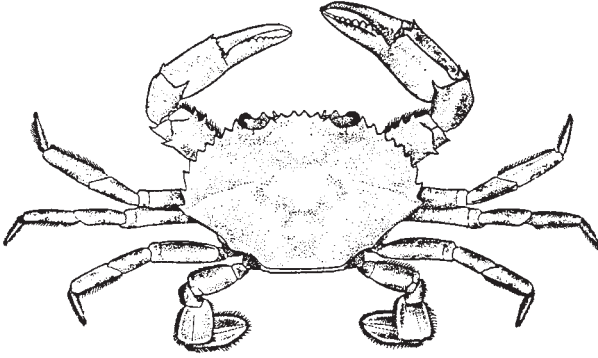
Maximum carapace width 18 cm (males). Carapace brownish to brownish green in colour (sometimes orangish), palm orange to yellow. Inhabits mangroves. Collected in large numbers and probably the most common species of *Scylla* to be found in many markets in Sundaic Southeast Asia and Thailand. Known so far from the continental waters of the Sunda Shelf and various parts of the East Pacific. (See species account of *S. serrata* for further information).



Scylla paramamosain Estampador, 1949

En - Green mud crab.

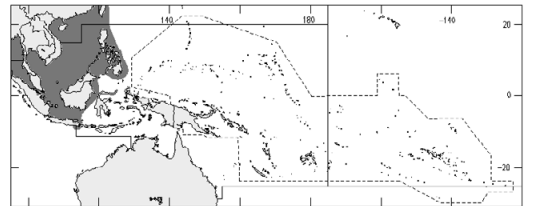
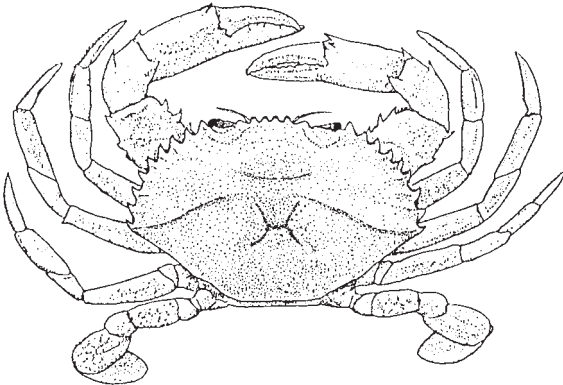
Maximum carapace width 20 cm (males), commonly between 15 and 18 cm; weight up to 2 kg. Carapace usually green to light green, palm green to greenish blue with lower surface and base of fingers usually pale yellow to yellowish orange. Rock areas, near reef, and mangroves. Common in northern parts of South China Sea and parts of Java, but less so elsewhere. Shelf species. (See species account of *S. serrata* for further information).



Scylla tranquebarica (Fabricius, 1798)

En - Purple mud crab.

Maximum carapace width 20 cm (males); weight up to 2 kg. Carapace green to almost black, palm purple. Mainly in mangroves (down to sublittoral parts) and collected in large numbers. This is probably the second most common species seen in Sundaic Southeast Asian markets, but less common in Thailand and the Philippines. Known from various parts of the Indo-West Pacific, including shelf waters. (See species account of *S. serrata* for further information).



Thalamita crenata (Latreille, 1829)

Frequent synonyms / misidentifications: None / None.

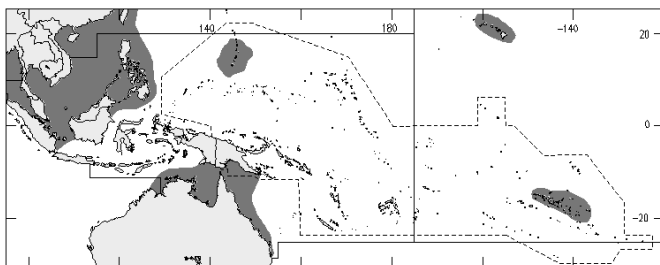
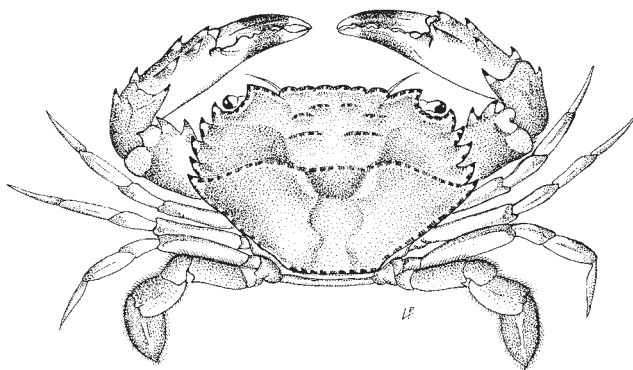
FAO name: En - Crenate swimming crab.

Diagnostic characters: Surface of carapace smooth, ridges low but distinct; front with 6 equal-sized, rounded lobes. **Colour:** dark to olive green overall.

Size: Maximum carapace width 8 cm.

Habitat, biology, and fisheries: One of the most distinctive species of the genus, and one of the few found in shallow non-reef habitats with soft substrates. Prefers areas near mangroves or with muddy-rocky substrates. Frequently collected by traps, trawlers, seines, and nets. Fished mainly in Southeast and East Asian countries. Although it can be very common in some areas, *T. crenata* has a low value in markets as it grows smaller than other, more commercial portunids found in the area.

Distribution: China, Indonesia, Malaysia, Singapore, Australia, Tuamotu, Tonga, French Polynesia, and Hawaii.

***Thalamita spinimana*** (Dana, 1852)

Frequent synonyms / misidentifications: None / None.

FAO name: En - Spiny claw swimming crab.

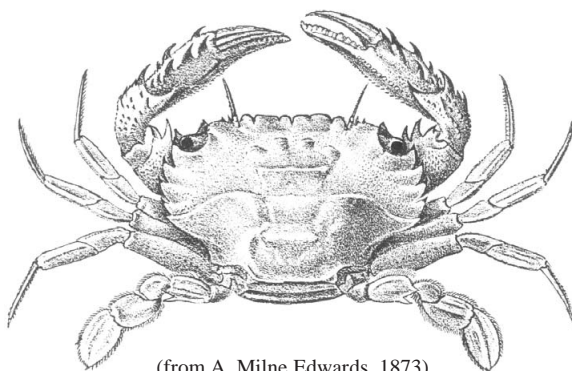
Diagnostic characters: Surface of carapace smooth, sometimes with low pubescence; ridges distinct; front with 6 lobes, median 4 lobes truncate, lateral 2 lobes rounded. **Colour:** usually bright red overall, but sometimes green, or with a mixture of red and green.

Size: Maximum carapace width 12 cm.

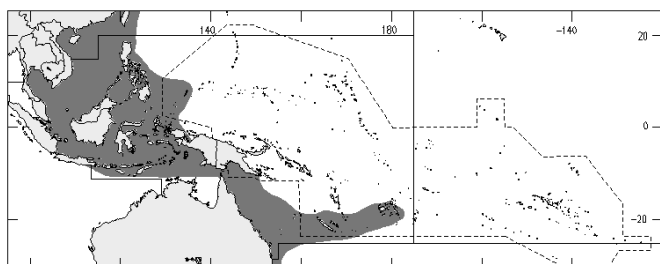
Habitat, biology, and fisheries: Occasionally collected for food throughout its range, caught by traps and nets. It is sold for comparatively low prices in markets.

Distribution: West Pacific.

Remarks: A large number of coral reef species of *Thalamita* are found in the area. Most of these, however, are of small size and have no economic value. *T. spinimana* is one of the more common larger species in the genus, easily distinguished by its spinose palm and the bright red coloration.



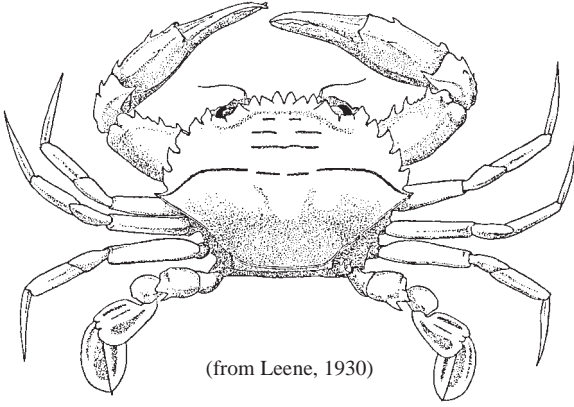
(from A. Milne Edwards, 1873)



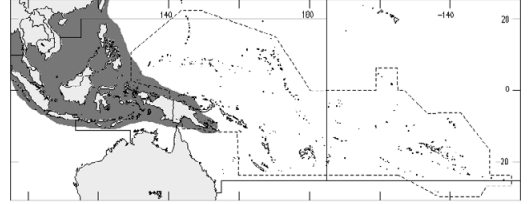
***Charybdis affinis* Dana, 1852**

En - Smoothshelled swimming crab.

Maximum carapace width 6 cm. Prefers sandy to muddy substrates in subtidal waters. Fished sporadically and occasionally seen in local markets where it is sold for low prices, due to its small size. China and Japan to various parts of India and Southeast Asia.



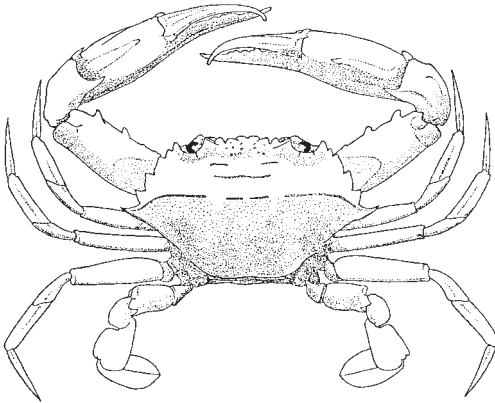
(from Leene, 1930)



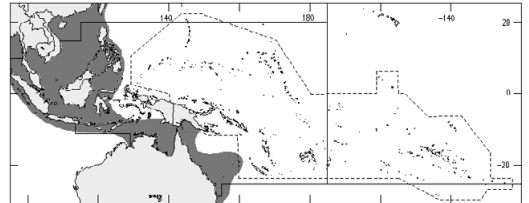
***Charybdis anisodon* (De Haan, 1850)**

En - Twospined arm swimming crab.

Maximum carapace width 8 cm. Prefers muddy substrates at depths to 15 m. Occasionally collected by trawls and sold in local markets for its moderately large size. Indo-West Pacific in distribution, reaching Hawaii.

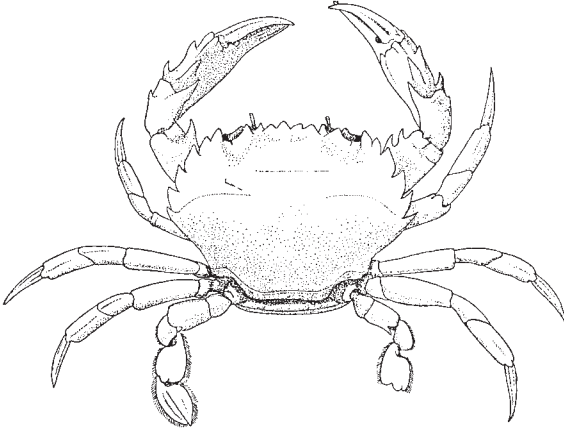


(from Leene, 1930)

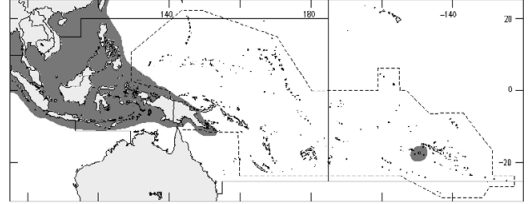


Charybdis annulata (Fabricius, 1798)**En** - Banded-legged swimming crab.

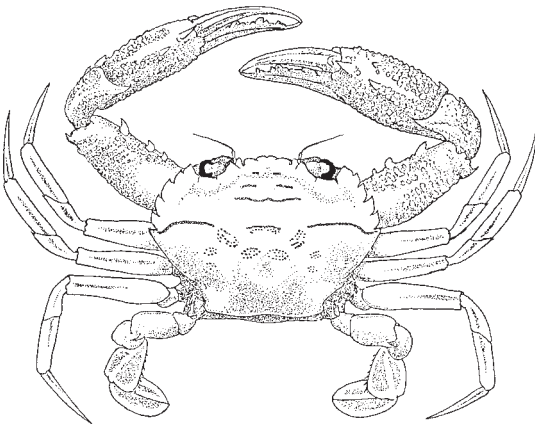
Maximum carapace width 7 cm. Shows distinctive broad blue and white bands on the legs when alive. Prefers rocky areas and reefs, from the intertidal zone to a depth of about 20 m. Occasionally collected for food, but never abundant enough to be commercially important. Indo-West Pacific, from South Africa to Southeast Asia, Japan, and Tahiti.



(from Leene, 1930)

***Charybdis truncata*** (Fabricius, 1798)**En** - Blunt-toothed crab.

Maximum carapace width 5 cm. Prefers muddy bottoms at depths from 10 to 100 m. Locally abundant in some areas and obtained by trawls. Not commonly sold in markets. Indo-West Pacific, reaching Japan and Australia.



(from Leene, 1930)

