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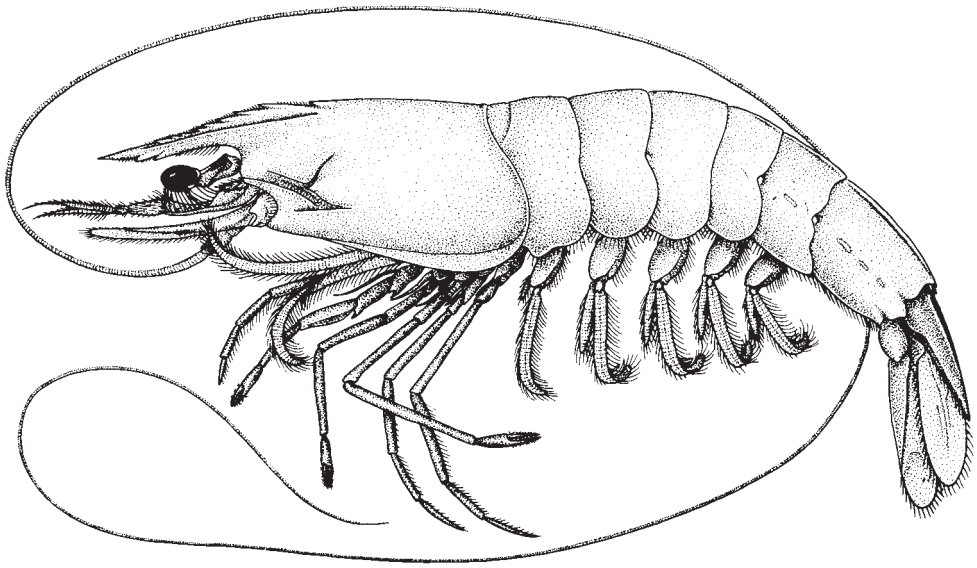
PENAEIDAE

Penaeid shrimps

Diagnostic characters: Shrimps with well-developed and toothed rostrum which extends to or beyond distal edge of eyes; no styliform projections on bases of eyestalks and **no tubercles on their mesial (inner) borders. Carapace without postorbital spines and with short cervical grooves ending well below dorsal midline. Last 2 pairs of pereiopods well developed; third and fourth pairs of pleopods biramous; endopods of second pair of pleopods in males bearing appendix masculina only** (lacking appendix interna and lateral projection). Telson sharply pointed, with or without fixed or movable spines on sides. A single well-developed arthrobranch on penultimate thoracic segment (hidden beneath the carapace), 1 rudimentary arthrobranch occasionally present. Thelycum open or closed.

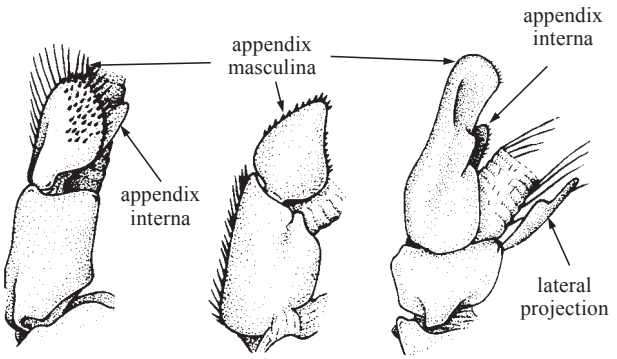


Habitat, biology, and fisheries: This family includes the most valuable marine commercial species of shrimps and accounts for at least 95% of the total shrimp production from Area 31.

Similar families occurring in the area

Solenoceridae: eyestalks with a tubercle on their mesial (inner) borders; carapace with postorbital spines; cervical grooves long, extending to or close to dorsal midline of carapace; endopods of second pair of pleopods in males bearing appendix masculina, appendix interna and lateral projection; telson with a fixed spine on each side of tip; 2 well-developed arthrobranchs on each side of penultimate thoracic segment.

Aristeidae: eyestalks with a tubercle on mesial (inner) borders; cervical grooves long, extending to or very close to dorsal midline of carapace; endopods of second pair of pleopods in males bearing appendix masculina and appendix interna, but no lateral projection; 2 well-developed arthrobranchs on each side of penultimate thoracic segment.

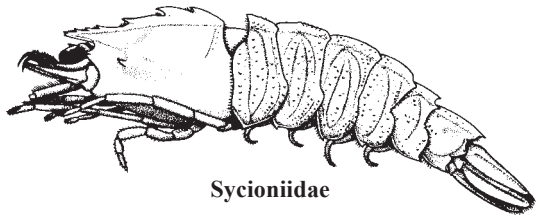


endopod of second pleopod in male

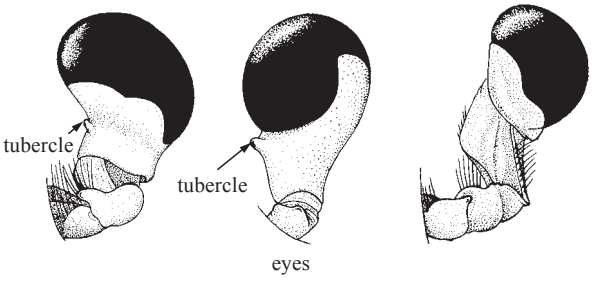
Aristeidae Penaeidae Solenoceridae

Sycioniidae: body thick, stony in appearance; cervical grooves very faint or absent; abdomen with deep grooves and numerous tubercles; third and fourth pairs of pleopods single branched; telson usually with a fixed spine on each side of tip.

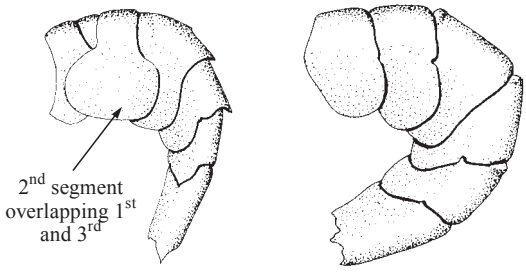
Shrimps belonging to the Infraorder Caridea: pleura of second abdominal segment overlapping those of first and third segments; no pincers on third pair of pereopods.



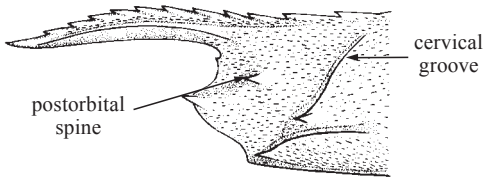
Sycioniidae



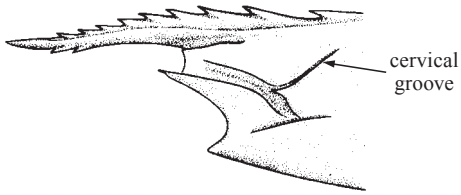
Solenoceridae **Aristeidae** **Penaeidae**



Caridea **Penaeidae**



Solenoceridae



Penaeidae

Key to the genera of Penaeidae occurring in the area

(from Pérez Farfante and Kensley, 1997)

Note: The generic system of the family Penaeidae was recently revised by Pérez Farfante and Kensley (1997) and, as a result, a new generic arrangement has been proposed for the family. The new generic system has been followed here. However, for each species treated herein, the most recent previous name has been included as well. The family now includes 26 genera and 216 species and subspecies worldwide. Eleven genera and 21 species occur in Area 31; 10 species, included in 4 genera, are of economic interest.

1a. Rostrum armed with dorsal and usually also ventral teeth (Fig. 1) (absent only in *Funchalia*); pleurobranchia on somite 14 (last thoracic somite) . . . . . → ***2***

1b. Rostrum usually armed with dorsal teeth only (Fig. 2); no pleurobranchia on somite 14 . . . . . → ***10***

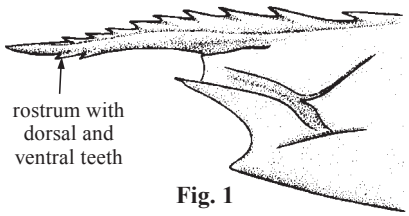


Fig. 1

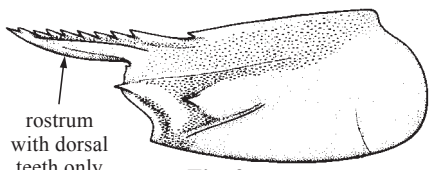


Fig. 2

2a. Integument glabrous (smooth) and polished; 3 short, well-defined cicatrices on sixth abdominal somite . . . . . → ***3***

2b. Integument setose (hairy); single, long (sometimes interrupted) cicatrix on sixth abdominal somite or none . . . . . → ***8***

3a. Adrostral sulcus and carina short, falling distinctly short or extending to about level of epigastric tooth; gastrofrontal carina absent . . . . . → ***4***

3b. Adrostral sulcus and carina long, reaching much beyond epigastric tooth, usually almost to posterior margin of carapace; gastrofrontal carina present . . . . . → ***6***

4a. Hepatic carina absent or if present moderately- to ill-defined . . . . . ***Fenneropenaeus***

4b. Hepatic carina prominent . . . . . → ***5***

5a. Thelycum open; petasma with ventral costa short, not reaching distal margin of lateral lobe . ***Litopenaeus***

5b. Thelycum closed; petasma with ventral costa long, reaching distal margin of lateral lobe . . . ***Penaeus***

6a. Gastrofrontal carina not turning anterodorsally upon itself at posterior end; sixth abdominal somite with well-defined dorsolateral sulcus; telson unarmed . . . . . ***Farfantepenaeus***

6b. Gastrofrontal carina turning anterodorsally upon itself at posterior end; sixth abdominal somite lacking dorsolateral sulcus; telson usually armed with 3 pairs of movable lateral spines (absent only in *Melicertus canaliculatus*) . . . . . → ***7***

7a. Gastrofrontal sulcus not markedly bifid posteriorly; thelycum with pair of lateral plates on sternite 14 shielding sac-like seminal receptacle opening along midline . . . . . ***Melicertus***

7b. Gastrofrontal sulcus markedly bifid posteriorly; thelycum with single plate on sternite 14 infolded laterally, forming pouch opening anteriorly, functioning as seminal receptacle . ***Marsupenaeus***

8a. Integument with numerous sulci overlapped by rows of densely set stiff setae projecting from 1 margin; telson with 4 pairs of movable lateral spines; antennular flagella short, less than half length of carapace . . . . . ***Heteropenaeus***

8b. Integument with few sulci not overlapped by rows of stiff setae; telson with 3 pairs of fixed lateral spines; antennular flagella long, longer than carapace . . . . . → ***9***

9a. Rostrum armed with dorsal teeth only; carapace lacking dorsolateral carina; incisor processes of mandible extremely elongate, scythe-like and crossing posterior to labrum; petasma asymmetrical with either right or left half longer than opposite . . . . . ***Funchalia***

9b. Rostrum armed with dorsal and ventral teeth; carapace with dorsolateral carina; incisor processes of mandible short, not crossing; petasma symmetrical, both halves of same length . . . . . ***Pelagopenaeus***

10a. Telson with pair of well-developed fixed subapical spines (Fig. 3) (preceded by lateral movable spines); first segment of antennular peduncle usually bearing ventromesial (parapeneid) spine (Fig. 4) . . . . . → ***11***

10b. Telson without pair of subapical spines (only occasionally present as in *Parapenaeopsis stylifera* and *Rimapenaeus fuscina*), usually with movable lateral spines; first segment of antennular peduncle lacking parapeneid spine . . . . . → ***14***

Fig. 3 teleson

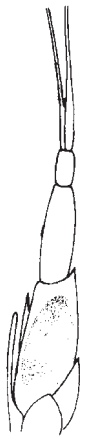


Fig. 4

11a. Carapace with longitudinal suture (extending at lest 0.8 of its length) and transverse suture; not more than 1 pair of minute lateral spines anterior to subapical spines (Fig. 5) . . . ***Parapenaeus***

11b. Carapace without longitudinal suture; 2 or more pairs of conspicuous spines anterior to subapical spines . . . . . → ***12***

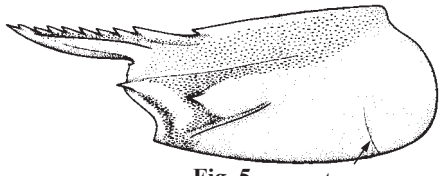


Fig. 5

12a. Pterygostomian spine absent (anteroventral margin of carapace rounded); first pereiopod without basial spine; exopods lacking on second maxillipeds and all pereiopods . . . . . ***Artemesia***

12b. Pterygostomian spine present (anteroventral margin of carapace tooth-like); first pereiopod without basial spine; exopods on all maxillipeds and pereiopods . . . . . → ***13***

13a. Third maxilliped and second pereiopod with basial spine; petasma asymmetrical (Fig. 6) . . . . . ***Metapenaeopsis***

13b. Third maxilliped and second pereiopod without basial spine; petasma symmetrical (Fig. 7) . . . . . ***Penaeopsis***

14a. Pleurobranchia on somite 13 (penultimate thoracic somite); exopods on maxillipeds and 4 anterior pairs of pereiopods, lacking on fifth . . . . . ***Metapenaeus***

14b. Pleurobranchia absent on somite 13; exopods present on all pereiopods or absent from 4 posterior pairs . . . . . → ***15***

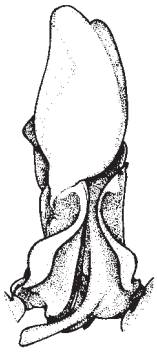


Fig. 6 petasma

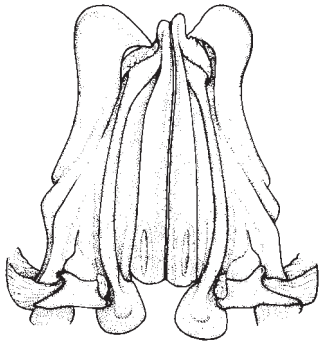


Fig. 7 petasma

15a. Exopods on first maxilliped and first pereopod; petasma with lateral lobes distally produced into extremely long filamentous processes; thelycum with lateral plates curved posteriorly and expanded into bulbous swelling anteriorly . . . . . ***Macropetasma***

15b. Exopods at least on third maxilliped and all pereopods; petasma with lateral lobes not distally produced into extremely long, filamentous processes; thelycum with lateral plates neither strongly curved posteriorly nor expanded into bulbous swelling anteriorly . . . . . → ***16***

16a. Carapace lacking longitudinal and transverse sutures; telson with subapical pair of lateral movable spines mounted on elongate shoulder; epipods not furcate; petasma with ventrolateral lobule produced into 2 or 3 distal flaps . . . . . ***Trachypenaeopsis***

16b. Carapace with either longitudinal or transverse sutures or both, absent only in *Miyadiella*; telson lacking spines or with movable one not mounted on shoulders or mounted on slight ones; petasma with ventrolateral lobule not produced into distal flaps . . . . . → ***17***

17a. Second maxilliped without exopod; first 3 pereiopods with elongate chela, propod lengthened and dactyl very short (much less than half length of propod) . . . . . ***Protrachypene***

17b. Second maxilliped with well-developed exopod; first 3 pereopods with not elongate chela, propod not lengthened and dactyl not less than half length of propod . . . . . → ***18***

18a. Fourth and fifth pereiopods very elongate, subflagelliform, much longer than first 3 . . . . . → ***19***

18b. Fourth and fifth pereiopods not elongate, only slightly longer than first 3, or only fifth elongate . . . . . → ***20***

19a. Integument pubescent; telson armed with 4 pairs of movable spines; fourth and fifth pereiopods with entire dactyl . . . . . ***Tanypenaeus***

19b. Integument glabrous; telson unarmed; fourth and fifth pereiopods with multiarticulate dactyl . . . . . ***Xiphopenaeus***

20a. Carapace lacking longitudinal sutures; second pereiopod armed with ischial spine . . . . . → ***21***

20b. Carapace with longitudinal sutures; second pereiopod lacking ischial spine . . . . . → ***22***

21a. Eyestalk not surpassing first antennular segment; basal rostral teeth and postrostral carina lacking spinules; thelycum closed . . . . . ***Atypopenaeus***

21b. Eyestalk conspicuously surpassing first antennular segment, sometimes reaching or overreaching antennular peduncle; basal rostral teeth and postrostral carina studded with spinules; thelycum open . . . . . ***Miyadiella***

22a. Body slender, integument thin; third pereiopod lacking epipod . . . . . ***Parapenaeopsis***

22b. Body thickset, integument thick; third pereiopod armed with epipod . . . . . → ***23***

23a. Carapace with longitudinal suture long, conspicuously overreaching hepatic spine; third maxilliped armed with basial spine . . . . . ***Rimapenaeus***

23b. Carapace with longitudinal suture short, ending well anterior to hepatic spine; third maxilliped lacking basal spine . . . . . → ***24***

24a. Thelycum with plate on sternite 14 very short medially, deeply excavate, embracing extremely long caudal extension of median protuberance; petasma with distolateral projections either moderately broad to rather narrow basally and extending laterally to mesially, or forward-directed hook-like tip, or extremely broad basally but narrowing rapidilly, ending in forward-directed tip . . . . . ***Megokris***

24b. Thelycum with plate on sternite 14 relatively long, not excavate, median protuberance lacking long caudal extension; petasma with distolateral projections either relatively narrow and directed laterally almost straight, or curving backwards, or extremely broad and ending in long, twisted process . . . . . → ***25***

25a. Thelycum with plate on sternite 14 not emarginate anteriorly, instead continuous with median protuberance, lacking anterior transverse groove; petasma with distolateral projections extremely broad, extending laterally and forming apically long, flat twisted process . . . . . ***Trachypenaeus***

25b. Thelycum with plate on sternite 14 shallowly emarginate or occasionally produced in a small median protuberance, not continuous with median protuberance; petasma with distolateral projections tapering gently from relatively narrow base, extending almost straight laterally or curving slightly backwards . . . . . ***Trachysalambria***

List of the species of Penaeidae occurring in the area

The symbol is given when species accounts are included.

- *Farfantepenaeus aztecus* (Ives, 1891).
- *Farfantepenaeus brasiliensis* (Latreille, 1817).
- *Farfantepenaeus duorarum* (Burkenroad, 1939).
- *Farfantepenaeus notialis* (Pérez Farfante, 1967).
- *Farfantepenaeus subtilis* (Pérez Farfante, 1967).
- *Litopenaeus schmitti* (Burkenroad, 1905).
- *Litopenaeus setiferus* (Linnaeus, 1767).
- *Rimapenaeus constrictus* (Stimpson, 1874).
- *Rimapenaeus similis* (Smith, 1885).
- *Xyphopenaeus kroyeri* (Heller, 1862).

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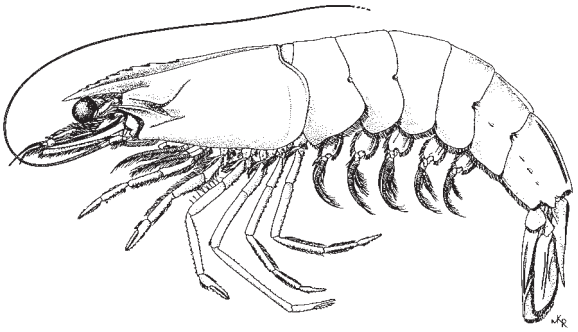
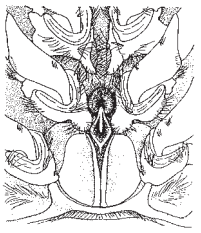
Farfantepenaeus aztecus (Ives, 1891) ABS

Frequent synonyms / misidentifications: *Penaeus (Farfantepenaeus) aztecus* (Ives, 1891) / None.

FAO names: En - Northern brown shrimp; **Fr** - Crevette royale grise; **Sp** - Camarón café norteño.



petasma



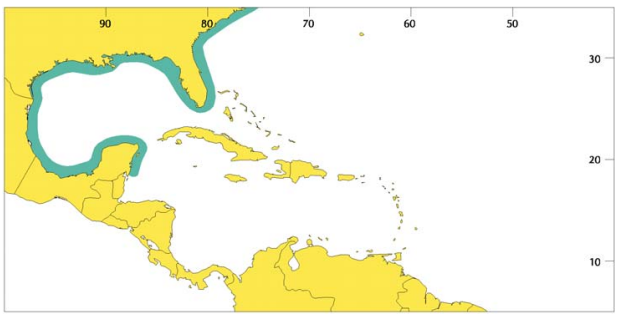
thelycum

(from Pérez Farfante and Kensley, 1997)

Diagnostic characters: Carapace smooth. Rostrum armed with usually 8 or 9 teeth on dorsal margin and 2 teeth on ventral, its tip moderately short (1/4 or less the length of rostrum); **adrostral sulcus and carina long, extending almost to hind margin of carapace, sulcus wide posteriorly**; postrostral carina well developed as far back as adrostral sulcus, with a **deep median sulcus throughout its length**; gastrofrontal carina present. **Dorsolateral sulcus on last abdominal segment well defined and broad, ratio of height of dorsal keel to width of sulcus often less than 2.25**. Antennae short, about 1.4 times the body length. **Petasma with short distomarginal projections, distal folds not forming auricles, apices of ventral costae tightly joined to adjacent membranous portion; free border of costae unarmed, attached border with 2 or 3 series of closely set teeth. Thelycum with lateral plates, their anteromedian angles divergent; posterior process armed with a median crest bifurcate anteriorly (Y-shaped) and exposed. Colour:** often brown, sometimes with an orange or yellowish tinge, occasionally reddish or greenish; pereiopods and tail fan darker, uropods often with a purple edge. Usually no dark lateral spot at junction of third and fourth abdominal segments. Juveniles are frequently light greyish with minute brown or olive green specks over entire body and, in addition, orange ones on abdomen; uropods with brown specks, particularly dense at their distal portions.

Size: Maximum length: females, 236 mm; males, 195 mm.

Habitat, biology, and fisheries: Estuarine and oceanic littoral. Found from the coastline to depths of about 110 m (occasionally in deeper water, to 165 m), mainly on mud or sandy mud, sometimes mixed with shell fragments; the juveniles inhabit muddy or peaty bottoms with shell fragments in estuarine waters. The adults are mostly active at night, burying in the substrate in daytime. Greatest quantities along the Texas coast and in the southwestern Bay of Campeche; most important species of *Farfantepenaeus* off North Carolina. The total catch for this species exceeds that of other peneids taken in the USA. In the fisheries statistics for the years 1984 to 1998 *Farfantepenaeus aztecus* has been referred to as *Penaeus aztecus*. From 1984 to 1998 the capture production reported from the USA totaled 928 222 t (mean capture production: 61 881 t/year). From 1984 to 1991 the capture production was always greater than 60 000 t, peaking to 78 667 t in 1990. From 1992 on, the mark of 60 000 t was never attained again. There are no separate statistics for this species in the other countries of Area 31, where the *Farfantepenaeus* species are referred together as *Penaeus* spp. This species is caught mainly with American-type shrimp trawls (balloon and flat); usually, 2 trawls are towed simultaneously (double-rig). In inshore and near shore waters it is mainly taken with shrimp trawls (including trynets) and various other types of gear (frame trawls, channel nets, seines, cast nets, push nets, lift nets and set gear). Marketed mostly frozen and fresh; a small fraction of the catch is canned; juvenile and subadult shrimp are mainly sold as bait. This species has been farm-raised on a small scale.

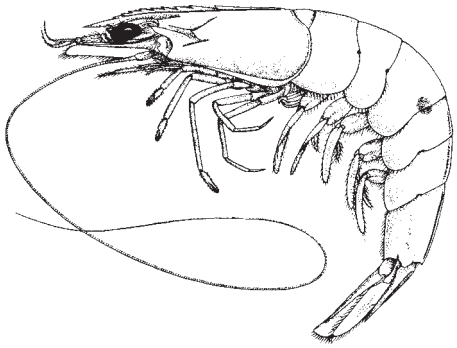


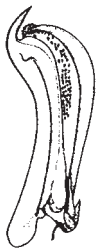
Distribution: Martha's Vineyard, Massachusetts, around peninsular Florida to Sanibel grounds, Appalachicola Bay, around Gulf of Mexico to northwestern Yucatán. *F. aztecus* extends farther north than any of the other western Atlantic species of the genus.

Farfantepenaeus brasiliensis (Latreille, 1817) PNB

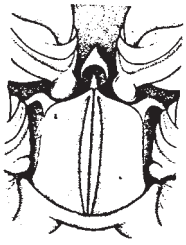
Frequent synonyms / misidentifications: *Penaeus (Farfantepenaeus) brasiliensis* Latreille, 1817 / None.

FAO names: En - Redspotted shrimp; **Fr** - Crevette royale rose; **Sp** - Camarón rosado con manchas.





petasma

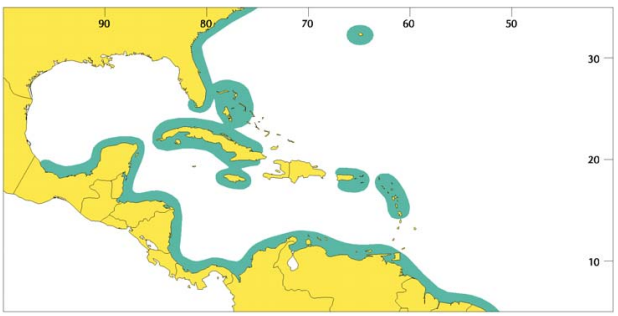


thelycum

Diagnostic characters: Carapace smooth. Rostrum armed with usually 8 or 9 teeth on dorsal margin, and 2 teeth on ventral, its tip short (about 1/4 the length of rostrum); **adrostral sulcus and carina long, extending almost to hind margin of carapace**; postrostral carina very prominent as far back as adrostral sulcus, with a **deep median sulcus throughout its length**; gastrofrontal carinae present. Dorsolateral sulcus on last abdominal segment well defined, variable in width: narrow in specimens from North America and adjacent Caribbean waters (ratio height of dorsal keel / width of sulcus usually 5 or a little less); broad in specimens from South America (ratio keel / sulcus usually less than 2.75). **Petasma with very long distomarginal projections, distal folds wide, forming auricles covered with spinules; apices of ventral costae separated from adjacent membranous portion; free border of costae usually unarmed, attached border with 6 to 12 teeth disposed in 2 irregular series. Thelycum with lateral plates, their anteromedian angles extended as narrow projections which completely cover the posterior process; latter may have a short, deeply situated median carina posteriorly. Colour:** pink or brownish red. Usually with a dark (intense brown or brownish red) lateral patch at junction of third and fourth abdominal segments.

Size: Maximum length: females, 250 mm; males, 191 mm.

Habitat, biology, and fisheries: Inhabits shelf areas from the coastline to depths of about 65 m, rarely deeper waters (366 m); most abundant between 45 and 65 m on moderately firm bottoms of mud mixed with sand; juveniles and subadults may be found on soft mud bottoms. This species is nocturnal, and the adults as well as the juveniles are caught at night. Highest yields are obtained from Guyana, Suriname, French Guyana, and especially Ilha de Marajó (Brazil). In the northern part of its range it usually forms a small percentage of the total shrimp catch. It is quite important in some localities on the Caribbean coast of Central and South America (Mexico, Nicaragua and Venezuela). In the fisheries statistics for the years 1984 to 1998 *Farfantepenaeus brasiliensis* appears as *Penaeus brasiliensis*. The captures totaled 4 t in 1989 (USA), otherwise no separate statistics have been reported during this period. However, it has been reported that the USA shrimp catches from northeast of Quintana Roo (about 332 t in 1975) were almost entirely made up by this species but were reported as *F. duorarum*. Whether this is a current procedure is unknown. Landings of *Farfantepenaeus* are not broken down to spcies in the other countries of Area 31. Outside the area there are separate statistics for *F. brasiliensis* in Brazil (from 1984 to 1998 the capture production totaled 114 191 t; mean capture production was 7 612 t/year). Caught mainly with American-type shrimp trawls (balloon and flat); juveniles are taken in estuaries and near-shore waters with seines, cast nets, push nets and dip nets. Marketed mostly frozen; also fresh, dried, or canned; juveniles are mainly used as bait. This species has been farm-raised on a small scale.

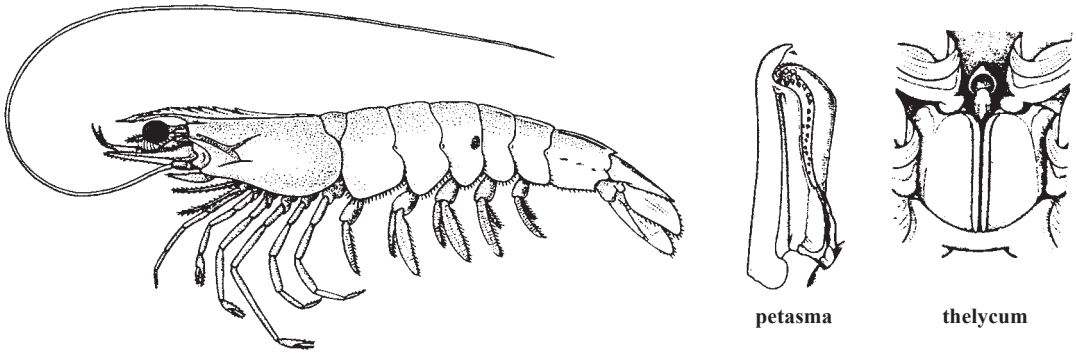


Distribution: Off Cape Hatteras to Florida Keys, off Campeche and Yucatán; off Bermuda, through Caribbean Sea and West Indies to Rio Grande do Sul (Brazil).

Farfantepenaeus duorarum (Burkenroad, 1939) APS

Frequent synonyms / misidentifications: *Penaeus (Farfantepenaeus) duorarum* Burkenroad,1939 / None.

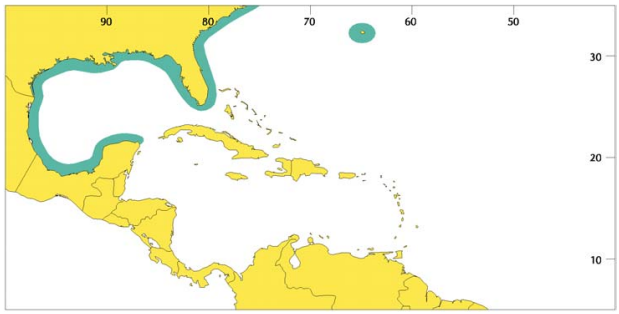
FAO names: En - Northern pink shrimp; **Fr** - Crevette rodché du nord; **Sp** - Camarón rosado norteño.



Diagnostic characters: Carapace smooth. Rostrum armed with usually 8 or 9 teeth on dorsal margin, and 2 teeth on ventral, its tip rather short (1/4 or less the length of rostrum); **adrostral sulcus and carina long, extending almost to hind margin of carapace**; postrostral carina well developed as far back as adrostral sulcus, with a **deep median sulcus throughout its length**; gastrofrontal carina present. **Dorsolateral carina on last abdominal segment well defined and narrow**, ratio of height of dorsal keel to width of sulcus usually 4.5 or more, and with **sharp lips sometimes nearly closed. Petasma with short distomarginal projections, distal folds not forming auricles, apices of ventral costae joined to adjacent membranous portion; free border of costae armed with spinules, attached border with a compact group of teeth. Thelycum with lateral plates, their anteromedian borders divergent; narrow posterior process armed with a long, simple (not bifurcate) and exposed median carina. Colour:** often pale to dark pink, or reddish, but sometimes lemon yellow or light grey. **Usually with a dark (purple, brown, greyish red, or blue) lateral spot at junction of third and fourth abdominal segments**; transverse lines running parallel to hind margin of carapace and on abdominal segments, and round patches on the centre of each pleuron. Juveniles and subadults may be brown, grey, green, reddish, or whitish.

Size: Maximum length: females, 280 mm; males, 269 mm, usually 190 mm.

Habitat, biology, and fisheries: Inhabits estuaries and inner oceanic littoral to depths of about 70 m (rarely greater depths, 277 to 375 m); most abundant between 11 and 36 m. The adults are found mainly on firm bottoms of mud and silt, and coral sand, often with shell fragments. Juveniles and subadults prefer coarser substrates consisting of shell fragments and sand or loose turf. Predominantly nocturnal, burying in the substrate in daytime, except on cloudy days or when the water is murky. Juveniles live in water with low salinities, adults are marine. Major centres of abundance are off southwestern to northwestern Florida and in the southeastern Bay of Campeche; minor centre of abundance in the Beaufort area of North Carolina. *Farfantepenaeus duorarum* has been referred as *Penaeus duorarum* in the FAO fisheries statistics for the years 1984 to 1998. In that period the capture production reported from the USA totaled 119 784 t (mean capture production 7 985 t/year). Although *F. duorarum* accounted for part of the shrimp catches in the other countries of Area 31, during 1984 to 1998 no separate statistics for this species were reported. This species is of great commercial value in the Gulf of Mexico, used for consumption and bait. Caught mainly with American-type shrimp trawls (balloon and flat); usually 2 trawls are towed simultaneously (double-rig). Juveniles and subadults are taken in inshore and near shore waters with various types of gear: otter trawls, channel nets, push nets, dip nets, bridge nets and roller frame trawls. Marketed mostly frozen. This species has been farm-raised on a small scale.

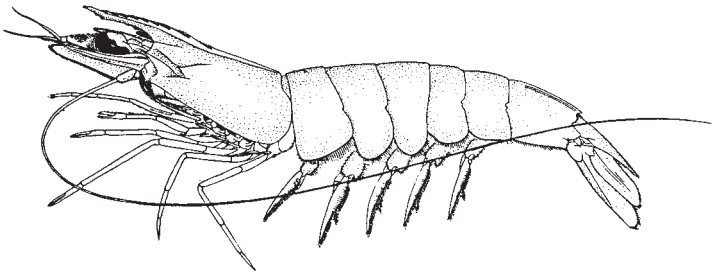


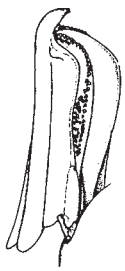
Distribution: Lower part of Chesapeake Bay through Florida Straits, Bermuda, around Mexico to Cape Catoche and Isla Mujeres at the tip of Yucatán Peninsula.

Farfantepenaeus notialis (Pérez Farfante, 1967) SOP

Frequent synonyms / misidentifications: *Penaeus (Farfantepenaeus) notialis* Pérez Farfante,1967/ None.

FAO names: En - Southern pink shrimp; **Fr** - Crevette rodché du Sud; **Sp** - Camarón rosado sureño.





petasma

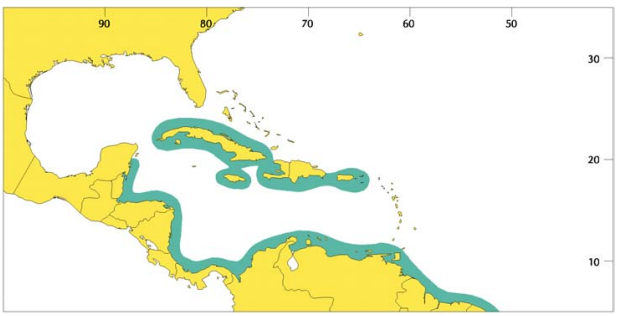
thelycum

Diagnostic characters: Carapace smooth. Rostrum armed with usually 8 or 9 teeth on dorsal margin, and 2 teeth on ventral, its tip short (1/4 or less the length of rostrum); **adrostral sulcus and carina long, extending almost to hind margin of carapace, the sulcus deep and broad posteriorly**; postrostral carina well developed as far back as adrostral sulcus, with a **deep median groove throughout its length**; gastrofrontal carina present. **Dorsolateral sulcus on last abdominal segment well defined and broad, ratio of height of dorsal keel to width of sulcus usually less than 1.75. Petasma with short distomarginal projections, distal folds not forming auricles, apices of ventral costae joined to adjacent membranous portion; free border of costae armed with spinules, attached border with a group of large teeth. Thelycum with lateral plates, their anteromedian border divergent; broad posterior process with a long, simple (not bifurcate), and exposed median carina. Colour:** often light brown, yellowish, or pink; dark brown in some localities. **Often no dark lateral spot at junction of third and fourth abdominal segments.**

Size: Maximum length: females, 200 mm; males, 175 mm.

Habitat, biology, and fisheries: Inhabits shelf areas from the coastline to depths of about 100 m, rarely to 700 m; the largest concentrations are found between 3 and 50 m. Bottom mud or sandy mud and sandy patches among rocks. Although predominantly nocturnal, this species is also partly active in the daytime; mostly fished at night, but in some areas also by day. Juveniles living in estuarine waters. One of the most important commercial shrimps of the southeast coast of Cuba and some other localities around the Greater Antilles and the continental shelf especially off Honduras, Nicaragua, Colombia, and in the Gulf of Venezuela. Minor importance off Guyana, Suriname, and French Guyana. Outside the area the species is of commercial importance in various areas of Brazil and in West Africa, where it is fished both locally and by foreign trawlers. This species has been farm-raised on a small scale. Separate statistics are not reported for this species which accounts for part of the shrimp catches in the southern part of the area. The Cuban shrimp catches reported as *F. duorarum* are partly made up by *F. notialis*. Caught mainly with American-type shrimp trawls (balloon and flat). Juveniles and subadults are taken in inshore and near-shore waters with seines, cast nets, push nets and dip nets. Marketed mostly fresh.

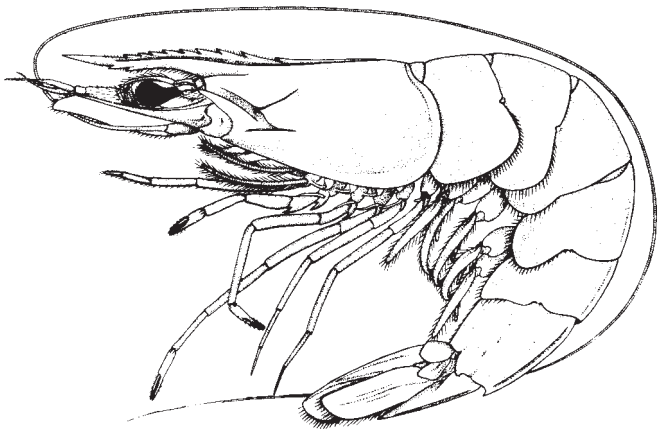
Distribution: Caribbean Sea, including the greater Antilles, the Virgin Islands, and the continental shelf from Ascension Bay, Quintana Roo, to the south; along the South American coast it extends down to Rio de Janeiro, Brazil; also found off West Africa from Mauritania to Angola.

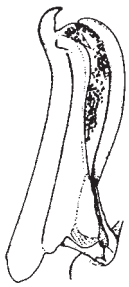


Farfantepenaeus subtilis (Pérez Farfante, 1967) PNU

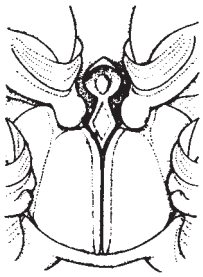
Frequent synonyms / misidentifications: *Penaeus (Farfantepenaeus) subtilis* Pérez Farfante,1967 / None.

FAO names: En - Southern brown shrimp; **Fr** - Crevette café; **Sp** - Camarón café sureño.





petasma



thelycum

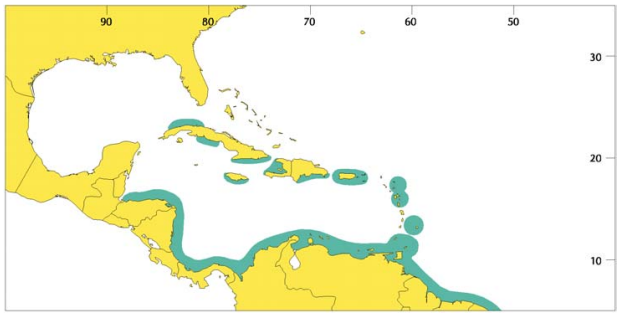
Diagnostic characters: Carapace smooth. Rostrum armed with usually 8 or 9 teeth on dorsal margin, and 2 teeth on ventral, its tip rather short (1/4 or 1/3 the length of rostrum); **adrostral sulcus and carina relatively short, ending well in front of hind margin of carapace, the sulcus narrows posteriorly; postrostral carina well developed and extending as far back as adrostral sulcus, its median sulcus interrupted**; gastrofrontal carina present. **Dorsolateral sulcus on last abdominal segment well defined and narrow, ratio of height of dorsal keel to width of sulcus usually more than 3. Petasma with short distomarginal projections, distal folds not forming auricles, apices of ventral costae tightly joined to adjacent membranous portion; free border of costae unarmed, attached border with 2 to 4 series of closely set teeth. Thelycum with lateral plates, their anteromedian angles divergent; posterior process armed with an exposed and anteriorly bifurcate (Y-shaped) median crest. Colour:** usually brown, sometimes greyish or yellow. **No dark lateral spot at junction of third and fourth abdominal segments.**

Size: Maximum length: females, 205 mm; males, 152 mm.

Habitat, biology, and fisheries: From the coastline to depths of about 90 m, occasionally in deeper water to 190 m, mainly on soft or hard mud, sometimes mixed with shell fragments. Adults are found in marine waters while juveniles are usually estuarine and marine, occasionally hypersaline. Off Honduras it is predominantly active at night but on the shrimp grounds off Guyana, Suriname, and French Guiana it is caught by day as well as at night. Fished along the coasts of Honduras, Nicaragua, Colombia, Venezuela, and especially Guyana, Suriname, and French Guiana. Separate statistics are not collected for this species which accounts for most of the large shrimp catches from the southern part of the area. The relatively small quantities of *F. subtilis* caught by the USA fleet are reported as *F. aztecus*. Caught mainly with American-type shrimp trawls (balloon and flat); juveniles are taken in estuaries with seines, cast nets, push nets and dip nets. Marketed mostly frozen; also fresh or dried. This species has been farm-raised in small scale.

Distribution: Caribbean Sea, including Cuba, Antilles, the continental shelf from Honduras to the south; along the South American Atlantic coast it extends down to Brazil (from Amapá to Rio de Janeiro).

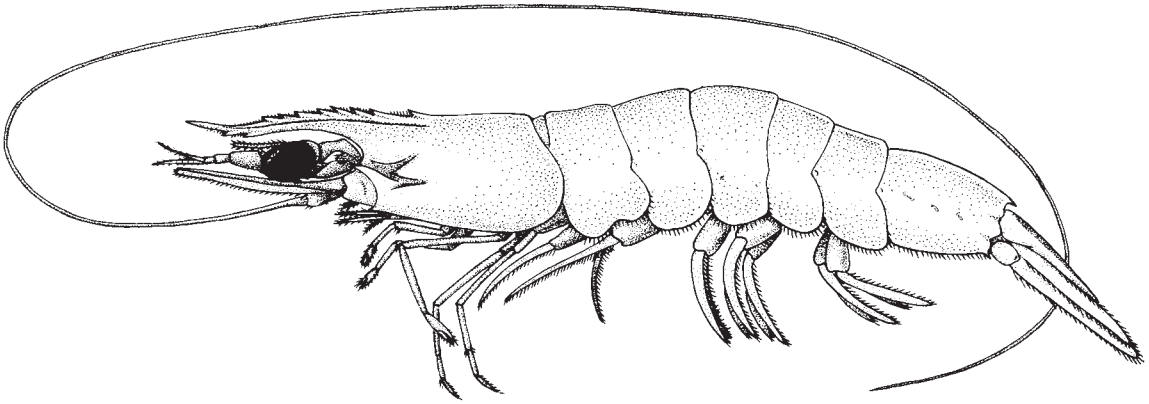
Remarks: Recent allozyme and DNA-sequence data allowed the recognition of 2 different species traditionally regarded as *F. subtilis* (Maggioni, 1996; Gusmão et al., 2000). Actually, the 2 species correspond to the 2 populations recognized by Pérez Farfante (1969) on the basis of morphometrical data. Typical *F. subtilis* are found from the Caribbean Sea down to Ceará (northeastern Brazil), whereas the new species presently ranges from Ceará to Cabo Frio (southeastern Brazil) (Gusmão et al., 2000). The new *Farfantepenaeus* has not yet been named.



Litopenaeus schmitti (Burkenroad,1936) PNT

Frequent synonyms / misidentifications: *Penaeus (Litopenaeus) schmitti* Burkenroad,1936 / None.

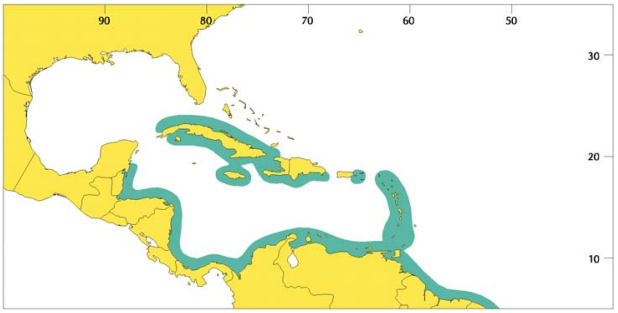
FAO names: En - Southern white shrimp; **Fr** - Crevette ligubam du sud; **Sp** - Camarón blanco sureño.



Diagnostic characters: Carapace smooth. Rostrum armed with 7 to 9 teeth on dorsal margin, and 2 teeth on ventral, its tip long and slender (almost half the length of rostrum); **adrostral sulcus and carina short, not exceeding anterior half of carapace; gastrofrontal carina absent; postrostral carina well defined anteriorly, faint posteriorly**, its median sulcus short and shallow. **Dorsolateral sulcus on last abdominal segment very faint and without lips**. Antennae long, 2.5 to 2.75 times the body length. **Distal portion of lateral lobes of petasma smooth, lacking a rib on their inner surface. Thelycum lateral plates, but with 2 subparallel ribs on anterior portion of sternite 14, each rib followed posteriorly by rounded or subconical protuberance. Colour:** usually translucent bluish white or grey, sometimes with a greenish or yellowish tinge. Juveniles and subadults are variable in colour but most often translucent white, with blue specks scattered over entire body.

Size: Maximum length: females, 235 mm; males, 175 mm.

Habitat, biology, and fisheries: Inhabits coastal waters to depths of 47 m, most abundant between 15 and 30 m, mainly on mud and muddy sand, sometimes mixed with shell fragments; less common on sandy substrates. Late postlarvae and juveniles live in estuarine waters on mud bottoms supporting vegetation and rich in organic debris; the adults are marine. This species is predominantly diurnal, apparently most active at dawn; however, in some areas has been shown to be active also at night. Omnivorous, feeding on algae, plant debris and various types of animals such as worms, molluscs, and crustaceans. Of considerable importance in Cuba, Belize, Honduras, Nicaragua, Colombia, Venezuela, Guyana, Suriname, and French Guyana; outside the area all along the Brazilian coast. Consumed locally and exported. Aquaculture experiments have been undertaken in Cuba. Adults are mainly caught with shrimp trawls and seines of American or Italian design (the latter used in Venezuela). Juveniles and subadults are taken in inshore and near shore waters with different types of gear: seines, cast nets, push nets, dip nets, and trap nets, especially in Colombia and Brazil, and "mandingas" in Venezuela. Marketed mostly frozen; also fresh, salted, dried or canned. This species has been farm-raised on a small scale.

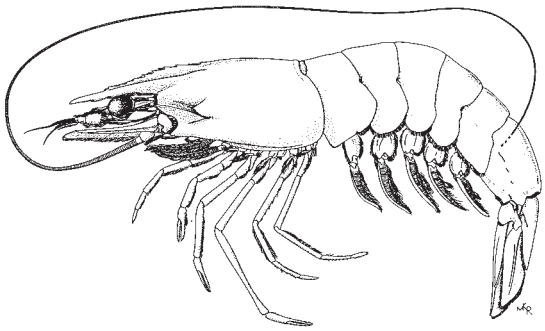


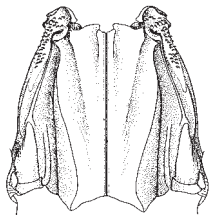
Distribution: Greater Antilles from Cuba to Trinidad; Atlantic coast of Central and South America, from Belize to Brazil (from Amapá to Rio Grande do Sul).

Litopenaeus setiferus (Linnaeus, 1767) PST

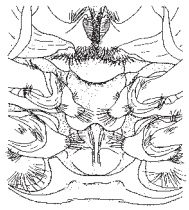
Frequent synonyms / misidentifications: *Penaeus (Litopenaeus) setiferus* (Linnaeus, 1767) / None.

FAO names: En - Northern white shrimp; **Fr** - Crevette ligubam du nord; **Sp** - Camarón blanco norteño.





petasma



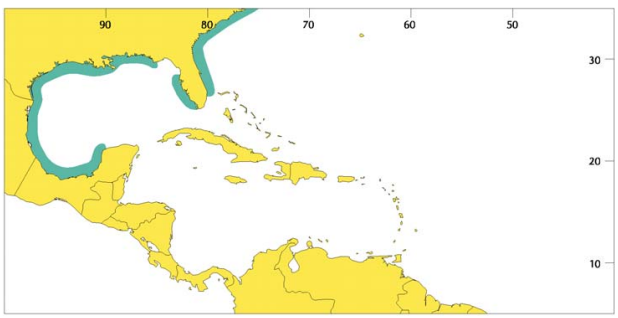
thelycum

(from Pérez Farfante and Kensley, 1997)

Diagnostic characters: Carapace smooth. **Rostrum armed with usually 7 to 9 teeth on dorsal margin, and 2 teeth on ventral, its tip long and slender** (almost half the length of rostrum); **adrostral sulcus and carina short, not exceeding anterior half of carapace; gastrofrontal carina absent; postrostral carina well defined anteriorly, faint posteriorly**, its median sulcus short and shallow. Dorsolateral sulcus on last abdominal segment very faint and without lips. Antennae long, 2.5 to 3 times the body length. **Distal portion of lateral lobes of petasma bearing a conspicuous diagonal rib on inner surface. Thelycum without lateral plates, but with 2 curved ribs on anterior portion of sternite 14 converging toward the midline but not uniting; ribs followed posteriorly by a pair of fleshy subelliptical lobes. Colour: usually a translucent bluish white**, sometimes greyish or greenish, with rostrum and sides pinkish; dark grey transverse lines running parallel to posterior margin of carapace and on abdominal segments; pleopods reddish, telson and uropods with a red/blue band near their margins; the uropods also bear a brownish purple distal blotch and a narrow, yellowish marginal band. Juveniles are light grey, often with a greenish tinge, with bluish specks scattered over the body and densely concentrated on spines and crests; the uropods have a brown or reddish brown distal blotch.

Size: Maximum total length: females, 257 mm; males, 175 mm.

Habitat, biology, and fisheries: Normally inhabits estuaries and inner oceanic littoral, being more abundant at depths less than 30 m; it may, however, occur in deeper waters (to 82 m). The largest concentrations are found in extensive brackish water areas of soft mud or clay bottoms (sometimes with sand) connected with the sea. The postlarvae and juveniles grow up in estuarine waters, especially on vegetated mud bottoms rich in organic debris. An omnivorous species, although it prefers certain types of food such as polychaete worms. Centres of abundance are off Georgia and northeast Florida, Louisiana, Tabasco, and Campeche. This species is of great economic importance in the USA and Mexico. Fishing operations at sea extend to depths of about 27 m. A sizeable fishery of juveniles occurs in estuarine waters, although its yield is considerably smaller than that of the marine fishery for adults. In the fisheries statistics for the years 1984 to 1998 *Litopenaeus setiferus* was referred as *Penaeus setiferus*. From 1984 to 1998 the capture production reported from the USA totaled 572 349 t (mean capture production was 38 156 t/year). This species accounts for part of the Mexican shrimp catches, which totaled 540 864 t in the Area 31. In Mexico the penaeid catches are not broken down to species; instead, species are combined and referred as *Penaeus* spp. Adults are mainly caught with American-type shrimp trawls (balloon and flat); usually 2 trawls are towed simultaneously (double-rig). Juveniles and subadults are taken in inshore and near shore waters with different types of gear: seines, push nets, dip nets, cast nets, lift nets, drop nets, frame trawls, and side frame trawls. This species is marketed mostly frozen and canned, and exported all over the world. Juveniles and subadults are often sold as live bait. This species has been farm-raised on a small scale.

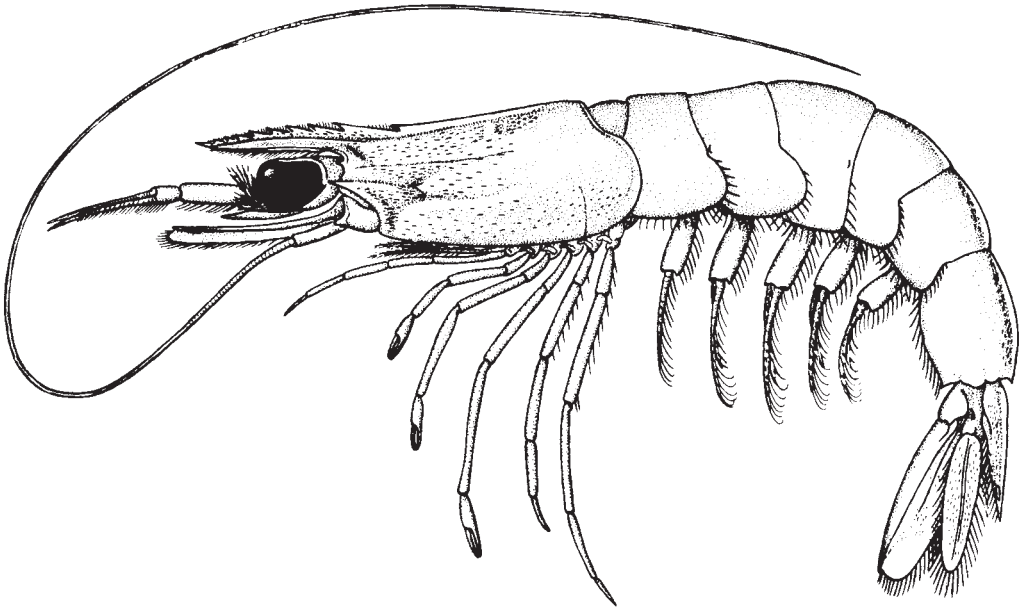


Distribution: New York (Fire Island) to Florida (Saint Lucie Inlet); near Dry Tortugas (rarely); Gulf of Mexico from Ochlocknee River, Florida, to Campeche, Mexico.

Rimapenaeus constrictus (Stimpson, 1874) TKN

Frequent synonyms / misidentifications: *Trachypenaeus constrictus* (Stimpson, 1874) / None.

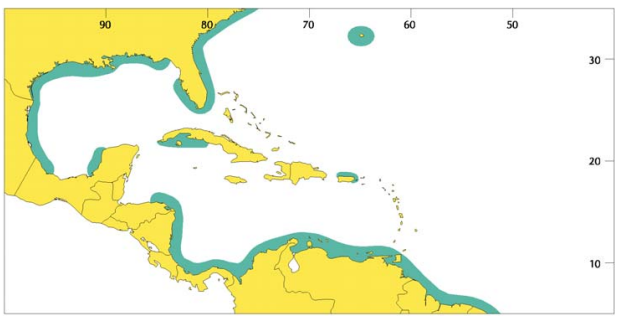
FAO names: En - Roughneck shrimp; **Fr** - Crevette gambri; **Sp** - Camarón fijador.



Diagnostic characters: Almost entire dorsal region and anterior part of sides of carapace densely covered with hair; branchial region sparsely pubescent (hairs almost imperceptible and widely spaced); **abdomen smooth except for a band of hair on each side of dorsal keel of last 2 segments. Rostrum with usually 7 to 9 teeth along entire dorsal margin, without teeth on ventral margin**. Carapace with longitudinal and transverse sutures. Last 2 pairs of pereiopods shorter or only slightly longer than third, their dactyls undivided; **exopods of last pair of pereiopods long, reaching to distomedian end of basis (second article)**. In males, petasma with distolateral angles greatly produced as horn-like projections; **sternite 14 (on underside of thorax) bearing a cup-shaped protuberance with lateral margins indented, setting off broad anterior, from narrow posterior part. Thelycum with dense hair on median process of sternite 13 and on lateral plates; anterior border of median process strongly convex or angulate; anterior borders of lateral plates also strongly convex. Colour:** translucent with small greyish violet specks; pleopods pink.

Size: Maximum length: females, 93 mm; males, 80 mm.

Habitat, biology, and fisheries: Marine, inhabiting shelf areas to depths of 71 m; on bottoms of sand and muddy sand or mud and shells. This species is of minor importance in commercial fisheries; no special fishery exists for this species in Area 31. It is taken very frequently on the shrimp grounds of the south Atlantic coast of the USA, Campeche Bay, and Cuba. Outside the area it has been reported to enter the shrimp catches of Brazil. Separate statistics are not reported for this species. At present it is of little commercial importance, appearing mostly as bycatch in fisheries for other shrimps. Caught mainly with shrimp trawls and cast nets. Marketed frozen, dried, or fresh along with other shrimp species.

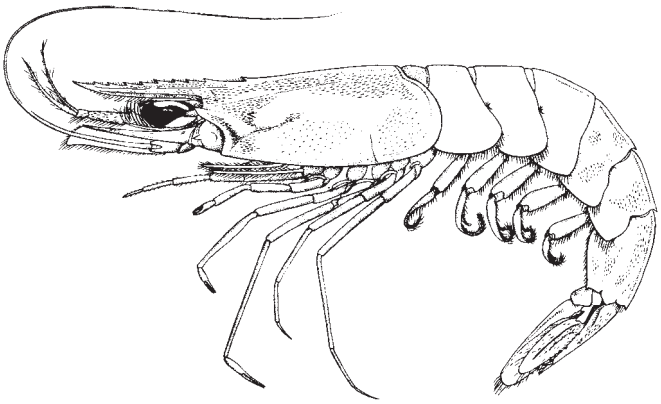


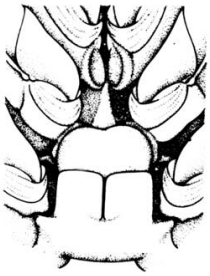
Distribution: Tangier Sound, Chesapeake Bay, to Vera Cruz, Mexico; Bermuda, Gulf of Mexico, Caribbean Sea, and South American Atlantic coast down to Santa Catarina (Brazil).

Rimapenaeus similis (Smith, 1885) TMY

Frequent synonyms / misidentifications: *Trachypenaeus similis* (Smith, 1885) / None.

FAO names: En - Yellow roughneck shrimp; **Fr** - Crevette gambri jaune; **Sp** - Camarón fijador amarillo.



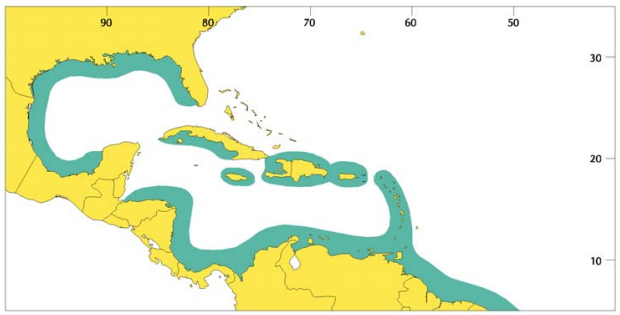


thelycum

Diagnostic characters: Entire dorsal region and anterior part of sides of carapace densely covered with hair; branchial region sparsely pubescent (hairs almost imperceptible and widely spaced); patches of hair present on posterior half of abdomen. Rostrum with usually 7 to 9 teeth distributed along entire dorsal margin, without teeth on ventral margin. Carapace with longitudinal and transverse sutures. Last 2 pairs of pereiopods shorter or only slightly longer than third, their dactyls undivided; exopods of last pair of pereiopod short, far from reaching to distomedian end of basis (second article). Petasma with distolateral angles greatly produced as horn-like projections; sternite 14 (on underside of thorax) bearing a nearly triangular prominence of straight borders. Thelycum devoid of hairs; anterior border of median process on sternite 13 nearly straight or concave and anterior borders of lateral plates on sternite 14 virtually straight. **Colour:** translucent, with small yellow-orange specks; pereiopods and pleopods orange-red with white specks; uropods red edged with white.

Size: Maximum length: females, 104 mm; males, 73 mm.

Habitat, biology, and fisheries: Continental and inland shelves to about 100 m depth. No special fishery exists for this species in Area 31. It has been reported in the shrimp catches off the Dry Tortugas Islands and to the south of Cuba. Outside the area this species is fished for in the Amazon river delta, but is of secondary importance. Separate statistics are not reported for this species. Its commercial value is apparently small. Caught along with other shrimp species, mainly with American-type shrimp trawls in the fishery for *Farfantepenaeus duorarum*. Marketed frozen along with other shrimp species; also fresh or dried

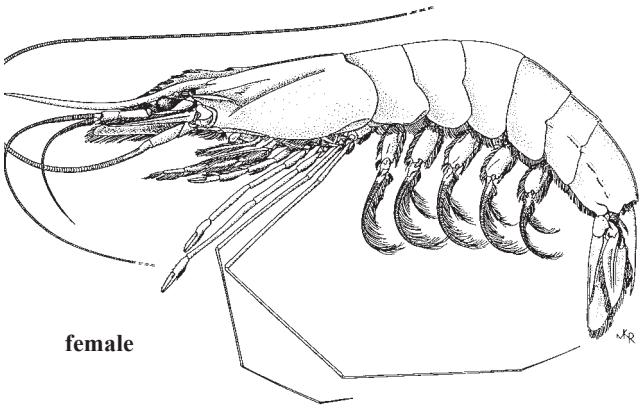


Distribution: Florida throughout the Gulf of Mexico and the Caribbean Sea; along the Atlantic coast of South America it extends down to Brazil (Amapá and Pará).

Xiphopenaeus kroyeri (Heller, 1862) BOB

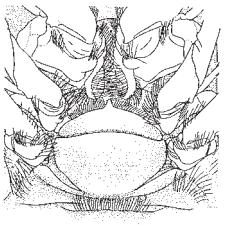
Frequent synonyms / misidentifications: None / None.

FAO names :En - Atlantic seabob; **Fr** - Crevette seabob; **Sp** - Camarón siete barbas.

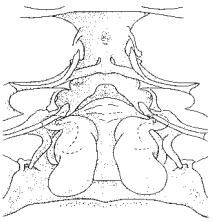


female

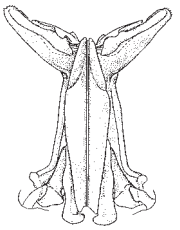
(from Pérez Farfante and Kensley, 1997)



thelycum



receptacles

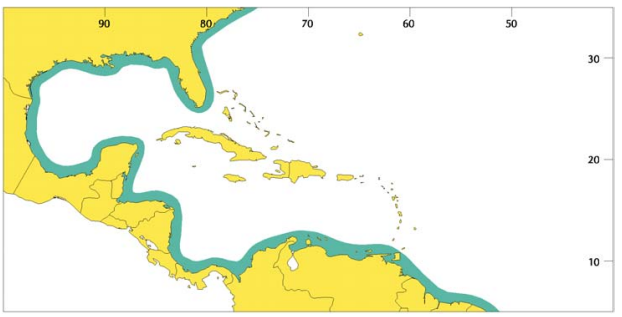


petasma

Diagnostic characters: Entire body smooth. **Rostrum as long as or longer than carapace, with a high basal crest armed with usually 5 dorsal teeth and a long, styliform, upward directed tip; ventral margin of rostrum toothless**. Carapace bearing a very small tooth behind the series of rostral teeth, and marked with longitudinal sutures (transverse sutures absent in adults). **Last 2 pairs of pereiopods long and slender, their dactyls elongate, thin, and divided into several articles**. Petasma with distolateral angles greatly produced as horn-like projections. **Thelycum with a broad roughly elliptical plate on sternite 14 preceded by a narrow lip ending in a small median projection. Colour:** either whitish with ventral part yellowish, or yellow, more intense ventrally; occasionally greyish. Tip of rostrum and flagella reddish; pereiopods pink or orange-yellow; pleopods and uropods yellowish at base and pink distally; telson and last abdominal segment sometimes pink.

Size: Maximum length: females, 140 mm; males, 115 mm.

Habitat, biology, and fisheries: Lives along the shore from a depth of 3 to 70 m, but is abundant only in shallow waters (between 20 and 30 m), especially on muddy and sometimes sandy bottoms. This species is diurnal and the largest catches are made by day. A very important commercial species from the North coast of the Gulf of Mexico from Pensacola (Florida) to Texas. Commercial concentrations have been reported off Nicaragua, off eastern Venezuela, and off Trinidad. Fishing grounds have been reported also from Honduras, Nicaragua, Costa Rica, and Colombia. In Guyana and in French Guiana it occurs in commercial concentrations. Outside the area this species is the subject of huge catches in different areas along the Brazilian coast. The catch reported from the USA in 1975 totaled 3 182 t, heads on shrimp. From 1984 to 1998 the capture production reported from the USA totaled 56 606 t; mean capture production was 3 773 t/year. Separate statistics for this species are reported by Guyana (from 1984 to 1998 the total capture production was 94 967 t; mean capture production was 6 331 t/year), and outside the area by Brazil (from 1984 to 1998 the total capture production was 140 920 t; mean capture production was 9 394 t/year). In Area 31 from 1984 to 1998 captures of *X. kroyeri* totalled 151 573 t (mean capture production: 10 104 t/year). Caught mainly with shrimp trawls and cast nets; in Guyana, Suriname, and French Guiana also with Chinese trapnets and pin seines. Marketed frozen, canned, fresh, or dried.



Distribution: North Carolina through the Gulf of Mexico and the Caribbean Sea including the Antilles, and along the Atlantic coast of South America down to Santa Catarina (Brazil).

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