

Habitat: Depth 120 to 640 m. Marine.

Size: Maximum total length 105 mm (♂), 140 mm (♀); maximum carapace length 37 mm (♂), 54 mm (♀).

Interest to Fishery: According to Longhurst (1970:275,300) the species is of potential commercial importance both in the Western Atlantic and in the Eastern Atlantic.

*Penaeus (Farfantepenaeus) aztecus* Ives, 1891

PEN Pen 2

*Penaeus brasiliensis aztecus* Ives, 1891, Proc.Acad.Nat.Sci.Phila., 43:190,191,199

Synonymy: *Penaeus (Melicertus) aztecus aztecus* - Perez-Farfante, 1969.

FAO Names: Northern brown shrimp (En), Crevette royale grise (Fr), Camarón café norteño (SP).

Local Names: Brown shrimp, Brownie, Green lake shrimp, Red shrimp, Redtail shrimp, Golden shrimp, Native shrimp (U.S.A.), Camarón café, Camarón moreno, Camarón pardo (Mexico). Before 1939 this species was not distinguished from the other East American species of the subgenus *Farfantepenaeus*, all of which were then indicated as *Penaeus brasiliensis*. In 1967 two subspecies of *P. aztecus* were recognized, which at present are considered good species: *P. aztecus* and *P. subtilis*.

Literature: Pérez-Farfante, 1969; Cook & Lindner, 1970.

Distribution: Western Atlantic: Atlantic coast of U.S.A. from Massachusetts to Texas; east coast of Mexico from Tamaulipasto Campeche.

Habitat: Depth 4 to 160 m, highest densities between 27 and 54 m. Bottom mud or peat, often with sand, clay or broken shells. Salinity: the adults are marine, the juveniles estuarine and marine.

Size: Maximum total length 195 mm (♂), 236 mm (♀).

Interest to Fishery: Off North Carolina this is the most important *Penaeus* species. Also along the north and east coast of the Gulf of Mexico it is of great commercial value, although sometimes surpassed by *P. setiferus*; the grounds off Texas are by far the most important. In 1976, 61 873 metric tons of the species were landed in the U.S.A. Aquaculture experiments with *P. aztecus* have been undertaken in the U.S.A.

*Penaeus (Farfantepenaeus) brasiliensis* Latreille, 1817

PEN Pen 3

*Penaeus brasiliensis* Latreille, 1817, Nouv.Dict.Hist.Nat., 25:156

Synonymy: *Penaeus (Melicertus) brasiliensis* - Perez-Farfante, 1969.

FAO Names: Redspotted shrimp (En), Crevette royale rose (Fr), Camarón rosado con manchas (SP).

Local Names: Pink spotted shrimp, Spotted pink shrimp, Brown shrimp, Caribbean brown shrimp (U.S.A.), Camarón rojo (Cuba, Nicaragua), Langostino rosado con manchas, Camarón rosado con manchas, Langostino amarillo (Venezuela), Camarao rosa, Camarao lixo (Brazil).

Literature: Pérez-Farfante, 1969.

Distribution: Western Atlantic: Atlantic coast of America from North Carolina (U.S.A) to Rio Grande do Sul (Brazil); Bermuda; West Indies.

Habitat: Depth 3 to 365 m, most abundant at 45 to 65 m. Bottom mud, mud and sand. Juveniles are estuarine, adults marine.

Size: Maximum total length 191 mm (♂), 150 mm (♀).

Interest to Fishery: In the northern part of its range (West Indies, coast of U.S.A.) 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 (Quintana Roo (Mexico), Nicaragua, E. Venezuela), and is especially important off the Atlantic coast of South America from Guyana to northern Brazil (Baia de Marajó) where it produces "gigantic catches" (Perez-Farfante, 1969:576). In northeastern Brazil the commercial value of the species is limited, but more to the south, in Rio de Janeiro state it is quite important again.

*Penaeus (Farfantepenaeus) brevirostris* Kingsley, 1878

PEN Pen 9

*Penaeus brevirostris* Kingsley, 1878, Proc.Acad.Nat.Sci.Phila., 1878:98

FAO Names: Crystal shrimp (En), Crevette cristal (Fr), Camarón cristal (Sp).

Local Names: Camarón rojo (Mexico, Nicaragua, Panama, Ecuador), Camarón cristalino, Camarón cristal (Mazatlán, Mexico), Pink shrimp (Panama).

Distribution: Eastern Pacific: Sinaloa (Mexico) to northern Peru and the Galápagos Islands.

Habitat: Depth 36 to 120 m, Bottom mud, sandy mud. Marine.

Size: Maximum total length, 150 mm (♂), 170 mm (♀); maximum carapace length 56 mm.

Interest to Fishery: In Mexico the species is of considerable importance, although less so than the other species of *Penaeus* taken on the west coast. It is sold fresh or frozen. Also in Panama and Ecuador the present species is fished, but seems to be of minor or moderate importance.

*Penaeus (Farfantepenaeus) californiensis* Holmes, 1900

PEN Pen 10

*Penaeus californiensis* Holmes, 1900, Occas.Pap.Calif.Acad.Sci., 7:218

FAO Names: Yellowleg shrimp (En), Crevette pattes jaunes (Fr), Camarón patiamarillo (Sp).

Local Names: Camarón café, Café brown shrimp (Mexico, Nicaragua, Ecuador), Camarón kaki, Camarón pata amarilla (Mexico).

Distribution: Eastern Pacific: California (U.S.A.) to Paita (Peru).

Habitat: Depth 15 to 100 m, most abundant between 25 to 50 m. Bottom mud or sandy mud. Marine; juveniles rarely estuarine.

Size: Maximum total length 160 mm (♂), 209 mm (♀); maximum carapace length 55 mm (♀).

Interest to Fishery: The species is of considerable importance in the offshore fishery off Mexico, forming about 75% of the catch of Mexican Pacific shrimp trawlers. Also in Guatemala, Costa Rica, Panama and Ecuador the species is fished. In Ecuador it was so far of little importance but since 1963 the landings increased there notably.

*Penaeus (Farfantepenaeus) duorarum* Burkenroad, 1939

PEN Pen 4

*Penaeus duorarum* Burkenroad, 1939, Bull.Bingham Oceanogr.Collect., Yale Univ.; 6(6):31

Synonymy: *Penaeus (Melicertus) duorarum duorarum* - Perez-Farfante, 1969. Until 1939 this species was not distinguished from *Penaeus brasiliensis* and the latter name was then used to indicate all Western Atlantic species of the subgenus *Farfantepenaeus*. In 1967 Pérez-Farfante recognized two subspecies of *P. duorarum*: *P. d. duorarum* and *P. d. notialis*. The latter is now treated as a distinct species.

FAO Names: Northern pink shrimp (En), Crevette rodché du nord (Fr), Camarón rosado norteño (Sp).

Local Names: Pink shrimp, Spotted shrimp, Pink-spotted shrimp, Brown-spotted shrimp, Grooved shrimp, Green shrimp, Pink night shrimp, Red shrimp, Hopper, Skipper, Pushed shrimp, Bait shrimp (U.S.A.), Camarón rosado (Mexico).

Literature: Pérez-Farfante, 1969; Costello & Allen, 1970.

Distribution: Western Atlantic: Bermuda; Atlantic coast of the U.S.A. from Maryland to Texas; east coast of Mexico from Tamaulipas to Quintana Roo.

Habitat: Depth 2 to 70 m, rarely to 230 m, most abundant between 11 and 36 m. Bottom firm mud and silt with sand and shells. Juveniles can and do live in water with low salinities, adults are marine.

Size: Maximum total length 269 mm (♂), 280 mm (♀).

Interest to Fishery: Of great commercial value in the Gulf of Mexico; most intensively fished in the Tortugas area and in the Gulf of Campeche, but also off N.W. Florida and W. Texas. In 1976, 11 291 metric tons were landed in U.S.A. Used for consumption and bait.

*Penaeus (Farfantepenaeus) notialis* Pérez-Farfante, 1967

PEN Pen 5

*Penaeus duorarum notialis* Pérez-Farfante, 1967, Proc.Biol.Soc.Wash., 80:94

Synonymy: *Penaeus duorarum* var. *cameronensis* Rossignol & Repelin, 1962 (unavailable name). *Penaeus (Melicertus) duorarum notialis* - Pérez-Farfante, 1969. Until 1967 this species was not distinguished from *P. duorarum*; in 1967 it was first considered a subspecies of *Penaeus duorarum*, later the two were found to be distinct species.

FAO Names: Southern pink shrimp (En), Crevette rodché du Sud (Fr), Camarón rosado sureño (Sp).

Local Names: Candied shrimp (U.S.A.), Camarón acaramelado, Camarón cocinero, Camarón carbonero (Cuba), Pink shrimp (British Honduras), Camarón rojo (Nicaragua), Langostino amarillo, Langostino rosado, Camarón rosado sin mancha (Venezuela), Camarao rosa (Brazil), Crevette grosse, Crevette blanche (Senegal), Bangbo (Ivory Coast), De gon (Dahomey), Mudionga (Cameroon), Rozovoi krevetki (U.S.S.R.).

Distribution: Eastern Atlantic: West African coast from Mauritania to Angola. Western Atlantic: Greater Antilles from Cuba to the Virgin Islands; Atlantic coast of Middle and South America from S. Mexico (Quintana Roo) to Brazil (S. to Rio de Janeiro).

Habitat: Depth 3 to 100 m, rarely as deep as 700 m, usually between 3 and 50 m. Bottom mud or sandy mud, and sandy patches among rocks. Marine; juveniles estuarine.

Size: Maximum total length 175 mm (♂), 192 mm (♀); maximum carapace length 41 mm (♂), 48 mm (♀).

Interest to Fishery: With *Penaeus (Litopenaeus) schmitti* the most important commercial shrimp of the Greater Antilles and the Atlantic coast of Central America, Venezuela and various areas of Brazil, both on a local and commercial scale. The species is also the subject of important fisheries in West Africa, both locally and by foreign trawlers. Aquaculture experiments with this species have been undertaken in Cuba.

*Penaeus (Farfantepenaeus) paulensis* Pérez-Farfante, 1967

PEN Pen 11

*Penaeus (Melicertus) paulensis* Pérez-Farfante, 1967, Proc.Biol.Soc.Wash., 80:84,86,87,93

Synonymy: Until 1967 this species was confused either with *Penaeus brasiliensis* or *P. aztecus*.

FAO Names: São Paulo shrimp (En), Crevette de São Paulo (Fr), Camarón de São Paulo (Sp).

Local Names: Camarão rosa (Brazil), Langostino (Uruguay), Camarón (Uruguay, for small specimens).

Literature: Pérez-Farfante, 1969.

Distribution: Western Atlantic: Brazil (from Cabo Frio, Estado de Rio de Janeiro) south to Argentina (38°30'S).

Habitat: Depth 1 to 130 m, mostly between 36 and 54 m. Bottom mud. Marine.

Size: Maximum total length 171 mm (♂), 215 mm (♀); maximum carapace length 40 mm (♂), 54 mm (♀).

Interest to Fishery: There are inshore fisheries for this species both in Brazil and Uruguay, while in the northern part of its range in Brazil there is also an offshore fishery. The possibility of its culture in Uruguay is under study (Villegas, 1974).

*Penaeus (Farfantepenaeus) subtilis* Pérez-Farfante, 1967

PEN Pen 8

*Penaeus aztecus subtilis* Pérez-Farfante, 1967, Proc.Biol.Soc;Wash., 80:87

Synonymy: *Penaeus (Melicertus) aztecus subtilis* - Pérez-Farfante, 1969. Until 1967 this species was not distinguished from *Penaeus aztecus* then at first it was considered a subspecies of *P. aztecus*, but at present the two are treated as distinct species.

FAO Names: Southern brown shrimp (En), Crevette cafe (Fr), Camarón café sureño (Sp).

Local Names: Brown shrimp, Dark shrimp (U.S.A.), Camarón café (Cuba, Nicaragua), Camarón marrón, Langostino amarillo (Venezuela), Short feelered prawn (Guyana), Camarao lixo, Camarao vermelho, Camarão branco, Cabeçudo (Brazil).

Literature: Pérez-Farfante, 1969.

Distribution: Western Atlantic: West Indies from the Greater Antilles south; Atlantic coast of Central and South America from Honduras to Brazil (Rio de Janeiro State).

Habitat: Depth 1 to 190 m. Bottom mud, and mud with sand or shells. Adults are marine, juveniles usually estuarine and marine, sometimes hypersaline.

Size: Maximum total length 152 mm (♂), 205 mm (♀); maximum carapace length 36 mm (♂), 55 mm (♀).

Interest to Fishery: The species is fished throughout its range, often forming part of catches of other shrimps. The young are often caught in estuarine waters of northern South America, adults are fished for in Venezuela and Brazil.

*Penaeus (Fenneropenaeus) chinensis* (Osbeck, 1765)

PEN Pen 12

*Cancer chinensis* Osbeck, 1765, Reise nach Ostindien und China, 151

Synonymy: *Cancer (Gammarellus) chinensis* Herbst, 1793; *Penaeus orientalis* Rishinouye, 1918.

FAO Names: Fleshy prawn (En), Crevette charnue (Fr), Camarón carnosos (Sp).

Local Names: Korai ebi (Japan), Fleshy prawn (Hong Kong).

Distribution: Indo-West Pacific: Korea; China; Hong Kong. Records from outside this area are doubtful and may pertain to one of the other *Fenneropenaeus* species.

Habitat: Depth 90 to 180 m. Marine.

Size: Maximum total length 154 mm (♂), 183 mm (♀), maximum carapace length 42 mm (♂), 55 mm (♀).

Interest to Fishery: The species is of considerable commercial importance in the Yellow Sea, East China Sea and Korean Bight, where it is trawled. It is sold in Korea, China, Japan and Hong Kong. Frozen (both whole and headed) it is exported to Western Europe. Pond culture for this species has started in South Korea and Japan.

Remarks: The problem of the distinctness of this species from *Penaeus indicus* is still not definitely solved. The name *Penaeus chinensis* has hardly ever been used for the species, which is better known as *P. orientalis*. However, Osbeck's (1765) description is sufficiently clear to make certain that his specimens belonged to the present species; the specific name *chinensis*, being one of the oldest for any penaeid species, has therefore to be used.

*Penaeus (Fenneropenaeus) indicus* H. Milne Edwards, 1837

PEN Pen 13

*Penaeus indicus* H. Milne Edwards, 1837, Hist.Nat.Crust., 2:415

Synonymy: ? *Palaemon longicornis* Olivier, 1825; *Penaeus indicus longirostris* De Man, 1892.

FAO Names: Indian white prawn (En), Crevette royale blanche (des Indes) (Fr), Camarón blanco de la India (Sp).

Local Names: White prawn (S. Africa, Kenya), Tugela prawn (S. Africa), Kamba weupe, Kamba ndogo (Swahili language, Kenya), Makamba (Sakalave language, Madagascar), Patsa (Hova language, Madagascar), Jaira, Jiaro (Pakistan; used also for other species of *Fenneropenaeus*), Jinga (Bombay, India), Naran, Vella chemmeen (Kerala, India), Yera (Madras, India), Chapda chingri (Calcutta, India; Bangladesh), Chapra chingri, Chamma chingri, Changa chingri (Bangladesh), Udang putih (Indonesia), Hipon putih (Philippines), Indian prawn (Australia).

Literature: Mohamed, 1970 a.

Distribution: Indo-West Pacific: E. and S.E. Africa to S. China, New Guinea and N. Australia.

Habitat: Depth 2 to 90 m. Bottom mud or sand. Adults marine, juveniles estuarine.

Size: Maximum total length 184 mm (♂), 228 mm (♀), usually much smaller (170 mm); maximum carapace length 56 mm.

Interest to Fishery: In Madagascar, Mozambique, Tanzania, Kenya and Somalia the fishery for this species is of major importance, the species being dominant in the shrimp catches. In Kenya it forms 75 to 90% of the catch (Brusher, 1976). Although the species is of minor importance in Yemen, the Persian Gulf and Pakistan (Tirmizi, in Litt.), in India it is "the most important species" (Jones, 1967:1333), especially in the inshore fishery (see also Kurian & Sebastian, 1976:99). Next to *Metapenaeus dobsoni*, *P. indicus* is the second most important species in the ricefield shrimp farming of the Kerala coast of S.W. India. Also in Bangladesh, Malaya, Thailand, Indonesia and the Philippines the species is of importance, both for offshore fishing and in the pond culture.

Remarks: This species, *P. merguensis* and *P. penicillatus* have sometimes been confused. and it may be possible that some of the data on the fishery of *P. indicus* provided in the previous paragraph actually refer to either of the other two species.

*Penaeus (Fenneropenaeus) merguiensis* De Man, 1888

PEN Pen 14

*Penaeus merguiensis* De Man, 1888, J.Linn.Soc.Lond.(Zool.), 22:287

Synonymy : *Penaeus indicus merguiensis* - De Man, 1882.

FAO Names: Banana prawn (En), Crevette banana (Fr), Camarón banana (Sp).

Local Names: Jaira, Jiara (Pakistan, also used for other species of *Fenneropenaeus*), Udang kaki merah (Malaysia), Udang putih (Indonesia), Kung chaebauy (Thailand), Pak ha, White prawn (Hong Kong), Banana prawn, White prawn (Australia).

Literature: Kirkegaard, Tuma & Walker, 1970.

Distribution: Indo-West Pacific: from the Persian Gulf to Thailand, Hong Kong, the Philippines, Indonesia, New Guinea, New Caledonia and N. Australia (north of 29°S).

Habitat: Depth 10 to 45 m. Bottom mud. Estuarine and marine.

Size: Maximum total length 240 mm (♀).

Interest to Fishery: The species is commercially of major importance in the Persian Gulf and in Pakistan (Longhurst, 1970:280,281; Tirmizi, in Litt.). In India this species has often been confused with *P. indicus* so that its present economic status is not quite accurately known, but Jones (1967:1333) pointed out that it definitely contributes to the commercial fishery along the Karwar coast of W. India. Kurian & Sebastian (1976:100) reported that there is a small fishery for this species "in the middle region of east and west coasts" of India, while "juveniles are fished from estuaries". It is not mentioned for Bangladesh by Ahmad (1957), so that it is possible that a confusion with *P. indicus* has occurred here also. *P. merguiensis* is also important off the northwestern coast of Malaya, and possibly the west coast of Thailand, and the Philippines (Longhurst, 1970:284-290). In Indonesia it is taken by trawlers off E. Sumatra, the south coast of Java, off Borneo and in the Arafura Sea, being the dominant species there. In Australia it is the most important commercial species of Queensland, and also in Western Australia it may become very important (Racek, 1955:222; 1957:12). In the Gulf of Papua it is trawled for; the catch is frozen. It plays a role in pond culture in Thailand (Shigueno, 1975:120) and in Indonesia.

*Penaeus (Fenneropenaeus) penicillatus* Alcock, 1905

PEN Pen 15

*Penaeus indicus penicillatus* Alcock, 1905, Ann.Mag.Nat.Hist., (7)16:525

FAO Names: Redtail prawn (En), Crevette queue rouge (Fr), Camarón rabo Colorado (Sp).

Local Names: Jaira, Jiara (Pakistan, used also for other species of *Fenneropenaeus*), Pak ha, White prawn (Hong Kong), Red-tailed prawn (Taiwan).

Distribution: Indo-West Pacific: from Pakistan to Taiwan and Indonesia.

Habitat: Depth 2 to 90 m. Marine.

Size: Maximum total length 163 mm (♂), 112 mm (♀); carapace length 31 mm (♂), 33 mm (♀).

Interest to Fishery: In Pakistan this species is of major commercial importance (Qureshi, 1956:362; Tirmizi, in Litt.). There are few records of the commercial importance of the species in India. Kagwade (1967:1379) listed it among the less common forms in the catches off Bombay, and Kunyu (1967:1385) remarked that it is the main species obtained off the Maharashtra coast (Western India). Kurian & Sebastian (1976:100) reported "small records from Bombay and Orissa". It is possible that many of the records of *Penaeus indicus* from off the Indian coasts pertain to the present species. Ahmad (1957:8) gave it in his list of economic important prawns of Bangladesh, but Qureshi (1956:362) did not. Tham (1968:211) ranged *P. penicillatus* among the species commonly found in shrimp catches in Malaysia.

*Penaeus (Litopenaeus) occidentalis* Streets, 1871

PEN Pen 16

*Penaeus occidentalis* Streets, 1871, Proc.Acad.Nat.Sci.Phila., 1871:243

FAO Names: Western white shrimp (En), Crevette royale blanche (du Pacifique) (Fr), Camarón blanco del Pacifico (Sp).

Local Names: Camarón blanco (Nicaragua, Colombia, Ecuador, Peru), Langostino (Panama, Colombia, Peru).

Distribution: Eastern Pacific: Off Chiapas. (Mexico) to Peru.

Habitat: Depth 2 to 20 m. Bottom soft mud. Estuarine (juveniles) and marine (adults).

Size: Maximum total length 215 mm.

Interest to Fishery: The species is of commercial importance almost throughout its range. It is taken by trawlers in El Salvador where it is the third in importance after *P. vannamei* and *P. stylirostris*. In Honduras there is an inland fishery for the juveniles (Lindner, 1957:69). In Panama, Colombia and Ecuador the fishery for this species is of major importance, it is the dominant species there.

*Penaeus (Litopenaeus) schmitti* Burkenroad, 1936

PEN Pen 6

*Penaeus schmitti* Burkenroad, 1936, An.Acad.Bras.Cienc., 8:315

Synonymy: Before 1936 this species was not distinguished from *P. setiferus* and therefore most records of *P. setiferus* from the area of *P. schmitti* pertain actually to the latter species.

FAO Names: Southern white shrimp (En), Crevette ligubam du sud (Fr), Camarón blanco sureño (SP).

Local Names: White shrimp (U.S.A., British Honduras), Blue shrimp, Green shrimp (U.S.A.), Camarón blanco (Cuba, Honduras, Nicaragua, Venezuela), Camarón casquiazul (Cuba), Chacalin (Nicaragua; for the juveniles only), Langostino blanco (Venezuela), Camarao legitimo, Camarao verdadeiro, Camarao branco, Camarao lixo, Camarao vila franca, Camarao caboclo (Brazil).

Literature: Pérez-Farfante, 1969, 1970.

Distribution: Western Atlantic: Greater Antilles from Cuba to Virgin Islands; Atlantic coast of Central and South America from British Honduras to S. Brazil (28°24'S).

Habitat: Depth 2 to 47 m, most abundant between 15 and 30 m. Bottom soft mud or silt, sometimes with sand. Juveniles found in estuarine areas, the adults are marine.

Size: Maximum total length 175 mm (♂), 235 mm (♀).

Interest to Fishery: The species is of considerable commercial importance in Cuba, Belize, Honduras, Nicaragua, Colombia, Venezuela, Guyana, French Guiana, Surinam, and all along the coast of Brazil. It is caught in large quantities and a great percentage is exported. In Cuba aquaculture experiments with this species have started.

*Penaeus (Litopenaeus) setiferus* (Linnaeus, 1767)

PEN Pen 7

*Cancer setiferus* Linnaeus, 1767, Syst.Nat., (ed.12)1:1054,1055

Synonymy: *Cancer (Gammarellus) setiferus* - Herbst, 1793; *Astacus setiferus* - Olivier, 1791; *Palaemon setiferus* - Olivier, 1811; *Penaeus orbignyianus* Latreille, 1817; *Penaeus fluviatilis* Say, 1818; *Penaeus setifer* - Agassiz, 1849; *Penaeus gracilirostris* Thallwitz, 1892; *Penaeus setifera* - Cowles, 1930. Before 1936 this species and *P. schmitti* were not distinguished as separate species; therefore several older records of *P. setiferus*, viz. those of specimens outside the area of the present species, pertain to *P. schmitti*.

A recent dispute about whether the name *P. setiferus* or *P. fluviatilis* is the correct name for the present species, has been settled by the International Commission on Zoological Nomenclature in favour of the former of these two names.

FAO Names: Northern white shrimp (En), Crevette ligubam du nord (Fr), Camarón blanco norteño (SP).

Local Names: White shrimp, Grey shrimp, Lake shrimp, Green shrimp, Green-tailed shrimp, Blue-tailed shrimp, Rainbow shrimp, Daytona shrimp, Southern shrimp (U.S.A.), Camarón blanco (Mexico).

Literature: Pérez-Farfante, 1969; Lindner & Cook, 1970.

Distribution: Western Atlantic: East coast of U.S.A. from New Jersey to Texas; east coast of Mexico from Tamaulipas to Campeche; especially abundant in the Gulf of Mexico.

Habitat: Depth 2 to 90 m. Bottom mud or peat, sometimes with sand or clay. Marine (adults), and estuarine (juveniles).

Size: Maximum total length 175 mm (♂), 200 mm (♀); maximum carapace length 41 mm (♂), 60 mm (♀).

Interest to Fishery: The species is fished along the Atlantic coast of U.S.A. from North Carolina to Florida and in the Gulf of Mexico. It is of great economic importance in the United States and Mexico. In 1975 almost 27 000 metric tons were landed in the U.S.A. alone. In Mexico the most important fishery is in the Gulf of Campeche. The species is mostly frozen and canned and exported all over the world. Culture experiments with this species seem to meet with some success (Bardach et al. 1972:613).

*Penaeus (Litopenaeus) stylirostris* Stimpson, 1874

PEN Pen 17

*Penaeus stylirostris* Stimpson, 1874, Ann.Lyc.Nat.Hist., New York, 10:134

FAO Names: Blue shrimp (En), Crevette bleue (Fr), Camarón azul (Sp).

Local Names: Camarón azul, Blue shrimp (Mexico), Camarón blanco (Nicaragua, Costa Rica, Panama, Colombia, Ecuador, Peru; also used for the other species of *Litopenaeus*), White shrimp (Panama), Langostino (Panama, Peru; used for all species of *Litopenaeus*), Camarón (El Salvador; for all larger shrimps).

Distribution: Eastern Pacific: from Baja California (Mexico) to Peru.

Habitat: Depth 0 to 27 m, seldom to 45. Bottom mud and clayey or sandy mud. Marine (adults) and estuarine (juveniles).

Size: Maximum total length 230 mm; maximum carapace length 59 mm.

Interest to Fishery: Of major importance on most of the west coast of Mexico, although locally of secondary importance; fished both inshore and offshore. Sold fresh, cooked, dry and frozen. In Guatemala it is fished for inshore and offshore. In El Salvador *Penaeus stylirostris* is the second most important species, it is caught offshore and inshore. In Honduras the inshore fishery is mostly on juveniles of this species and of *P. occidentalis*. These two species are also the most important in Costa Rica and Panama. Farther south the importance of the present species diminishes, being evidently replaced by *P. occidentalis*.



*Penaeus (litopenaeus) vannamei* Boone, 1931

PEN Pen 18

*Penaeus vannamei* Boone, 1931, Bull. Am. Mus. Nat. Hist., 63:173

FAO Names: Whiteleg shrimp (En), Crevette pattes blanches (Fr), Camarón patiblanco (Sp).

Local Names: Camarón blanco, White shrimp (Mexico; this name is used in several countries, like Nicaragua, Costa Rica, Panama, Colombia, Ecuador, and Peru for all species of *Litopenaeus*), Camarón patiblanco (Panama), Camarón cafe (Colombia), Langostino (Peru; a name used for all species of *Litopenaeus*).

Distribution: Eastern Pacific: from Sonora, Mexico, south to northern Peru.

Habitat: Depth 0 to 72 m. Bottom mud. Marine (adults), and estuarine (juveniles).

Size: Maximum total length 230 mm; maximum carapace length 90 mm.

Interest to Fishery: The inshore fishery for this species is of major importance in Mexico, especially in the southern part. It is also taken in considerable quantities by the Mexican offshore trawlers. In Guatemala and El Salvador *P. vannamei* is the dominant species, but its importance seems to diminish farther to the southwest.

*Penaeus (Marsupenaeus) japonicus* Bate, 1888

PEN Pen 19

*Penaeus canaliculatus japonicus* Bate, 1888, Rep. Voyage Challenger (Zool.), 24:245

Synonymy: *Penaeus pulchricaudatus* Stebbing, 1914.

FAO Names: Kuruma prawn (En), Crevette kuruma (Fr), Camarón kuruma (Sp).

Local Names: Ginger prawn (S. Africa), Tiger prawn (Kenya), Kamba, Kamba ndogo (Swahili language, Kenya; used for large, respectively small specimens of all species of commercial penaeids), Kalri (Pakistan, also used for other species of similar size), Flowery prawn (Hong Kong), Banded shrimp (Taiwan), Kuruma ebi (Japan), Saimaki ebi (Japan, juveniles only), Oriental brown shrimp (Korea), Japanese king prawn, Tiger prawn (Australia, New Guinea), Kuruma shrimp (U.S.A.), Kristal (Israel).

Distribution: Indo-West Pacific: from the Red Sea, E. and S.E. Africa to Korea, Japan and the Malay Archipelago, also reported from Fiji. Eastern Atlantic: the species entered the eastern Mediterranean through the Suez Canal and has reached the south coast of Turkey.

Habitat: Depth 0 to 90 m. Bottom sandy mud and sand. Marine.

Size: Maximum total length 190 mm (♂), 225 mm (♀); maximum carapace length 53 mm (♂), 66 mm (♀).

Interest to Fishery: On the east and southeast coast of Africa, in Madagascar waters, in the Gulf of Aden, and in the Red Sea the species is fished, but is of minor commercial importance. In India small fisheries for this species are mentioned for the Bombay and Madras areas (Kurian & Sebastian, 1976:100). Domantay (1956:363) reported it among the commercially important prawns of the Philippines. In Japan the fishery is of major importance, the present species being the most valuable of the commercial shrimps, it is not only trawled but also plays a role in the pond fishery. In New Guinea *P. japonicus* forms a small percentage of commercial catches (Rapson & McIntosh, 1971:17). In the eastern Mediterranean the species is caught by Turkish, Israelian and Egyptian trawlers. It is possible that the records of the fishery for *Penaeus canaliculatus* (see there) in India, Indonesia and the Philippines actually pertain to the present species. Serious and most successful efforts at culturing the species, both in ponds and tanks, are undertaken in Japan (Shigueno, 1975). In some areas outside Japan (e.g., Korea, Taiwan, France) the species is also used in aquaculture experiments.

*Penaeus (Melicertus) canaliculatus* (Olivier, 1811)

PEN Pen 20

*Palaemon canaliculatus* Olivier, 1811, Encycl.Méthod.Hist.Nat.(Ins.), 8:660

FAO Names: Witch prawn (En), Crevette sorcière (Fr), Camarón brujo (Sp)

Literature: Pérez-Farfante, 1976:23-37, Figs. 1-4.

Distribution: Indo-West Pacific: *Penaeus canaliculatus* has been reported from an extensive area reaching from S.E. Africa to Taiwan, the Malay Archipelago and Polynesia.

Habitat: Depth 33 to 46 m. Marine.

Size: Total length 97 to 120 mm (♂), 131 to 145 mm (♀), carapace length 24.5 to 34 mm (♂), 35 to 40 mm (♀).

Interest to Fishery: Qureshi (1956:362) listed *P. canaliculatus* among the commercial prawns of Pakistan. Jones (1967:1333) mentioned that this species "contributes to a very small percentage in the fishery along the Madras coast especially in Pulicat Lake and in small numbers in Bombay and other places". Ramamurthy (1967:1426) stated its presence in commercial catches in Kutch (N.W. India). Kurian & Sebastian (1976:99) listed the species among the Indian prawns of commercial importance, but indicated that it was "got only in small numbers". Tham (1968:211) reported *P. canaliculatus* as important in Pakistan and the Philippines. Ahmad (1957:5) ranged the species among those that are fished for in Bangladesh. For Indonesia there is a record by Djajadiredjo & Sachlan (1956:370,372) and for the Philippines by Domantay (1956:363) and Delmendo & Rabanal (1956:424). Uncertainty as to the correct identity of the present species existed until Pérez-Farfante (1976:23) made its true position clear. Many of the pre-1976 records of *P. canaliculatus* may actually pertain to other, more or less closely related species (e.g., *Penaeus japonicus*). Therefore all records concerning the commercial value of *Penaeus Canaliculatus* have to be treated with the utmost reserve.

*Penaeus (Melicertus) kerathurus* (Forskål, 1775)

PEN Pen 1

*Cancer kerathurus* Forskål, 1775, Descriptiones Animalium, 95

Synonymy: *Palaemon sulcatus* Olivier, 1811; *Alpheus trisulcatus* Leach, 1814; *Melicertus tigrinus* Rafinesque, 1814; *Penaeus trisulcatus* - Leach, 1815; *Alpheus caramote* Kisso, 1816; *Peneus mars* Risso, 1616; *Penaeus caramote* - Latreille, 1817; *Penaeus sulcatus* - Lamarck, 1818; *Alpheus punctulatus* Risso, 1522; *Peneus cristatus* Risso, 1827; *Pandalus punctulatus* - Risso, 1827; *Pelias punctulata* - Roux, 1831; *Ephya punctulata* - H. Milne Edwards, 1837; *Penaeus fasciatus* Hope, 1851 (nomen nudum); *Miersia punctulata* - Carus, 1885.

FAO Names: Caramote prawn (En), Caramote (Fr), Camarón langostino español (Sp).

Local Names: Camaraõ (Portugal), Langostino (official Spanish name), Llangosti (Spain), Caramotee (also Caramot or Caramota), Crevette du Maroc, Gros Ligubam (France), Gambaru grossu (Monaco), Spannocchio, Gambero imperiale, Mazzancolla (Italy; Palombi & Santarelli, 1961:358, list a great number of local names for the species used in various Italian districts), Mekušica (Yugoslavia), Garida (Greece), Karides, Tèke (Turkey), Penon telat-harizi (Israel), Gambri kbir, Gambli malaki, Grosse crevette, Crevette royale (Tunisia), Gamba rodché, Crevette grise, Caramote (Algeria), Furchenkrebs (Germany), Tiger shrimp, Striped shrimp (West Africa).

Distribution: Eastern Atlantic: from the south coast of England to Angola, and the entire Mediterranean.

Habitat: Depth 5 to 40 m, seldom to 75 m. Bottom muddy sand. Marine and estuarine.

Size: Maximum total length up to 180 mm (♂), 225 mm (♀); the average length is 110 to 140 mm (♂), 130 to 170 mm (♀).

Interest to Fishery: This species is fished for all along the Mediterranean coasts and is an important product of the inshore fishery, because of its large size and excellent taste. Along the West African coast the species is of minor importance. Crosnier & De Bondy (1967:4,5) mentioned the presence of a small fishery in Dahomey and Nigeria.

*Penaeus (Melicertus) latisulcatus* Kishinouye, 1896

PEN Pen 21

*Penaeus latisulcatus* Kishinouye, 1896, Zool.Mag., Tokyo, 8:372

FAO Names: Western king prawn (En), Crevette royale occidentale (Fr), Camarón real (Sp).

Local Names: Hutomizo ebi, Futomizo ebi (Japan), Kung luang hangshipa (Thailand), Western king prawn, Blue-legged king prawn (Australia).

Distribution: Indo-West Pacific: Red Sea and S.E. Africa to Korea, Japan, the Malay Archipelago and Australia. Burkenroad (1959:80) distinguished two subspecies, a western, *P. latisulcatus hathor* Burkenroad, 1959, inhabiting the area from the Red Sea and S.E.Africa to the Western Indian Ocean and the typical subspecies occupying the eastern part of the range of the species. A more extensive study has to make out whether or not two species are involved here.

Habitat: Depth 0 to 80 m. Bottom sandy mud, or with stones. Marine.

Size: Maximum total length 137 mm (♂), 190 mm (♀); maximum carapace length 40 mm (♂), 46 mm (♀).

Interest to Fishery: According to Longhurst (1970:279,280) the present species is of secondary commercial importance in Mozambique and in the southern Red Sea. It is also reported as of some economic value in Somalia, the Gulf of Aden and the Persian Gulf. Kurian & Sebastian (1976:100) listed the species among the Indian prawns of commercial importance, but indicate that it is obtained in "stray catches only". Racek (1957:12) indicated that this is the only species of commercial value in South Australia, and that it might become of economic importance in Western Australia. Slack-Smith (1969:717) showed that the Western Australian prawn industry is now based on the present species and *P. esculentus*. In Japan the species seems, especially compared to *P. japonicus*, to be of little importance; that it has some commercial value is shown by that Bals (1914:13) reported some specimens from the Nagasaki fishmarket. Experimental aquaculture of this species has started in Thailand.

*Penaeus (Melicertus) longistylus* Kubo, 1943

PEN Pen 22

*Penaeus longistylus* Kubo, 1943, Suisan Kenkyusi, 38:200

Synonymy: *Penaeus jejunus* Hall, 1956; *Penaeus caesius* Dall, 1957.

FAO Names: Redspot king prawn (En), Crevette royale à taches rouges (Fr), Camarón real manchado (SP)

Local Names: Red-spot king prawn, Red-spotted prawn (Australia).

Distribution: Indo-West Pacific: South China Sea; Malaysia, N.W.; N. and N.E. Australia; Lord Howe Island.

Habitat: Depth 35 to 55 m. Bottom sand and reefs. Marine.

Size: Maximum total length 148 mm (♂), 151 mm (♀); maximum carapace length 40 mm (♂), 44 mm (♀). Shigueno (1975:144) gave the total length of adults as 130 to 160 mm, and their weight (in 5 to 6 months) as 25 to 35 g.

Interest to Fishery: The species is listed by Harrison, Kesteven & Setter (1965:8) among the commercial species of the Gulf of Carpentaria, N. Queensland. Racek & Dall (1965:15) were of the opinion "that this species is restricted to reef areas unsuitable for bottom trawling gear", and probably will never become of high commercial value, if at all.

*Penaeus (Melicertus) marginatus* Randall, 1840

PEN Pen 23

*Penaeus marginatus* Randall, 1840, J.Acad.Nat.Sci.Phila., 8: 146

Synonymy: *Penaeus teraoi* Kubo, 1949; *Penaeus (Melicertus) teraoi* - Burukovsky, 1972.

FAO Names: Aloha prawn (En), Crevette aloha (Fr), Camarón aloha (Sp).

Distribution: Indo-West Pacific: E. Africa and Madagascar to Singapore, Indonesia, Japan, Cocos Islands, and Hawaiian Islands.

Habitat: Depth 0 to 300 m (the juveniles in shallow, the adults in deeper water). Bottom sand, or mud and sand. Marine.

Size: Maximum total length 205 mm

Interest to Fishery: Crosnier & Jouannic (1973:10) listed this species as "eventuellement commercialisable" on the continental shelf of Madagascar, and off Tanzania and Kenya. M.J. Rathbun (1906:902,903) reported upon material from the Honolulu fishmarkets. Edmondson (1946:246) remarked that this "is one of the larger Hawaiian shrimps and is of considerable importance as food". Yoshida (1972:257) named this species "the most promising for the development of a commercial fishery" in Hawaiian waters. Bardach et al. (1972:598) mentioned the species among those playing a role in the pond culture in Taiwan.

*Penaeus (Melicertus) plebejus* Hess, 1865

PEN Pen 24

*Penaeus plebejus* Hess, 1865, Arch.Naturgesch., Berlin, 31(1):168

Synonymy: *Penaeus canaliculatus australiensis* Bate, 1888; *Penaeus maccullochi* Schmitt, 1926.

FAO Names: Eastern king prawn (En), Crevette royale orientale (Fr), Camarón real oriental (SP).

Local Names: Eastern king prawn King prawn, Sand prawn (Australia).

Literature: Kirkegaard & Walker, 1970.

Distribution: Indo-West Pacific: E. Australia from S. Queensland to Victoria.

Habitat: Depth 2 to 160 m. Bottom sand. Marine (adults) and estuarine (juveniles).

Size: Maximum total length 190 mm (♂), 300 mm (♀).

Interest to Fishery: The species is fished for in the larger part of its range (25° to 38°S), both inshore (2 to 4 m) for juveniles, and offshore for adults. In Queensland it constitutes more than half of the total prawn catch. "Attempts to introduce this prawn by liberation in our New Zealand waters were made in the 1890's" (Richardson & Yaldwyn, 1958:24), but evidently did not succeed.

*Penaeus (Penaeus) esculentus* Haswell, 1879

PEN Pen 25

*Penaeus esculentus* Haswell, 1879, Proc.Linn.Soc.N.S.W., 4:38

FAO Names: Brown tiger prawn (En), Crevette tigrée brune (Fr), Camarón tigre marrón (Sp).

Local Names: Brown tiger prawn, Tiger prawn, Common tiger prawn (Australia).

Literature: Kirkegaard & Walker (1969).

Distribution: Indo-West Pacific: W., N. and E. Australia from Shark Bay to central New South Wales. There is a doubtful record from Borneo.

Habitat: Depth 16 to 22 m. Marine.

Size: Maximum total length 145 mm (♂), 155 mm (♀).

Interest to Fishery: Of commercial importance in Western Australia (Slack-Smith, 1969:717), where the prawn industry is based on this species and *P. latisulcatus*. Harrison, Kesteven & Setter (1965:8) listed it among the commercial species of the Gulf of Carpentaria. And Dall reported that it is "trawled commercially in Queensland, and appearing sporadically in commercial quantities off Evans Head, New South Wales. Longhurst (1970:290) reported that the species is caught in the Philippines, but this probably is based on an incorrect identification.

*Penaeus (Penaeus) monodon* Fabricius, 1798

PEN Pen 26

*Penaeus monodon* Fabricius, 1798, Suppl.Ent.Syst., 408

Synonymy: *Penaeus carinatus* Dana, 1852; *Penaeus tahitensis* Heller, 1662; *Penaeus semisulcatus exsulcatus* Hilgendorf, 1879; *Penaeus coeruleus* Stebbing, 1905; *Penaeus bubulus* Kubo, 1949; *Penaeus monodon monodon* Burkenroad, 1959. In older literature often confused with *P. semisulcatus*.

FAO Names: Giant tiger prawn (En), Crevette géante tigrée (Fr), Camarón tigre gigante (Sp).

Local Names: Tiger prawn (S. and E. Africa), Kamba, Kamba ndogo (Swahili language, Kenya; Kamba is used for the adults, Kamba ndogo for the small ones, these names are used for all commercial Penaeidae), Kalri (Pakistan; also used for other species of similar size), Jinga (Bombay, India), Kara chemmeen (Kerala, India), Yera (Madras, India), Bagda chingri (Calcutta, India), Ushi-ebi (Japan), Grass shrimp (Taiwan), Ghost prawn (Hong Kong), Sugpo, Jumbo tiger shrimp (Philippines), Udang windu, Udang pantjet (Indonesia), Jumbo tiger prawn, Giant tiger prawn, Black tiger prawn, Blue tiger prawn, Leader prawn, Panda prawn (Australia).

Literature: Mohamed, 1970,

Distribution: Indo-West Pacific: E. and S.E. Africa and Pakistan to Japan, the Malay Archipelago and northern Australia.

Habitat: Depth 0 to 110 m. Bottom mud, sand. Estuarine (juveniles) and marine (adults).

Size: Maximum total length 336 mm. Weight 60 to 130 g.

Interest to Fishery: In S.E. and E. Africa (Natal to Somalia, including Madagascar) the species is of minor or moderate commercial importance, it is used for bait and food. In Pakistan it is likewise of minor importance. Jones (1967:1333) indicated that it is more common in prawn catches on the east coast of India than on the west coast. According to Chopra (1939:222) "This is the commonest large-sized penaeid of Calcutta, and is sold in our markets in enormous quantities". Kurian & Sebastian (1976:100) cited it as an important commercial species in India, especially on the east coast (Bengal and Orissa); juveniles being caught in estuaries. Also in Bangladesh it is of considerable commercial importance. In Malaya and Thailand *Penaeus monodon* is fished in offshore waters. It is obtained both by pond fishing and inshore fishing in Malaya, Singapore, Indonesia, the Philippines and Taiwan; because of its large size the species is quite important economically. Domantay (1956:363) indicated that "among the commercially important prawns in the Philippines, *Penaeus monodon* Fabricius stands foremost". In Japan and Korea it seems to be of minor importance; Yoshida (1941) remarked that it was sold on the Fusan market in Korea. Also in Australia the species is of commercial interest: Harrison, Kesteven & Setter (1965:8) listed it among the commercial species of the Gulf of Carpentaria, while Racek (1957:12) mentioned it as the last of the six most important species of New South Wales, and as the fourth in importance of the species taken in offshore waters of Queensland. Rapson & McIntosh (1971:17) reported it as constituting about 7% of the commercial catches in New Guinea (mainly in the Gulf of Papua).