

2. SYSTEMATIC CATALOGUE OF SPECIES

SUBORDER (DECAPODA) NATANTIA Boas, 1880

Natantia - Boas, 1880, K.Dan.Vidensk.Selsk.Skr., (6)1(2):28,155,164

All shrimps and prawns considered here belong to the suborder Natantia of the Crustacean order Decapoda. This suborder is divided into three infraorders: Penaeidea, Caridea and Stenopodidea. The first two of these are the largest and contain all the commercial species; the Stenopodidea is the smallest group and, being of no commercial importance, is not further considered here.

INFRAORDER PENAEOIDEA Rafinesque, 1815

Penaeidea - Bate, 1888, Rep.Voyage Challenger, (Zool.), 24:220

The Penaeidea are divided into two superfamilies Penaeoidea and Sergestoidea, which formerly were only assigned the rank of families. Both superfamilies contain commercially important species.

SUPERFAMILY PENAEOIDEA Rafinesque, 1815

Penaeoidea - Glaessner, 1969, Moore's Treatise Invertebr.Paleontol., R4 (2):447

This superfamily consists of four families: Solenoceridae, Aristaeidae, Penaeidae and Sicyoniidae. A key to the most important species of the present superfamily is provided by Anderson & Lindner (1945), who more extensively deal with American species. Furthermore there are several regional treatises dealing with the species of this superfamily, such as those by Yoshida, 1941 (Korea), Kubo, 1949 (Japan), Liu, 1955 (N. China), Cheung, 1960 (Hong Kong), Dall, 1957 (Australia), Racek & Dall, 1965 (Australia and Indonesia), Hall, 1962 (Malaya), Ahmad, 1957 (Bangladesh), De Bruin, 1965 (Sri Lanka), Jones, 1967, Kurian & Sebastian, 1976 (India), Tirmizi, 1969, Tirmizi & Bashir, 1973 (Pakistan), Crosnier, 1965 (Madagascar), Hall, 1966 (E. Africa), Barnard, 1950 (South Africa), Monod, 1967, Crosnier & de Bondy, 1967 (W. Africa), Zariquiey Alvarez, 1968 (Atlantic coast of Europe and W. Mediterranean), Holthuis & Gottlieb, 1958 (E. Mediterranean), Williams, 1965 (North and South-Carolina, U.S.A.), Joyce, 1965 (Florida, U.S.A.), Voss, 1955 (Western N. Atlantic and Gulf of Mexico), Davant, 1963 (Venezuela), Holthuis, 1959 (Surinam), Fausto Filho, 1968 (North and Northeast Brazil), Neiva & Mistakidis, 1966 (Central and South Brazil), Boschi, 1963 (Atlantic South America), Loesch & Avila, 1964 (Ecuador), Burkenroad, 1938 (Baja California).

FAMILY SOLENOCERIDAE Wood-Mason, 1891

Solenocerina - Wood-Mason, 1891, Ann.Mag.Nat.Hist., (6)8:275

Five genera of Solenoceridae are of interest to fishery. A revision of the family was published by Pérez-Farfante (1977).

Hadropenaeus lucasii (Bate, 1881)

SOLENO Hadr 1

Solenocera lucasii Bate, 1881, Ann.Mag.Nat.Hist., (5)8:185

Synonymy: *Philonicus lucasii* - Bate, 1888; *Pleoticus lucasii* - Bate, 1888; ? *Haliporus malhaensis* Borradaile, 1910; *Hymenopenaeus lucasii* - Burkenroad, 1936.

FAO Names: Trident shrimp (En), Salicoque trident (Fr), Camarón tridente (Sp).

Literature: Pérez-Farfante, 1977:327, Figs. 9,16,44C,53-55.

Distribution: Indo-West Pacific: Madagascar to Japan, Indonesia and Hawaii.

Habitat: Depth 180 to 500 m. Marine.

Size: Maximum total length 72.5 mm (♂), 100 mm (♀); maximum carapace length 18.5 mm (♂), 25.5 mm (♀) (Pérez-Farfante, 1977:329). Crosnier & Jouannic (1973:11) stated that the size "ne semble guère dépasser 12 cm".

Interest to Fishery: Potential. Crosnier & Jouannic (1973:11) listed the species as "éventuellement commercialisable" on the continental shelf of Madagascar.

Haliporoides diomedea (Faxon, 1893)

SOLENO Hali 1

Peneopsis diomedea Faxon, 1893, Bull.Mus.Comp.Zool.Harv.Coll., 24:212

Synonymy: *Faxonia diomedea* - Bouvier, 1905; *Haliporus diomedea* - Bouvier, 1906; *Haliporus diomedea* - De Man, 1911; *Hymenopenaeus diomedea* - Burkenroad, 1936.

FAO Names: Chilean knife shrimp (En), Salicoque couteau (du Chili) (Fr), Camarón cuchilla (Sp).

Local Names: Gamba roja (Peru), Gamba, Camarón de mar, Camarón de profundidad (Chile).

Literature: Pérez-Farfante, 1977:290, Figs. 9,20,24-28.

Distribution: Eastern Pacific: from Panama (7°31'30"N) to Chile (36°26'S).

Habitat: Depth 300 to 1 360 m. Bottom mud. Marine.

Size: Maximum total length 215 mm (♀), maximum carapace length 101 mm.

Interest to Fishery: Potential. When the difficulties involved in the capture of a deep-sea species like this are resolved, *H. diomedea* may become of economic value and investigations to this end are being undertaken.

Haliporoides sibogae (De Man, 1907)

SOLENO Hali 2

Haliporus sibogae De Man, 1907, Notes Leyden Mus., 29:138

Synonymy: *Hymenopenaeus sibogae* - Burkenroad, 1936; *Parahaliporus sibogae* - Kubo, 1949.

FAO Names: Jack-knife shrimp (En), Salicoque canif (Fr), Camarón cortapluma (Sp).

Local Names: Jack-knife prawn (New Zealand).

Distribution: Indo-West Pacific: Madagascar; Japan; South China Sea; Malay Archipelago; Australia; New Zealand.

Habitat: Depth 100 to 1460 m, usually between 350 and 600 m. Marine.

Size: Maximum total length 165 mm (♂), 200 mm (♀).

Interest to Fishery: Crosnier & Jouannic (1973:11) listed the species as being "éventuellement commercialisable" on the Madagascar continental shelf. It is listed by Yasuda (1957:30) as of importance in the fishery in the Inland Sea of Japan. Richardson & Yaldwyn (1958:24) indicated the species as "commercially usable" in New Zealand waters.

Haliporoides triarthrus Stebbing, 1914

SOLENO Hali 3

Haliporoides triarthrus Stebbing, 1914, Ann.S.Afr.Mus., 15:21

Synonymy: *Hymenopenaeus triarthrus* - Burkenroad, 1936.

FAO Names: Knife shrimp (En), Salicoque navaja (Fr), Camarón navaja (Sp).

Local Names: Knife prawn (S. Africa), Pink prawn (S.E. Africa).

Distribution: Indo-West Pacific: South and Southeast Africa.

Habitat: Depth 360 to 460 m. Bottom soft mud. Marine.

Size: Maximum total length 150 mm; carapace length approximately 50 mm.

Interest to Fishery: Of major commercial importance both in South Africa and Mozambique. Landed at Durban and in Mozambique. Used fresh, and sold mainly peeled and headed.

Hymenopenaeus aequalis (Bate, 1888)

SOLENO Hymeno 1

Haliporus aequalis Bate, 1888, Rep.Voyage Challenger, (Zool.), 24:285

FAO Names: Veiled shrimp (En), Salicoque voilée (Fr), Camarón de velete (Sp).

Literature: Kubo, 1949:219, figures.

Distribution: Indo-West Pacific: east coast of Africa to Japan and Indonesia.

Habitat: Depth 200 to 1 362 m. Marine.

Size: Total length about 90 mm; carapace length 11 to 15 mm.

Interest to Fishery: Probably none. Listed by Kurian & Sebastian (1976:95) among the commercially important prawns of India, but with the annotation that "stray catches only" have been obtained, probably during exploratory cruises.

Pleoticus muelleri (Bate, 1888)

SOLENO Pleot 2

Philonicus mülleri Bate, 1888, Rep.Voyage Challenger, (Zool.), 24:275

Synonymy: *Parartemesia carinata* Bouvier, 1905; *Haliporus carinatus* - Bouvier, 1906; *Haliporus mülleri* - Bouvier, 1908; *Hymenopenaeus mülleri* - Burkenroad, 1936.

FAO Names: Argentine red shrimp (En), Salicoque rouge d'Argentine (Fr), Camarón langostin argentino (Sp).

Local Names: Langostino. Langostin (Argentina, Uruguay), Lagostinho da Argentina, Camarão de Santana, Camarão vermelho, Camarão ferro, Camarão barbado (Brazil).

Literature: Pérez-Farfante, 1977:309, Figs. 9,34,37-42.

Distribution: Southwestern Atlantic: southern Brazil (south of 20°S); Uruguay; Argentina (as far south as 48°S); most frequent in Argentina, the greatest concentration being between 41° and 44°S.

Habitat: Depth 2 to 100 m, most frequent between 5 and 25 m. Bottom mud, or mud and sand. Temperature 9° to 23°C. Salinity 33.27 to 33.94 ‰ Cl.

Size: Maximum total length 190 mm, average total length around 100 mm; maximum carapace length 37.5 mm (♂), 58 mm (♀).

Interest to Fishery: In Argentina the species is the commercially most important crustacean. The annual catch (in metric tons) in Argentina was 100 (in 1973), 100 (in 1974), 180 (in 1975), and 151 (in 1976). In Uruguay and Brazil the species is of minor importance. In Argentina it is sold fresh, frozen and canned; in that country experiments have been undertaken for the aquaculture of this species.

Pleoticus robustus (Smith, 1885)

SOLENO Pleot 1

Hymenopenaeus robustus Smith, 1885, Proc.U.S.Natl.Mus., 8:180

Synonymy: *Peneopsis ocularis* Faxon, 1896; *Faxonia ocularis* - Bouvier, 1905; *Haliporus robustus* Bouvier, 1906.

FAO Names: Royal red shrimp (En), Salicoque royale rouge (Fr), Camarón rojo real (Sp).

Local Names: Royal red shrimp (U.S.A.), Camarón rojo gigante (Mexico), Camarón real rojo (Cuba), Langostino rojo (Venezuela).

Literature: Pérez-Farfante, 1977:297, Figs. 9,29-36.

Distribution: Western Atlantic: upper part of the continental slope off the east coast of America from south of Martha's Vineyard (Massachusetts, U.S.A.) to French Guiana.

Habitat: Depth 245 to 730 m. Bottom mud, sandy mud or silt. Temperature 7° to 13°C. Marine.

Size: Maximum total length 180 mm (♂), 225 mm (♀). average total length about 130 mm (Klima, 1969); maximum carapace length 42 mm and, 61.5 mm (Perez-Farfante, 1977:304). It is estimated that there are on the average 26 to 30 shrimps to the pound (Bates, 1957:11).

Interest to Fishery: After a long period of exploratory investigations (since about 1950) it was found that commercial exploitation for *P. robustus* at suitable grounds in the northeastern Gulf of Mexico, southwest of Dry Tortugas, and off northeastern Florida was possible; since 1962 commercial fishery is, be it intermittently, carried out in the latter region. Grounds southeast of the Mississippi River delta and off the Dry Tortugas are being exploited at present. The species has also been taken by trawlers off the coast of Venezuela (Davant, 1963:361). The shrimps are sold whole and peeled, either fresh or precooked breaded frozen. The annual catch of the species (in metric tons) in the U.S.A. was 300 (1973), 181 (in 1974), 122 (in 1975) and 136 (in 1976).

Solenocera africana Stebbing, 1917

SOLENO Soleno 2

Solenocera africanus Stebbing, 1917, Ann.S.Afr.Mus., 17:32

Synonymy: *Solenocera membranacea capensis* Heegaard, 1966. The species has often been synonymized with *Solenocera membranacea* (Risso), but was shown to be distinct by Crosnier & Forest (1973).

Literature: Crosnier & Forest (1973:270, Fig. 90,91a-c).

FAO Names: African mud shrimp (En), Solenocère d'Afrique (Fr), Camarón fanguero africano (Sp).

Distribution: Eastern Atlantic: West Africa from Mauritania to South Africa.

Habitat: Depth 50 to 450 m (juveniles usually in the shallower waters (50 to 100 m), the adults at greater depths). Bottom sandy mud.

Size: Maximum total length 138 mm.

Interest to Fishery: Minor. The species is taken together with *Parapenaeus longirostris*, but is hardly of commercial importance.

Solenocera agassizii Faxon, 1893

SOLENO Soleno 3

Solenocera agassizii Faxon, 1893, Bull.Mus.Comp.Zool.Harv.Coll., 24:211

FAO Names: Kolibri shrimp (En), Salicoque colibri (Fr), Camarón chupaflor (Sp).

Local Names: Camarón fide1 (Costa Rica, Panama), Chupaflor (Colombia), Camarón rojo (Ecuador), Camarón rosado (Peru). These names are also used for other, similar species.

Literature: Faxon, 1895:183, Pl. 47, Fig. 2.

Distribution: Eastern Pacific: Costa Rica to Ecuador and probably also northern Peru.

Habitat: Depth 280 to 384 m. Marine.

Size: Total length 149 mm (♀); carapace length 54 mm.

Interest to Fishery: The species is commercially exploited off Costa Rica and Panama (Perez-Farfante, in Litt.; see also Vidal & Rosetti, 1971); commercial interesting quantities seem also to occur off Nicaragua.

Solenocera choprai Nataraj, 1945

SOLENO Soleno 4

Solenocera choprai Nataraj, 1945, J.Asiat.Soc.Bengal(Sci.), 11(2):91

Synonymy: ? *Solenocera alticarinata* Kubo, 1949.

FAO Names: Ridgeback shrimp (En), Salicoque balafrée (Fr), Camarón costurón (Sp).

Local Names: Red prawn (Hong Kong; also used for other species of the genus).

Literature: Tirmizi & Bashir, 1973:2, Figs. 2-7.

Distribution: Indo-West Pacific: Pakistan; India. If *S. alticarinata* is synonymous, then the range of the species extends westward as far as the Red Sea and eastward to Japan and the South China Sea.

Habitat: Depth 102 to 106 m. Marine.

Size: Tirmizi & Bashir (1973) listed females with total length 75 to 92 mm and carapace length 22 to 28.5 mm. Kurian & Sebastian (1976:101) gave the maximum size as 130 mm.

Interest to Fishery: Slight. Kurian & Sebastian (1976:101) listed the species among the Indian prawns of commercial importance, but indicated that specimens were only obtained in stray catches in the Arabian Sea. Although Tirmizi & Bashir (1973:1) mentioned that their Penaeid material was "mostly obtained from the Fish Market of Karachi", this is not specifically stated for the present species.

Remarks: *Solenocera alticarinata* Kubo is considered by Tirmizi & Bashir (1973) a synonym of *S. choprai*, but Starobogatov (1972:361-363,382) treated the two as different species. Burkenroad (1959:71) assigned Red Sea specimens of *S. alticarinata* to *S. koelbeli*. The taxonomic situation of these and related species is quite confused, and a revision of the group is most desirable.

Solenocera crassicornis (H, Milne-Edwards, 1837)

SOLENO Soleno 5

Penaeus crassicornis H. Milne-Edwards, 1837, Hist.Nat.Crust., 2:418

Synonymy: *Solenocera sinensis* Yu, 1937; *Solenocera indicus* Nataraj, 1945; *Solenocera subnuda* Kubo, 1949; *Solenocera kuboii* Hall, 1956.

FAO Names: Coastal mud shrimp (En), Salicoque des vases côtières (Fr), Camarón fanguero de orilla (Sp).

Local Names: Red prawn (Hong Kong; also used for other species of the genus), Udang merah, Udang krosok (Indonesia),

Literature: Kubo, 1949:255, Figures (as *S. subnuda*); Kunju, 1970:1317-1333, Figs. 1-3; Tirmizi & Bashir, 1973:11, Fig.10 (as *S. indica*).

Distribution: Indo-West Pacific: Pakistan and India to the Malay Archipelago, China and Japan.

Habitat: Depth 40 m or less. Bottom mud. Marine.

Size: Maximum total length 60 mm (♂), 140 mm (♀).

Interest to Fishery: The species is fished for in India: near Bombay (Kunju, 1967:1393; Mohamed, 1967:1416; Kurian & Sebastian, 1976:101), and to a lesser extent along the Visakhapatnam coasts. Ahmad (1957:15) mentioned it among the commercial species of Bangladesh. It is reported also as fished for around Hong Kong and in Indonesia; the fishery there, however, is not of great importance. Sold fresh.

Solenocera florea Burkenroad, 1938

SOLENO Soleno 6

Solenocera florea Burkenroad, 1938, Zoologica (New York), 23:64

FAO Names: Flower shrimp (En), Salicoque fleur (Fr), Camarón picaflor (Sp).

Local Names: Camarón fidel (Costa Rica, Panama), Chupaflor (Colombia), Camarón rojo (Ecuador), Camarón rosado, Camarón peneido (Peru).

Distribution: Eastern Pacific: Costa Rica to northern Peru.

Habitat: Depth 35 to 60 m. Marine.

Size: Maximum total length 68 mm (♂), 77 mm (♀); maximum carapace length 17.2 mm (♂), 22.8 mm (♀).

Interest to Fishery: The species is commercially exploited off Costa Rica and Panama (Pérez-Farfante, in Litt.). In Ecuador small quantities of the species are obtained commercially (Cobo & Loesch, 1966:4).

Solenocera geijskesi Holthuis, 1959

SOLENO Soleno 7

Solenocera geijskesi Holthuis, 1959, Zool.Verh.Leiden, 44:56

FAO Names: Guiana mud shrimp (En), Salicoque guyanaise (Fr), Camarón guayanés (Sp).

Literature: Pérez-Farfante & Bullis, 1973:26, Figs. 15-18.

Distribution: Western Atlantic: Surinam; French Guiana; northern Brazil.

Habitat: Depth 18 to 70 m. Bottom mud and sand. Marine.

Size: Maximum total length 40 mm; maximum carapace length 17 mm.

Interest to Fishery: Of secondary commercial importance off the mouth of the Amazon and Tocantins Rivers, and off Maranhao (Turiaçu and São Luis). Eaten fresh and used in regional dishes.

Solenocera hextii Wood-Mason & Alcock, 1891

SOLENO Soleno 8

Solenocera hextii Wood-Mason & Alcock, 1891, Ann.Mag.Nat.Hist., (6)7:188

FAO Names: Deep-sea mud shrimp (En), Salicoque des vases profondes (Fr), Camarón fanguero de altura (Sp).

Literature: Tirmizi & Bashir, 1973:7, Figs. 8,9.

Distribution: Indo-West Pacific: Gulf of Aden to Bay of Bengal.

Habitat: Depth 120 to 505 m. Marine.

Size: Total length 55 mm (♂), 109 to 138 mm (♀) (George, 1966:338). Tirmizi & Bashir (1973) gave as total length 32 to 35 mm and as carapace length 10 to 20 mm.

Interest to Fishery: Potential. Kurian & Sebastian (1976:101) listed the species among the Indian prawns of commercial importance, but stated that "deep-water explorations at 150 to 200 fathoms [= 274 to 366 m] have caught [the species] in varying numbers, but never in large quantities. The large size is attractive to commerce".

Solenocera koelbeli De Man, 1911

SOLENO Soleno 9

Solenocera koelbeli De Man, 1911, Siboga Exped.Mon., 39(a):7,45,48,50,51

Synonymy: *Solenocera depressa* Kubo, 1949.

FAO Names: Chinese mud shrimp (En), Salicoque chinoise de vase (Fr), Camarón fanguero chino (Sp).

Local Names: Hung ha, Red prawn (Hong Kong; the names used also for other species of the genus).

Literature: Kubo, 1949:237, Figures (as *S. depressa*).

Distribution: Indo-West Pacific: Korea, Japan and Hong Kong to the Gulf of Tonkin. Also reported from the Arafura Sea, Indonesia (Purwito, 1972:651).

Habitat: Depth 50 to 152 m. Marine.

Size: Total length 57.5 to 88 mm (♂), 55 to 76 mm (♀); carapace length 16 mm (♂), 16 to 22 mm (♀).

Interest to Fishery: Mentioned by Yoshida (1941:17), under the name *S. distincta* (De Haan), as economically important in Korea. Motoh (1977:3) listed this species, as *S. depressa* in his list of "shrimps with commercial value" and reported it from Hong Kong on the authority of Cheung (1960). Cheung, however, did not make any mention that the species is of commercial importance. Muthu (1971:145) reported material of what he considered *S. melantho* De Man, 1907, from commercial catches made off the east coast of India (Visakhapatnamand Kakinada); he synonymized De Man's species with *S. depressa*. If Muthu's interpretation is correct, the name *S. melantho* De Man, 1907, takes precedence over *S. koelbeli* De Man, 1911.

Solenocera membranacea (Risso, 1816)

SOLENO Soleno 1

Peneus membranaceus Risso, 1816, Hist.Nat.Crust.Nice: 3:98

Synonymy: *Peneus siphonoceros* Philippi, 1840; *Solenocera philippii* Lucas, 1849; *Solenocera siphonocera* - Caullery, 1896.

FAO Names: Atlantic mud shrimp (En), Salicoque des vases (de l'Atlantique) (Fr), Gamba de fango (del Atlántico) (Sp).

Distribution: Eastern Atlantic: from Ireland to West Africa; entire Mediterranean.

Habitat: Depth 20 to 700 m, most common between 50 and 450 m. Bottom mud. Marine.

Size: Maximum total length 112 mm.