Chapter 5

Trachypenaeus, Metapenaeopsis and *Parapenaeus*

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Shrimps belonging to genera *Trachypenaeus, Metapenaeopsis* and *Parapenaeus* are non-conventional, lesser valued species of penaeid shrimps in India. They are small in size, with rough appearance and hard shell as compared to other highly valued penaeid shrimps. Generally, these species are seen in multi-day the trawl landings. Prior to late 1980s, the non-conventional species were noticed occasionally in shallow coastal waters and did not constitute a regular fishery resource in the country. But, with multi-day trawlers that ventured beyond 40-60 m depth, the species occurred almost regularly and formed substantial part of the prawn landings. A brief account of taxonomy, distribution and common names of the species belonging to these genera is given below:

Genus *Trachysalambria* Burkenroad, 1934a

The genus *Trachypenaeus* now renamed as *Trachysalambria* was first described by Stimpson in 1860 as a species (*T. anchoralis*) in the genus *Penaeus* with a type locality of Shimoda in Japan. In 1901, Alcock erected the genus *Trachypeneus* and later emended to *Trachypenaeus* after a petition to the International Commission of Zoological Nomenclature by Holthuis in 1969. In 1934, Burkenroad introduced *Trachysalambria* as subgenus of *Trachypenaeus*, assigning *T. curvirostris* as its type species. This subgenus was in turn elevated to the rank of genus in 1997 by Pérez Farfante and Kensley. However, some species initially grouped under the genus *Trachypenaeus* are now assigned a new genus *Megokris* erected by Pérez Farfante and Kensley in 1997. The genus *Megokris* appears more akin to *Melicertus* and *Marsupenaeus*. The species occurring in Indian waters included in the new genus are *Megokris granulosus*, *M. pescadoreensis* and *M. sedili.*

Diagnosis: Integument thick, body densely pubescent. Rostrum relatively short, uptilted, straight or upcurved and armed with 7 to 11 dorsal teeth only, reaching distal end of second antennular segment; carapace with orbital, antennal and hepatic spines; abdomen with a small median tubercle on second segment and a middorsal crest on last 4 segments; telson armed with 3 or 4

pairs of small movable lateral spines subequal in size; epipod present on first 3 pereopods; however, based on the absence of epipods on the first two pereopods Burkenroad (1934a) erected a new genus *Trachysalambria* that was later on found to be a futile by Dall (165) at least in the case of Indo-pacific species. Petasma with broad symmetrical, wing-like distolateral projections, directed laterally and curved dorsoventrally; distomedian projections small, curved ventrally. In females, anterior plate of thelycum concave anteriorly, with a middle groove posteriorly and a bluntly pointed anterior margin; posterior date notched anteromedially; in fertilized specimens the groove can be hidden and the notch obliterated; coxae of 4th pereopods often with a small projection, always densely fringed with setae.

Trachysalambria* (*Trachypenaeus*) *species in Indian waters:

Trachysalambria aspera (Alcock, 1905) Chennai, Orissa coast & A & N Islands
Trachysalambria curvirostris (Stimpson, 1860) Southern Rough Shrimp East & West coast
Trachysalambria fulva (Dall, 1957)* Chennai

Genus Megokris Perez Farfante & Kensley, 1997
Megokris granulosus (Haswell, 1879)* Coarse Shrimp, Chennai & Kakinada
Megokris pescadoreensis (Schmitt, 1931a) Bighead Sand Prawn South west & east coasts.
Megokris sedili (Hall, 1961) Malayan Rough Shrimp Southwest, Southeast & Northeast

Common names: 'Cocktail shrimp', 'hardback prawn', 'southern rough prawn', and the name preferred by the Food and Agriculture Organization, "southern rough shrimp".

Trachysalambria curvirostris is a small prawn, with males reaching a total length of up to 81 mm, and females reaching 105 mm. It is one of the five most important single species targeted by shrimp and prawn fisheries worldwide, with most of the harvest landed in China. In Korea, *T. curvirostris* is the dominant species in the shrimp fishery, accounting for more than 50% of landings.

Genus *Metapenaeopsis* Bouvier (1905)

The genus *Metapenaeopsis* originally established by Bouvier (1905) was redefined as sub-genus of *Penaeopsis* Bate by Burkenroad (1934). However, the genus was again elevated to its generic rank by Kubo (1949) as he concluded that these shrimps exhibited many distinctive characters to give them a generic rank (Farfante, 1971).

Diagnostic characters: Integument thick, densely pubescent; rostrum usually over-reaching antennal peduncle, epigastric conspicuously separated from the first rostral tooth, branchial spine absent; basial spine on 3rd pereopod lacking. In males petasma asymmetrical with complex distal part which is subdivided in to one or several projections. In females, thelycal plate subquadrate, slightly wider than long; intermediate plate broadly trapezoidal, much wider than long, flat or with a shallow median groove; coxal plates of fourth pereopods smaller than thelycal plate.

Metapenaeopsis is a unique genus with asymmetrical petasma in males which marks the striking difference when compared to other penaeids in which it is symmetrical. The asymmetrical petasma in most of the species of the genus is with or without a lobulated structure at the tip. Furthermore, some species of the genus show ridges or stridulations (also called stridulating organ) and some without stridulations along the posterior border of the carapace. The species with stridulations were greatly confused in taxonomical studies of the genus. It was due to the extensive work by Hall (1961, 1962) and Racek and Dall (1965) that ten stridulating species got taxonomically recognized. The stridulating ridges usually exhibit different patterns. Some of the ridges are curved but vertical and some are tapering *e.g.* in *Metapenaeopsis stridulans* the stridulating ridge consists of 5 to 7 strong ridges as a straight band placed at 4/10 of the carapace ridge where as in the case of *Metapenaeopsis tolensis* there are 14-22 small ridges arranged in a curve occupying ¼ depth of carapace.

Metapenaeopsis is the largest genus among penaeid prawns with 72 listed species found all over the world. In the Indo-Pacific region over 28 species have been listed (Racek-Dall 1965) out of which 14 are distributed in the Indian waters. The Indian species, their common names and distribution are as follows:

Genus: *Metapenaeopsis* Bouvier, 1905.

1. *Metapenaeopsis andamanensis* (Wood-Mason in Wood-Mason & Alcock, 1891a) Rice Velvet Shrimp Southwest, Southeast & Andamans
2. *Metapenaeopsis barbata* (De Haan, 1844) Whiskered Velvet Shrimp South & Northeast
3. *Metapenaeopsis ceylonica* Starobogatov, 1972* Kakinada
4. *Metapenaeopsis commensalis* Borradaile, 1899* Red Shrimp Lakshadweep
5. *Metapenaeopsis coniger* (Wood-Mason in Wood-Mason & Alcock, 1891a)* Southwest, South &Northeast, Andamans
6. *Metapenaeopsis gaillardi* Crosnier, 1991 Southern India
7. *Metapenaeopsis gallensis* (Pearson, 1905) Chennai
8. *Metapenaeopsis hilarula* (De Man, 1911a) Minstrel Shrimp East & West coast
9. *Metapenaeopsis mogiensis* Rathbun, 1902 Mogi Velvet Shrimp East & West coast, Andamans
10. *Metapenaeopsis novaeguineae* (Haswell, 1879)* Northern Velvet Prawn India
11. *Metapenaeopsis palmensis* (Haswell, 1879)* Southern Velvet Shrimp A & N Islands
12. *Metapenaeopsis philippi* (Spence Bate, 1881)* Philip Velvet Shrimp Southwest coast
13. *Metapenaeopsis stridulans* (Alcock, 1905) Fiddler Shrimp Northwest, South & Northeast, Andamans
14. *Metapenaeopsis toloensis* Hall, 1962 Tolo Velvet Shrimp Chennai.

Metapenaeopsis stridulans (Alcock, 1905) is distributed off Malabar coast, Andamans, Chennai, Mandapam, Cuddalore, Union Territory of Pondicherry, Mumbai, Visakhapatnam, Kakinada, and Mangalore.

Parapenaeus

The genus was first mentioned by Lucas in 1846 and established by Smith in1885 after which it was re-described by several researchers on different occasions *viz.* Bate in 1881, Burkenroad 1934, Kubo in 1949, Barnard in 1950 and Dall in 1957 after which it was officially placed in the list of generic names of International Commission on Zoological nomenclature in 1961.

Diagnostic characters: The genus can be distinguished by the presence of a pair of minute lateral spines anterior to sub apical spines, in addition to showing a longitudinal suture on the carapace extending at least 0.8 the length of the carapace (Perez Farfante & Kensley, 1997). *P. longipes* predominantly differs from the other species due to absence of branchiostegal spine at the antero-inferior angle of the carapace.

Around 31species of Genus *Parapenaeus* are found around the world. *P. fissures, P. investigatoris, P. rectacutus* and *P. longipes* are found in Indian waters. *Parapenaeus longipes* also known as Flamingo shrimp is commonly found in a mix catch amongst the other non-conventional species but it does not hold a special recognition amongst the local fishers. The name Flamingo is derived from its pinkish colour in very fresh condition.

It is reported to occur off Ganjam coast, Vizagapatam, Malabar Coast of Mangalore and some parts of river Hooghly and recently from the North West coast of India along Saurashtra and Mumbai. The species shows a diverse occurrence in catches which maybe because of dependency on temperature of water or breeding.

Genus: Parapenaeus Smith, 1885

Parapenaeus fissuroides fissuroides Crosnier, 1986a [Old name: *Parapenaeus fissuroides* Crosnier, 1986]

**Parapenaeus fissuroides indicus* Crosnier,1986a False Rose Shrimp Mangalore

Parapenaeus fissurus (Spence Bate, 1881) Neptune Rose Shrimp Orissa & A & N Islands

Parapenaeus investigatoris Alcock & Anderson, 1899 Explorer Rose Shrimp Southwest, SE & A & N Islands

Parapenaeus longipes Alcock, 1905 Flamingo Shrimp East & West coast

Parapenaeus sextuberculatus Kubo, 1949a* Domino Shrimp India

Distinguishing characters: Shrimp with a well developed and toothed rostrum which generally extends to or beyond distal edge of eye. No tubercle on the base of eyestalk mesial (inner) border. Carapace without postorbital spine and with short cervical groove ending well below dorsal midline. Last 2 pairs of pereopods well developed; third and fourth pairs of pleopods biramous; endopods of second pair of pleopods in males bearing appendix masculine only.

Identification key for species under the genera

Penaidean prawns with rostrum toothed on dorsal margin only, pleura of 2nd abdominal segment overlapping first and second; pereopods 1-3 chelate.

1. Carapace without lateral keels: cutting portion of mandible short and massive
2. Rostrum toothed on dorsal margin only

3a. Telson tridentate, with a fixed spine on each side of tip.

3b. Telson usually without fixed spines; no spine (parapenaeid spine) on inner border of first article of antennular peduncle.

4a. Carapace with longitudinal and transverse sutures---------- *Parapenaeus*

4b. Carapace without longitudinal or transverse sutures.

5. Males with asymmetrical petasma; 2 arthrobrachs present on last thoracic segment, one of them well developed, the other vestigial---------- *Metapenaeopsis*
5. Exopod present on second to fifth pereopods; no pleurobranch on penultimate thoracic segment.
6. Carapace with longitudinal suture.
7. Longitudinal suture short; epipod present on third pereopod------*Trachypenaeus*