

Taxonomy of Penaeid Prawn



Dr. Mamta Singh
Assistant Professor-FRM
COF (BASU), Kishanganj

Penaeid Prawn

- **Most of the commercial species of prawns belong to the superfamily penaeoidea.**
- **At present 5 families, 23 genera and 121 species (including the introduced species) are known to occur along the Indian coast including the Lakshadweep and Andaman and Nicobar Islands, with the penaeidae being the most important family**

Penaeid Prawn

- As species of penaeidae are generally of moderate to large in size occupying large quantities in shallow waters along the continental shelf in trawlable bottoms, they are fished extensively by trawls, gillnets and seines.
- Large scale pond culture of penaeid prawn is practiced in India, the prominent species being *Penaeus monodon* and recently the exotic species *Litopenaeus vannamei* was introduced for culture.

Commonly Cultured Marine Shrimp

- *Penaeus merguensis* – Banana prawn
- *Penaeus indicus* – Indian prawn
- *Penaeus japonicus* - Kuruma prawn
- *Penaeus duorarum* – Atlantic pink shrimp
- *Penaeus aztecus* – Atlantic brown shrimp
- *Penaeus setiferous* – Atlantic white shrimp
- *Litopenaeus vannamei* – Pacific white shrimp
- *Penaeus monodon* – Black tiger prawn

Major Culture Species

Pacific white shrimp
Peneaus vannamei



Pacific tiger shrimp
Peneaus monodon

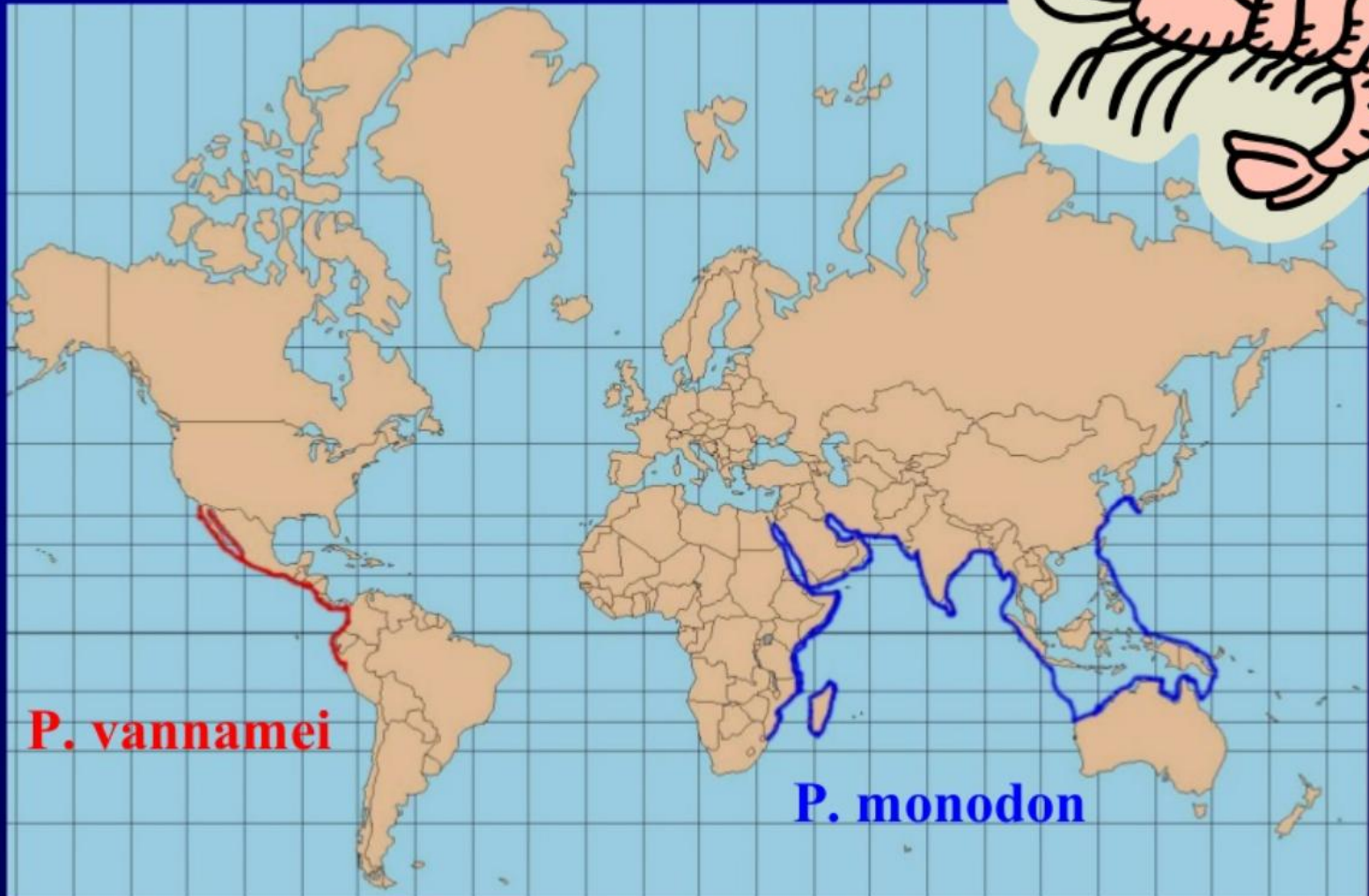
Penaeus monodon Black Tiger Prawn



Litopenaeus vannamei Pacific White Shrimp



Native Range



P. vannamei

P. monodon

Taxonomic Classification of Economically important Crustacean

Phylum:	Arthropoda
Subphylum:	Mandibulata
Class:	Crustacea
Subclass:	Malacostraca
Order:	Decapoda
Suborder:	Dendrobranchia (Penaeid Prawn) Pleocyemata (Palaemonid Prawn, Carbs, Lobster)

Decapoda

Sub Order (02)

Dendrobranchia

Pleocyemata

Branching form of gills

Divided into two **super family**

1. **Penaeoidea**
2. **Sergestoidea**

Contain lamellar gills

Divided into **07 infraorder**

1. **Caridea** (True Shrimp)
2. **Stenopodidea** (Boxer shrimp)
3. **Astacidea** (clawed lobster & crayfish)
4. **Thalassinidea** (ghost & mud shrimp)
5. **Palinura** (spiny & slipper lobster)
6. **Anomura** (Hermit, porcelain & King Crab)
7. **Brachynura** (true crabs)

Taxonomic Classification of Penaeid Prawn

Phylum: Arthropoda

Subphylum: Mandibulata

Class: Crustacea

Subclass: Malacostraca

Order: Decapoda

Suborder: Dendobranchiata

Superfamily: Penaeoidea

Family (05): Aristeidae, Solenoceridae, Penaeidae, Sicyoniidae, Benthescymidae



Diagnostic Characters of Penaeoid Prawns

- Plurae of the exoskeleton of the 2nd abdominal segment overlap only the 3rd segment.
- The 1st three thoracic legs are chelate.
- Male possesses petasma for transferring sperms.
- Female possesses thelycum for storing sperms.
- Female lay eggs individually in water.

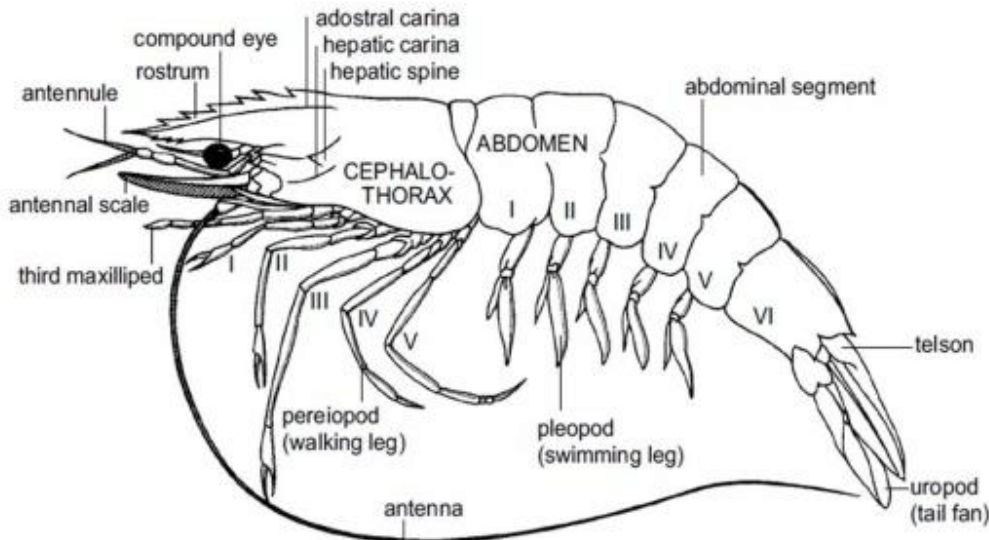
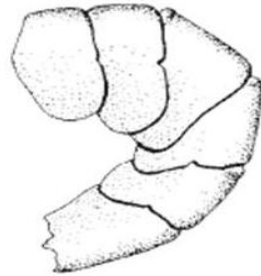
How different from Caridae or Palaemonid Prawn

Third leg always without pincer; pleuron of second abdominal segment greatly expanded and overlapping those of first and third segments; males and females without large copulatory organ on first pair of pleopods or posterior thoracic sternites, respectively; females carry the eggs on the abdomen until hatching.

Non-penaeid prawns



Penaeid prawns

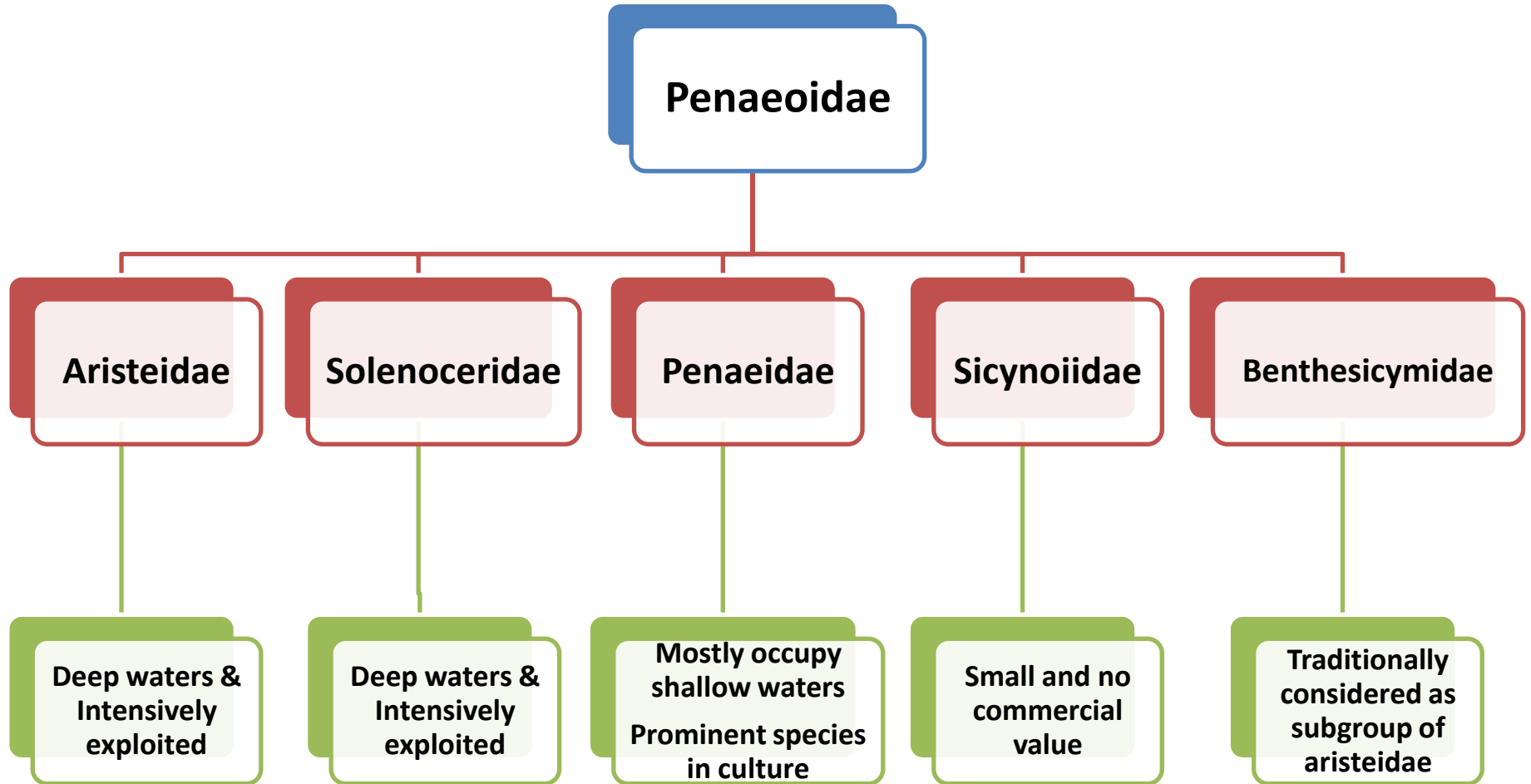


Petasma



**“Thelycum”
for storing
the sperm**

Superfamily: Penaeoidea



Key to Superfamily of Suborder Dendobranchiata

Some thoracic somites with at least 3 branchiae on each side. At least 11 branchiae present on each side **Penaeoidea**

Never more than 2 branchiae per thoracic somite; never more than 7 or 8 branchiae per side **Sergestoidea**

Diagnosis of Superfamily Penaeoidea

Superfamily: Penaeoidea Rafinesque-Schmaltz, 1815

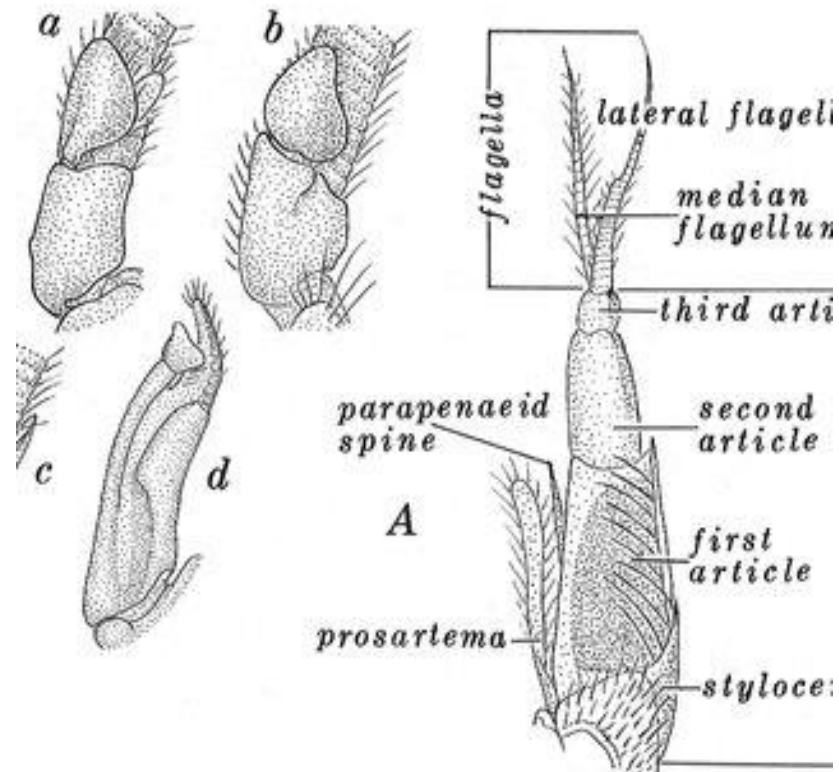
Diagnosis: All five pairs of pereopods well developed; Pleurobranchia present at least on somite IX (that of third maxilliped); Some somites with at least three branchiae on each side ; Total number of well developed gills on each side at least **11.**

Keys for 5 families of Penaeoidea

1. Postorbital spine present Solenoceridae
Postorbital spine absent 2
2. Integument rigid and stony; 3rd to 5th pereopods uniramous, lacking endopods
..... Sicyoniidae
Integument never stony; 3rd to 5th pereopods biramous 3
3. 1 to 3 (occasionally 3) rostral/postrostral teeth
..... Benthescymidae
More than 2 rostral/postrostral teeth 4
4. Prosartema well developed Penaeidae
Prosartema reduced to setose Aristeidae

Prosartema

- Long, thin, ciliated lobe arising dorsally from proximomesial border of first antennular segment and extending anteriorly.



Diagnostic Characters of Family Penaeidae

- Rostrum well developed, extending to or beyond distal margin of eye and armed with dorsal and sometimes also with ventral teeth
- Carapace without postorbital spine
- Antennal and hepatic spines usually present
- Telson sharply pointed with or without lateral spine
- Antennule with with foliaceous prosartema
- At present 19 genera & 71 species of penaeids are known to occur along the Indian coast and adjoining seas.

