

Classification & Characteristics of Crab



Taxonomic Classification of Crab

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



General Information about Brachyura Crab

- **Brachyuran crabs belong to the Order Decapoda, the most diverse group of crustaceans alive.**
- The known size of crabs now ranges from a maximum leg span of approximately 4 m in the giant Japanese spider crab *Macrocheira kaempferi* and a maximum Carapace width of 46 cm in the giant Tasmanian crab *Pseudocarcinus gigas* (as cited in Schmitt, 1965) to a minimum of 1.5 mm across the Carapace for a mature ovigerous female pinnotherid, *Nannotheres moorei*, the smallest known species of crab.

Taxonomic Classification of Crab



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Class:	Crustacea
Subclass:	Malacostraca
Order:	Decapoda
Suborder:	Pleocyemata
Infraorder:	Brachyura (true crab)
Infraorder:	Anomura (Hermit, king, galatheid, king, porcelain, mole and sand carb)

Taxonomic Classification of Brachyura Crab

- Infraorder: Brachyura
- Section Eubrachyura
- Sub Section: Heterotremata
- Superfamily: 29 in nos. including extinct
- Superfamily: Portunoidea
- Family: Portnidae
- Subfamily: Podophthalmidae, Catoptrinae,
Portuninae, Caphyrinae, Carcininae
and Polybiinae

Fishery Resources and their distribution

- **In India, most of the edible crabs caught from marine and brackish water environments belong to the family Portunidae.**
- **In the Indian Ocean, the crab fauna of Portunidae family is included under sub families, Podophthalmidae (Borradaile), Catoptrinae (Sakai), Portuninae (Rafinesque), Caphyrinae (Alcock), Carcininae (Macleay) and Polybiinae (Ortmann).**
- **Most of the edible crabs caught from marine and brackishwater environments belong to the sub family Portuninae.**

Subfamily: Portuninae

- Most of the edible crabs caught from marine and brackishwater environments belong to the **sub family Portuninae**.
- In the seas around India, five genera of Portuninae have been reported by various authors. They are **Scylla, Portunus, Charybdis, Lupocyclus and Thalamita**.
- Among them the first three genera contribute to the commercial crab fishery. Commercially important species are ***Scylla spp.*** (Mud crabs), ***Portunus pelagicus*** (blue swimmer crab), ***P. sanguinolentus*** (three spotted crab), ***Charybdis feriatus*** (crucifix crab), ***C. lucifera*** (Yellowish brown crab), ***C. natator*** (line crab) and ***Podophthalmus vigil*** (long eye-stalk crab; sub fly., Podophthalmidae).

Distribution of commercially important species along the Indian Coast

State	Crabs	State	Crabs	
Gujarat	1. <i>Portunus sanguinolentus</i>		5. <i>C. smithi</i>	
	2. <i>Charybdis feriatus</i>		6. <i>C. annulata</i>	
	3. <i>P. pelagicus</i>		7. <i>C. lucifera</i>	
Maharashtra	1. <i>C. feriatus</i>		8. <i>C. helleri</i>	
	2. <i>P. sanguinolentus</i>		9. <i>Podophthalmus vigil</i>	
	3. <i>P. pelagicus</i>		10. <i>P. gladiator</i>	
Karnataka	1. <i>C. feriatus</i>		11. <i>S. serrata</i>	
	2. <i>P. sanguinolentus</i>		Andhra Pradesh	1. <i>P. pelagicus</i>
	3. <i>P. pelagicus</i>			2. <i>P. sanguinolentus</i>
Kerala	1. <i>P. pelagicus</i>		3. <i>C. feriatus</i>	
	2. <i>P. sanguinolentus</i>		4. <i>Scylla serrata</i>	
	3. <i>C. feriatus</i>		5. <i>S. olivacea</i>	
	4. <i>C. lucifera</i>		Orissa	1. <i>P. pelagicus</i>
	5. <i>Podophthalmus vigil</i>			2. <i>P. sanguinolentus</i>
Tamil Nadu	6. <i>Scylla serrata</i>		3. <i>C. feriatus</i>	
	1. <i>P. pelagicus</i>		4. <i>Scylla serrata</i>	
	2. <i>P. sanguinolentus</i>		5. <i>S. olivacea</i>	
	3. <i>C. feriatus</i>		West Bengal	1. <i>S. olivacea</i>
	4. <i>C. natator</i>		2. <i>S. serrata</i>	

External Morphology of Brachyura Crab

- Crabs have a very small tail, which they keep tucked underneath their body. Due to its small size, this tail and its appendages cannot be used for locomotion.
- The thoracic legs of a crab are used for walking. In certain crabs, including the blue crab, the last pair of thoracic legs is flattened and paddle-shaped and is used for swimming.

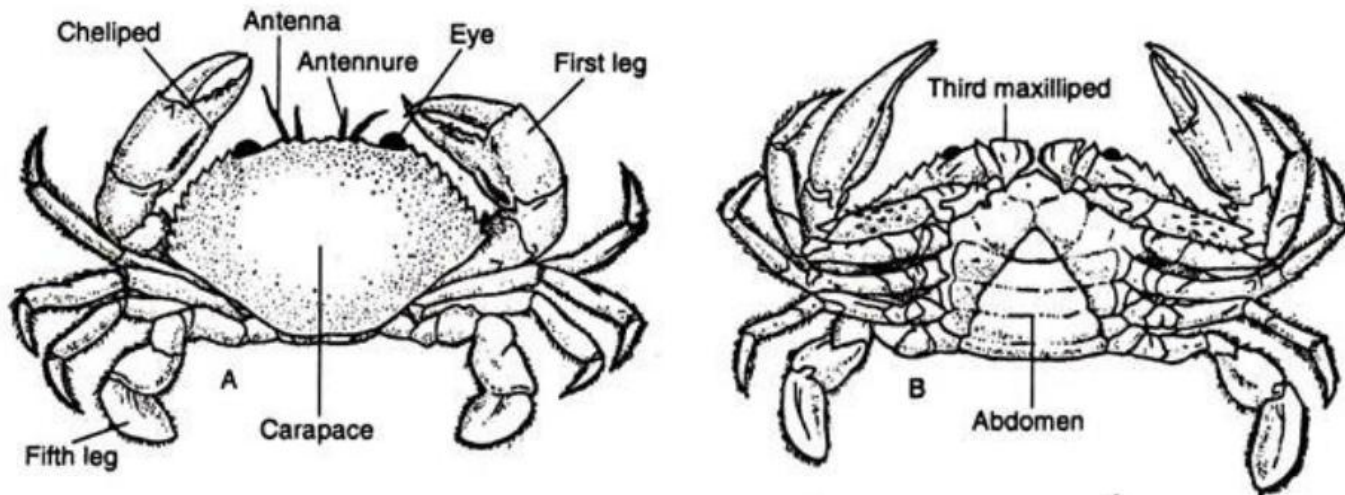


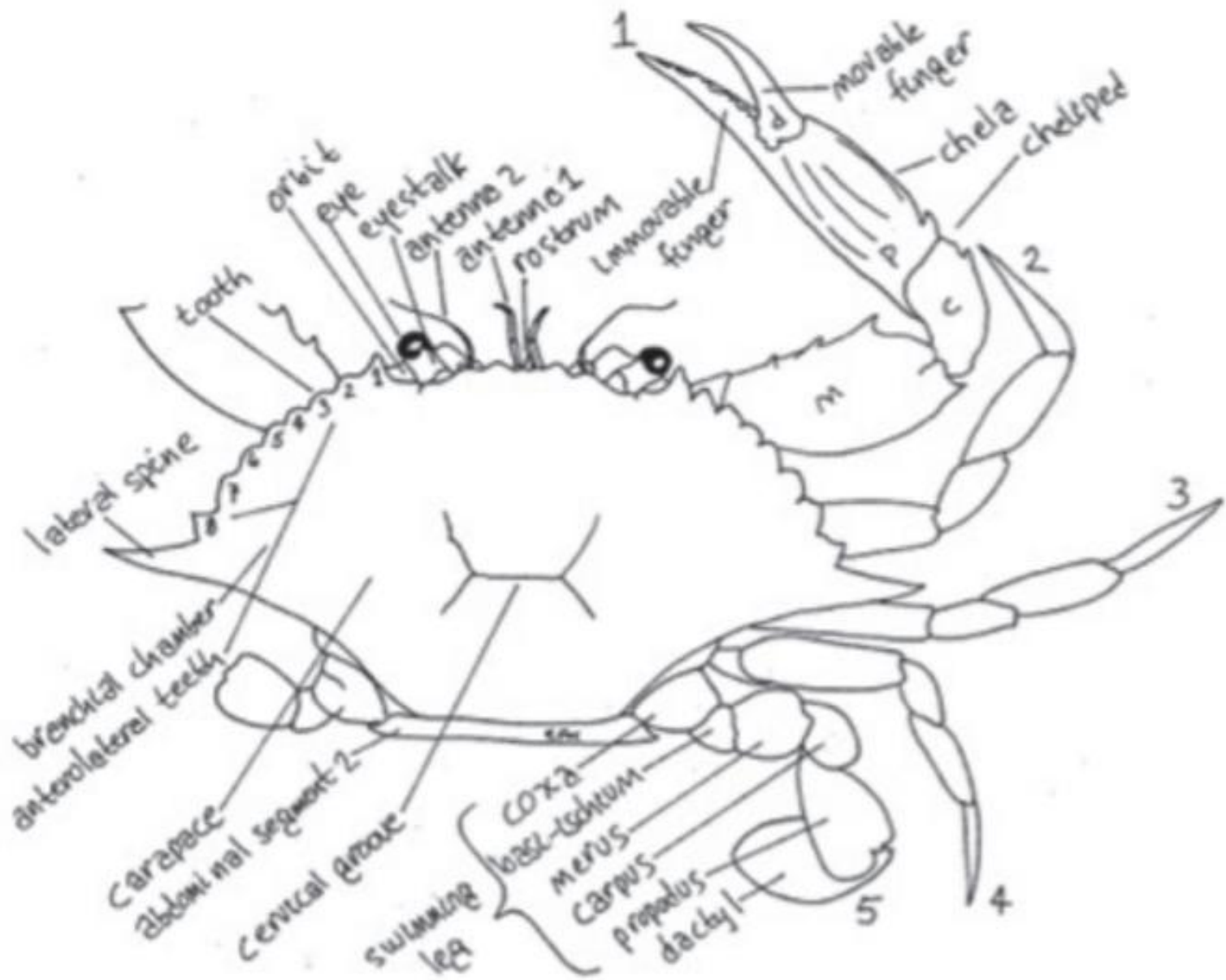
Fig. 18.18: External features of a true crab. A. Dorsal view. B. Ventral view.

External Morphology of Brachyura Crab

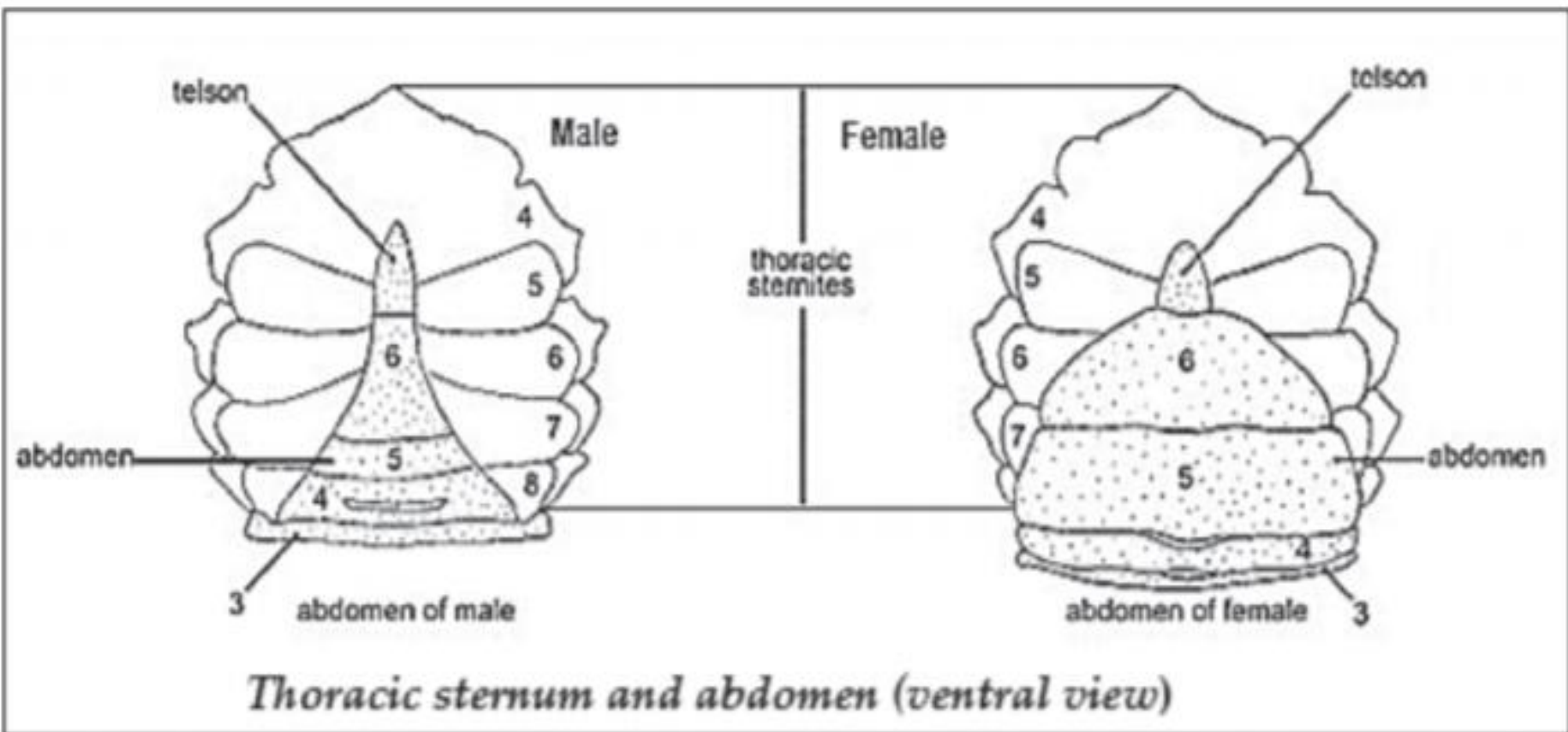
- **Hard carapace covers the head and thorax dorsally.**
- **Ventrally, the boundary between head and thorax is well marked.**
- **Only the last five segments of thorax are readily visible and attachment of the thoracic legs to the exoskeleton is clearly apparent.**
- **One pair of leg on each of these last five thoracic segments. The first pair is modified as chelipeds, or claws, while the remaining four pairs are adapted for walking and the last pair for swimming.**

External Morphology of Brachyura Crab

- **In the anterior portion of the cephalothorax of a crab are the mouth parts, grouped around the opening to the esophagus.**
- **These mouth parts are generally similar to those of shrimps and lobsters.**
- **The outermost pair is the third maxillipeds, used for holding food.**
- **Under and in front of these are two more pairs of maxillipeds and two pairs of maxillae, also used for holding food, and a pair of mandibles, or jaws, which push the food into the esophagus.**



General shape of a Brachyuran Crab (Dorsal view)-Portunidae





Scylla



Portunus



Thalamita



Charybdis

Family: Portunidae

- Carapace hexagonal, transversely ovate to transversely hexagonal, sometimes circular; dorsal surface relatively flat to gently convex, usually ridged or granulose
- Front broad, margin usually multidentate
- Usually 5 to 9 teeth on each anterolateral margin, posterolateral margins usually distinctly converging.
- Endopodite of second maxillipeds with strongly developed lobe on inner margin. Legs laterally flattened to varying degrees, last 2 segments of last pair paddle-like.
- Male abdominal segments 3 to 5 completely fused, immovable.

Portunus pelagicus (Linnaeus, 1758)
(Flower crab).

Carapace rough to granulose, front with 4 acutely triangular teeth; 9 teeth on each anterolateral margin, the last tooth 2 to 4 times larger than preceding teeth. Chelae elongate in males; larger chela with conical tooth at base of fingers.

Colour: males with blue markings, females dull green/
greenish brown.



Portunus sanguinolentus (Herbst, 1783) (Three-spot swimming crab).

Carapace finely granulose, regions just discernible; 9 teeth on each anterolateral margin, the last tooth 2 to 3 times larger than preceding teeth. Chelae elongated in males; larger chela with conical tooth at base of fingers; pollex ridged.

Colour: olive to dark green, with 3 prominent maroon to red spots on posterior 1/3 of Carapace.



Charybdis feriatus (Linnaeus, 1758) (Crucifix crab)

Carapace ovate; 5 distinct teeth on each anterolateral margin. Colour: distinctive pattern of longitudinal stripes of maroon and white, usually with distinct white cross on median part of gastric region; legs and pincers with numerous scattered white spots.



Charybdis natator (Herbst, 1789) (Ridged swimming crab)

Carapace with densely covered with very short pubescence which is absent on several distinct transverse granulated ridges in anterior half.

Colour: orangish red overall, with ridges on Carapace and legs dark reddish brown.



Podophthalmus vigil (Fabricius, 1798)

Carapace distinctly broader than long; anterior margin much broader than posterior margin, with posterolateral margins converging strongly towards narrow posterior Carapace margin; orbits very broad. Eyes very long, reaching to or extending beyond edge of Carapace.

Colour: Carapace green; chelipeds and parts of legs violet to maroon in adults.



Scylla spp.

The taxonomy of the genus *Scylla* has been terribly confused and is still difficult. Recent research in Australia (Keenan et al., 1998) has clearly shown, using morphological, DNA, and allozyme data, that there are 4 species of *Scylla*.



Scylla serrata (Forsskål, 1775) (Giant mud crab)

Carapace smooth, with strong transverse ridges; H-shaped gastric groove deep; relatively broad frontal lobes, all more or less in line with each other; broad anterolateral teeth, projecting obliquely outwards, colour green to greenish black; legs may be marbled. Well- developed spines present on outer surface of chelipedal carpus and anterior and posterior dorsal parts of palm.



Scylla tranquebarica (Fabricius, 1798) (Purple mud crab)

Colour varies from brown to almost black in coloration, and has very well-developed spines on the outer surfaces of the chelipedal carpus and the palm (as seen in *S. serrata*). It differs from *S. serrata*, however, by having the frontal teeth more acutely triangular, the median pair projecting slightly forwards of the lateral pair, and the anterolateral teeth gently curving anteriorly, giving the Carapace a less transverse appearance.



Scylla olivacea (Herbst, 1796) (Orange mud crab)

Carapace brownish to brownish green in colour (sometimes orangish), palm orange to yellow. It has a smoother, more evenly convex Carapace with very low transverse ridges, a shallow H-shaped gastric groove, the median pair of the frontal lobes more rounded and projecting slightly forwards of the lateral ones, the anterolateral teeth gently curving anteriorly, giving the Carapace a less transverse appearance. It also has very low spines on both the outer surface of the chelipedal carpus and the dorsal surface of palm.



Scylla paramamosain Estampador, 1949 (Green mud crab)

Carapace usually green to light green, palm green to greenish blue with lower surface and base of fingers usually pale yellow to yellowish orange. Frontal margin usually with sharp teeth, palm usually with distinct, sharp spines.

