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# External and internal organization of commercially important crustaceans

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# General characters of Arthropoda

- ❖ Arthropods are triploblastic, bilaterally symmetrical, metabolically segmented animals.
- ❖ Body is covered with a thick chitinous cuticle forming an exoskeleton.
- ❖ Body segments usually bear paired lateral and jointed appendages.
- ❖ Musculature is not continuous but comprises separate striped muscles.



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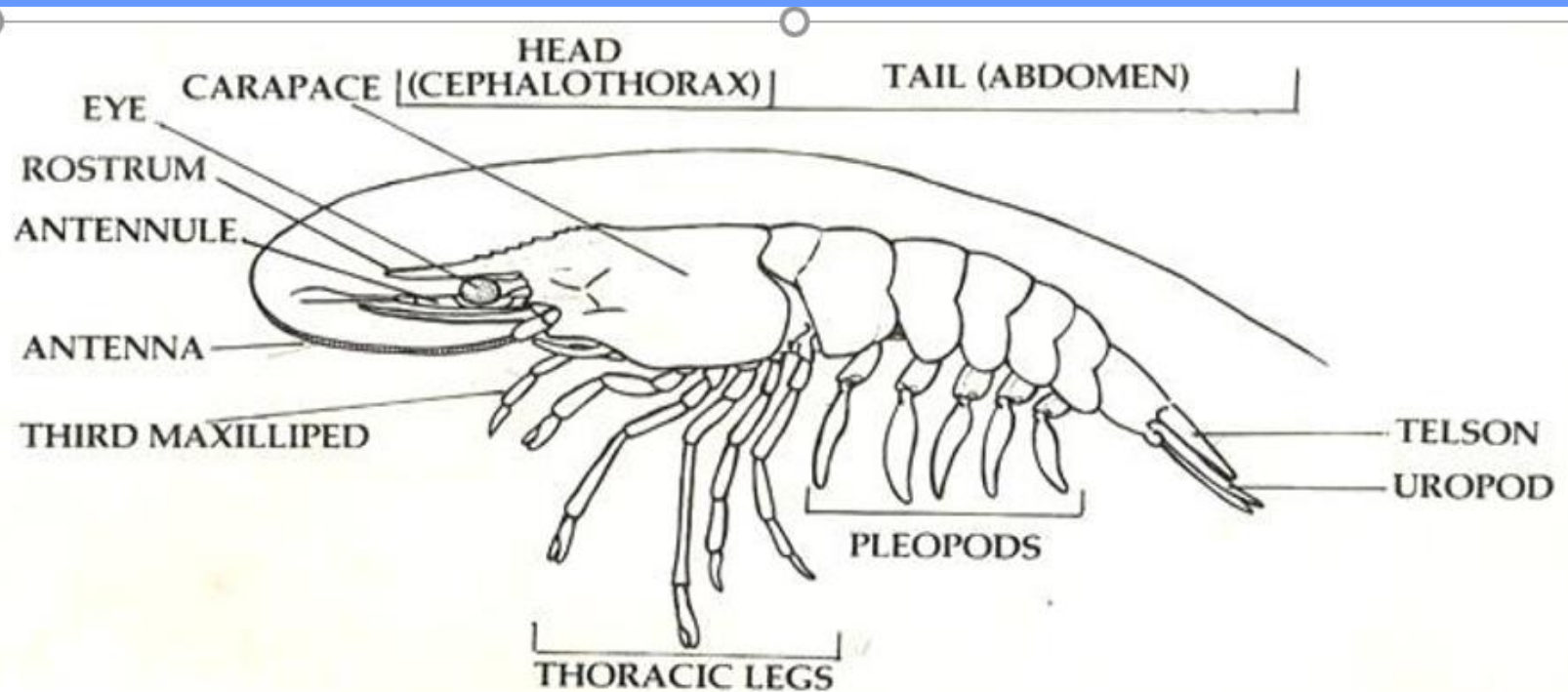
- ❖ Body cavity is haemocoel. The true coelom is reduced to the spaces of the genital and excretory organs.
- ❖ Digestive tract is complete; mouth and anus lie at opposite ends of the body.
- ❖ Circulatory system is open with dorsal heart and arteries but without capillaries
- ❖ Respiration through general body surface, by gills in aquatic forms, tracheae or book lungs in terrestrial forms.
- ❖ True nephritic are absent. Excretion by coelomoducts or Malpighian tubules or green or coxal lands



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# Shrimps - External Anatomy



White shrimp, *Penaeus setiferus*, in lateral view. Appendages of left side only are shown. (After Rathbun, also Young)



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- ❖ Consists of muscle and shell, or exoskeleton.
- ❖ The largest of the three natural divisions of the body; namely, the abdomen or "tail," consists of little other than muscle and shell.
- ❖ Two main masses of muscle are the "meat" of the shrimp's tail:
  - ❖ (1) the relatively small dorsal abdominal muscles, which lie above the intestinal tract, or gut, and above the dorsal abdominal artery, both of which are removed in preparation for eating
  - ❖ (2) the large ventral abdominal muscles, which extend from either side of the intestinal tract and dorsal abdominal artery ventrally to both sides of the ventral abdominal nerve cord.



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# CRABS

- ❖ Crabs appear to be tailless, they 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.



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- ❖ The dorsal abdominal muscles are small and very weak, being used solely to extend the tail backward.
- ❖ Virtually the only time at which these muscles are used is during mating, when the abdomen of both male and female must be drawn backward to permit the transfer of sperms.
- ❖ The ventral abdominal muscles of crabs are somewhat heavier and stronger, particularly in the mature female



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# LOBSTER

- ❖ In general body plan a lobster does not differ greatly from a shrimp.
- ❖ A lobster has the same type of muscular abdomen, or tail, which undergoes sudden flexion by contraction of the large ventral abdominal muscles and more leisurely extension by contraction of the smaller dorsal abdominal muscles.
- ❖ As in shrimp, the tail of a lobster provides the animal with its surest means of escape- jetlike propulsion backward





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- ❖ In lobster as in shrimp, a carapace covers the head and the thorax and, except for the presence of the cervical groove, obscures the boundary between these two regions.
- ❖ In lobsters, the cephalothorax is commonly called the "body," while in shrimp this same region is known as the "head."