

PALAEMON

1. Habit and Habitat of Palaemon malcolmsonii:

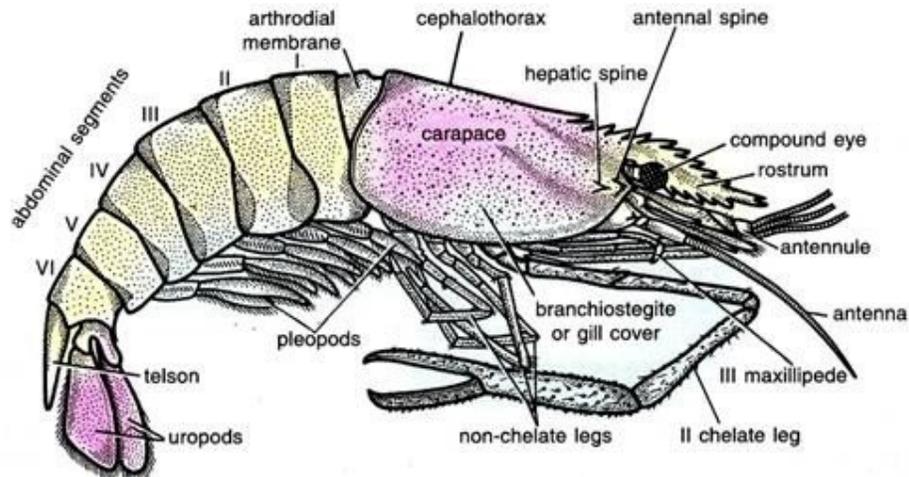
Palaemon inhabits freshwater streams, rivers, lakes and ponds. It is a nocturnal creature and lies hidden at the bottom during the day and comes to the surface during night in search of food. It prefers slow moving clean water and feeds on algae, mosses and other weeds, small insects and the debris, i.e., omnivorous.

It walks slowly at the bottom with the help of walking legs and swims actively at the surface with the help of swimmerets (pleopods). *P. malcolmsonii* breeds in May, June and July and the females carry eggs attached to their pleopods (abdominal appendages).

2. External Features of Palaemon malcolmsonii:

(i) Shape and Size:

The body of Palaemon is elongated, bilaterally symmetrical. The size of the adult Palaemon varies considerably in different species. *P. carcinus* from Travancore measures 90 cm, *P. malcolmsonii* from Central Provinces and Chennai is generally 25 to 38 cm and *P. lamarrei*, another common species in lakes and ponds, is only 2.5 to 5 cm in length.



Palaemon malcolmsonii (Lateral view).

(ii) Colouration:

The young specimens are transparent, pale yellow or perfectly white in appearance, but the older specimens are differently tinted according to the species. The colour is generally pale blue or greenish with brown or orange-red patches and bands of different patterns. The preserved specimens assume deep orange-red colour on a white or yellow background.

(iii) Division of Body:

The body of adult *Palaemon malcolmsonii* is consisting of nineteen appendage bearing segments having two distinct regions an anterior rigid cephalothorax and a posterior movable abdomen.

(i) Cephalothorax:

The cephalothorax is somewhat cylindrical in shape and is un-jointed; no external segmentation is marked. It is formed by the union of head comprising five appendage-bearing segments and the thorax comprising eight segments.

(ii) Abdomen:

The abdomen, rounded dorsally but compressed laterally, is jointed, i.e., external segmentation is clearly marked and composed of six movable segments having a terminal conical piece, telson. The

abdomen is often turned downwards. Each segment of the abdomen carries a pair of jointed appendages called pleopods or swimmerets.

(iv) Exoskeleton:

The entire body and the appendages are covered by a hard and chitinous cuticle which forms exoskeleton.

The exoskeleton is hardened by deposit of salts of lime and is coloured with various pigments. The hard pieces of exoskeleton are called sclerites which are joined by softer cuticle forming arthrodial membrane. The cephalothorax consists of a head and thorax, the head is covered with a dorsal plate and thorax with a carapace.

The dorsal plate and carapace are completely fused to form a continuous dorsal shield. The dorsal shield is produced in front into a rostrum which is laterally compressed and is serrated. At the base of rostrum, on either side is an orbital notch which accommodates the stalk of compound eye.

The dorsal plate has two short spines on each side, they are an antennal and a hepatic spine. The carapace hangs down on the sides of the thorax as a branchiostegite or lateral plate which encloses the gill chamber. On the ventral side of head and thorax are chitinous sclerites called sterna. The cephalothorax is joined to the abdomen by a calcified hardened arthrodial membrane.

The dorsal shield covers the head and thorax dorsally and laterally. On the ventral side are sterna, they are an anterior most ophthalmic sternum, behind it an antennular sternum, followed by an antennal sternum or epistome to which a median labrum is attached.

The third and fourth segments have no sterna. The sterna of segments 5 to 13 have fused to form a floor. On the sides of segments 5 to 13 are 9 pairs of chitinous sclerites called epimera, one epimeron on each side of a segment.

In the abdomen each segment has a dorsal tergum or tergite which is broad and curved, a narrow ventral sternum or sternite, on each side is a pleuron formed from the tergum. On each side in the

thorax and abdomen the pleuron is joined to an appendage by an epimeron which is a part of the pleuron.

Between the segments the two terga are joined by an inter-tergal arthroial membrane, and two sterna by an inter-sternal arthroial membrane. In the abdomen each segment articulates with the other laterally by pair of hinge-joints made of a ball and socket which permit movement of a segment on another in a vertical plane, but there is no movement from side to side.

(v) External Apertures of Palaemon malcolmsonii:
There are following external apertures in Palaemon malcolmsonii:

(a) Mouth:

It is a mid-ventral slit-like aperture lying at the anterior end of the cephalothorax.

(b) Anus:

It is a longitudinal slit-like aperture lying at the ventral end of the base of telson.

(c) Renal Apertures:

These are paired; each situated on a raised papilla at the inner surface of the coxa of antennae.

(d) Openings of Statocysts:

These are paired; each situated in a depression at the dorsal surface on the basal podomere (precoxa) of antennules.

(e) Female Genital Apertures:

These are paired; each situated at the inner surface of the coxae of third pair of walking legs.

(f) Male Genital Apertures:

These are also paired; each situated at the inner surface of the coxae of fifth pair of walking legs.