

## STAGE ONE ZOEAE

*Stage 1a*

Stage 1a zoea larvae were obtained only from the plankton. It is unlikely that an earlier zoea larva exists in this species. Stage 1a is considered an essential larval stage to which all pre-zoea larvae moult, but is not as abundant in the plankton as expected for an essential larval stage.

**DESCRIPTION.** *Cephalothorax:* Total carapace length 7.3 mm to 7.9 mm. Rostrum 4.4mm to 4.8mm in length, tapered, roughly hexagonal in cross-section with an irregular row of small hair-like setae along each of its six angles. Carapace 1.2mm to 1.3mm in length, heart-shaped, smooth, and without setae. Posterior carapace spines 1.7mm to 1.8mm in length, each with from three to six ventral setae close to its base. First three setae strongly developed, but more distal setae much reduced or occasionally absent. Eyes large, sessile, and without stalks. (Fig. 1, A.)

*Cephalic Appendages:* First antenna (antennule) (Fig. 1, B) unjointed with four long aesthaetes and three shorter aesthaetes at its tip. Second antenna (Fig. 1, C) consists of a short unjointed protopodite bearing a slender exopodite and a short endopodite. Endopodite usually bud-like, but if larger, is always less than half the length of exopodite. Endopodite with a small sub-terminal seta on outer margin. Exopodite reduced to a slender spine with two hair-like setae on its inner margin just below the tip.

Mandible (Fig. 1, D) without a palp. Molar surface thrown into a number of toothed ridges but incisor process small and ill-defined.

First maxilla (maxillule) (Fig. 1, E) comprises a flattened protopodite bearing a palp and two endites. Endites each fringed by an inner row and an outer row of four stout, coarsely plumose setae curved towards the mouth. Palp unjointed with three stout, coarsely plumose setae at its tip.

Second maxilla (Fig. 1, F) comprises a flattened protopodite bearing a broad scaphognathite, a palp (endopodite), and four endites. Inner pair of endites (coxopodite) separated from outer pair (basipodite) by a deep cleft. First (proximal) endite and fourth (distal) endite each with an inner row and an outer row of three stout, coarsely plumose curved setae. Second and third (inner) endites each with four such setae. Palp with three stout, coarsely plumose setae at its tip. Scaphognathite with a long, densely plumose seta at its proximal tip and four similar setae along outer distal margin. Outer proximal margin of scaphognathite with many fine hairs.

*Thoracic Appendages:* The first maxilliped (Fig. 1, G) consists of a short coxopodite and a long basipodite bearing a five-segmented endopodite and a two-segmented exopodite. Endopodite only slightly shorter than exopodite. Coxopodite has one sparsely plumose seta on inner margin. Ischiopodite, meropodite, carpopodite, and propodite of endopod each with three sparsely plumose setae on inner distal margins. Dactylopodite with three long, sparsely plumose setae at its tip and four similar subterminal setae. One very long, densely plumose seta on outer distal margin of propodite. Exopodite with four long, terminal natatory setae.

Second maxilliped (Fig. 1, H) similar to the first, but its endopodite is four-segmented and only half the length of the exopodite. Coxopodite is without setae. Basipodite with one sparsely plumose seta mid-way along inner margin and a similar seta on inner distal margin. First, second, and third segments of endopod each with two sparsely plumose setae along inner distal margins. One seta mid-way along inner margin of third segment. Fourth segment with three terminal setae and two subterminal setae. Outer distal margin of third segment has one long, densely plumose seta. Exopodite same as that of first maxilliped.

Buds of third maxillipeds and of pereopods absent.

*Abdomen:* Abdomen comprises five segments and a telson. (Fig. 1, I.) Fifth abdominal segment longer and more slender than four proximal segments. Posterior dorsal margins of abdominal segments without spines or setae. Fourth and fifth segments with a pair of stout posterolateral spines and a pair of dorsal hairs.

Telson spatuliform with a posterior central prominence, but no anal spine. Seven posterior telson setae either side of posterior central prominence. First (outer) pair of setae short and smooth. Second pair much reduced and hair-like, a condition normal among *Anomura* and *Thalassinidea*. Third, fourth, fifth, sixth and seventh pairs very long and densely plumose. Third seta on each side with five or six curved hooklets just below the tip on the inner margin. Fourth setae no more strongly developed than fifth, sixth or seventh pairs. Posterior dorsal margin of telson with six pairs of fine hairs arising close to bases of third, fourth, sixth, and seventh posterior telson setae respectively, and from central prominence.