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### Swarming of *Creseis acicula* Rang (Pteropoda) in the Bay of Bengal

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During the 21st cruise of *RV Gaveshani*, a dense swarm of *C. acicula* was observed in the Bay of Bengal (off Krishna estuary). The biomass value of the sample containing this species was 3.7 times higher than the highest record ever made earlier from the Bay of Bengal. The swarming of this pteropod species appears to be seasonal and often associated with high zooplankton production.

**S**WARMS of various species of zooplankters like the cladocerans, *Evdniae tergestina* clans and *Penilia avirostris* Dana<sup>1,2</sup> the amphipod *Hyperia siboginis* Stubbings<sup>3</sup>, the pteropod *Cavolinia uncinata pulsata* Spoel<sup>4</sup> have been reported earlier from the coastal and inshore waters of India. *Creseis acicula* is a common neritic pteropod occurring in the Indian Ocean, the Arabian Sea and the Bay of Bengal<sup>5-9</sup>. Sakthivel and Haridas<sup>10</sup> have observed the occurrence of this species in large numbers in association with bloom of blue-green alga *Trichodesmium* off Cochin. During the 21st cruise of *RV Gaveshani* in the Bay of Bengal, an unusually large swarm of this species has been noticed at one station.

Zooplankton samples were collected using IOS and HT nets from zonal transects between 15°30'N and 16°15'N at 15' intervals in the shelf and slope regions from 22 Aug. to 2 Sept. 1977. The samples collected from station No. 678 in a vertical haul made by IOSN operated from 130-0 m on 1-9-1977 at 1030 hrs (lat. 15°30'N; long. 80°E) contained unusually large numbers of these pteropods. Horizontal hauls operated with HT net at the surface also had the same species in large numbers. Because of the enormous number and delicate nature of the shell, the sample could be removed from the net only by running sea water over it. The sample was preserved in 10% formalin and biomass estimated by the displacement method. An aliquot of 5 ml of the sample was subsampled and analysed in detail and the numbers calculated to the total.

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The sample, on analysis, was found to contain a dense swarm of pteropods, 65% of the total biomass belonging to the species *C. acicula* (Fig. 1a and b). The total biomass of the sample was 320 ml. The other collections from nearby stations showed only an average of 10 ml/hl. Although most of the major groups were present in the collection, they together constituted only 15% of the total biomass. The numerical abundance (number) of the different taxa (estimated for 100% of the sample) expressed in 100 m<sup>3</sup> of water was: Foraminifera, 1470; Siphonophora, 150; Polychaeta, 240; Ostracoda, 830; Copepoda, 43740; Amphipoda, 150; Euphausiacea, 1080; Sergestidae, 980; Decapoda, 590; Pteropoda — *C. acicula*, 47380; Atlantidae, 50; Heteropoda, 50; Gastropoda, 200; Chaetognatha, 5650; Copelata, 540; Pyrosoma, salps and doliolids, 740; Branchiostoma, 190; fish eggs, 290; and fish larvae, 490.

*C. acicula* which contributed to 85% of the total biomass ranged (size) from 8 to 20 mm. The sample appeared to be so homogeneous that it seemed to consist only of this species. However, the sudden appearance of the swarms and the total absence of this group in other samples collected during this cruise from nearby stations need further investigation.

Of all the areas studied in the Indian Ocean during the International Indian Ocean Expedition and thereon, among the reported localities of high abundance of *Creseis* species, such as off Somalia, Saudi Arabia, west coast of India and off Java, the highest numerical abundance and biomass value were 700/200 m<sup>3</sup> and 102.5 ml/200 m<sup>3</sup> respectively<sup>10,11</sup>. The present observations of 47380/100 m<sup>3</sup> and 320 ml/130 m<sup>3</sup> definitely show a very high density of the animals. The biomass value estimated came

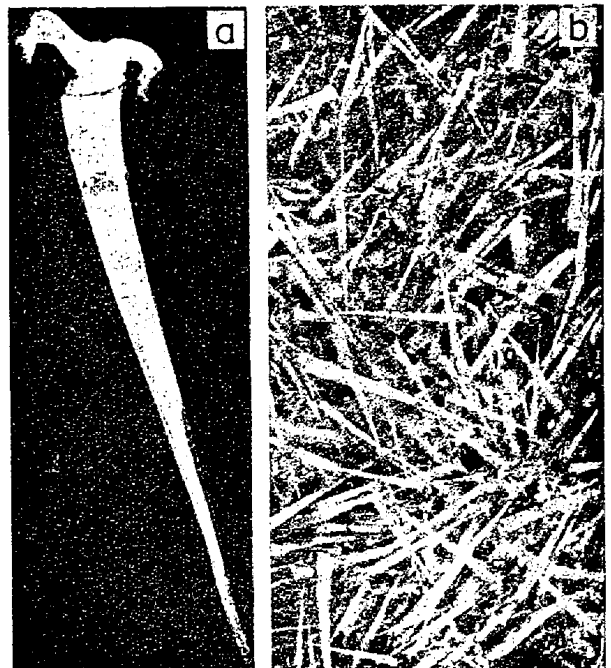


Fig. 1 — (a) *C. acicula* (20 mm) and (b) zooplankton sample with swarm of *C. acicula*

to roughly 4 times higher than the highest record of zooplankton biomass collected from the Bay of Bengal during the IIOE<sup>12</sup>.

Swarms of *C. acicula* and cladoceran *Penilia avirostris* recorded off Cochin by Sakhivel and Haridas<sup>10</sup> coincided with the occurrence of *Trichodesmium* bloom. No such association is noticed in the present investigation. However, rich zooplankton production occurs in the area. Along the west coast, this species is reported to occur in the region off Bombay<sup>8</sup> from January to March in small numbers, but with a peak in October and off Trivandrum coast<sup>7</sup> and off Cochin<sup>10</sup> from November to April. Its peak abundance in the east coast was observed in March around Krusadai Islands<sup>9</sup>, near Mandapam<sup>9</sup>, and off Porto Novo<sup>13</sup>. Krishnamurthy<sup>13</sup> has also reported the occurrence of this at the mouth of the Vellar estuary during rainy season (in November), a period when the salinity and temperature of the water were much lower. The present occurrence of *Creseis acicula* in the region off Krishna estuary in such large numbers would indicate that this species exhibits a great degree of irregularity and fluctuation in its seasonal abundance and swarming. It also appears that this region is probably one of the richest areas of zooplankton production in the Bay of Bengal.

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#### On the Occurrence of *Poecilochaetus johnsoni* Hartman 1939 (Polychaeta: Trochochaetidae) in the Indian Waters

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Occurrence of *P. johnsoni* in the Vasishta Godavari estuary is reported. Description of the species along with ecology is presented.

WHILE engaged in the studies of systematics and ecology of polychaetes in the Vasishta Godavari estuarine system an interesting specimen was collected and identified as *Poecilochaetus johnsoni*. A few specimens of the same family were also obtained in the previous collections but they were too small to be identified up to the level of species. So they were identified to the level of their genera. A single specimen was obtained on 12 April 1977 at the mean low tide level from a locality which is nearly 10 km upstream from the river confluence.

This area is mainly composed of fine mud mixed with fine sand and is rich in organic matter. At the time of collection temperature, salinity and dissolved oxygen were 33°C, 22.02‰ and 4.704 ml/litre respectively.

*Description of the specimen* — The specimen which is long, slender and golden yellow in colour measures 45 mm in length and 3 mm in width. Prostomium is depressed, sub-spherical with 2 small eyes in front and 2 beyond. A long median facial lobe projects forward and a much longer nuchal ridge extends back to the 6th segment (Fig. 1A). The first parapodium is long and directed forward, the 2nd and the 3rd parapodia are lateral in position and beset with capillary notosetae and thick acicular neurosetae (Fig. 1B). Acicular spines are absent from the 4th setiger (Fig. 1C). Setigers 7-13 have flask-shaped post-setal lobes (Fig. 1D). The posterior parapodia possess triangular lobes and

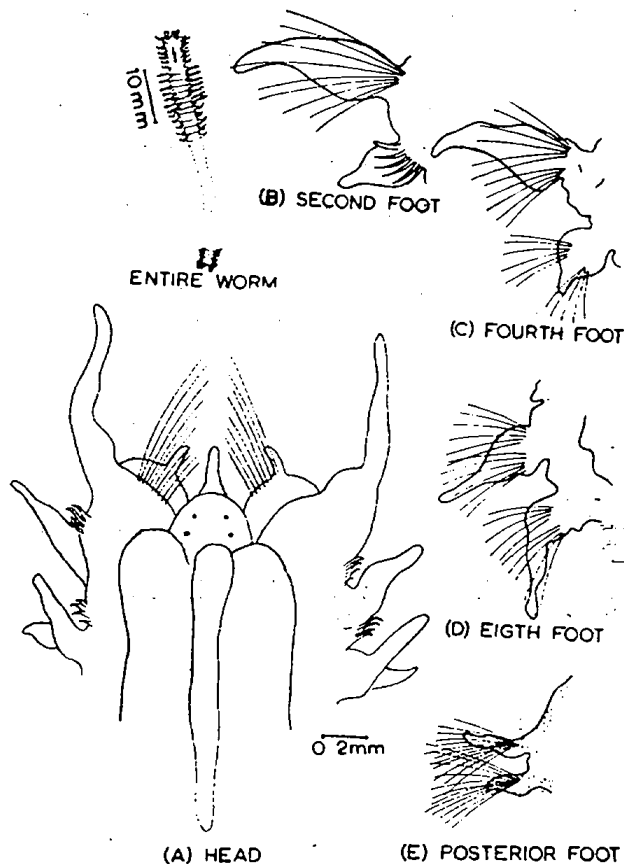


Fig. 1 — Various parts of *P. johnsoni*