

DISTRIBUTION OF PELAGIC HARPACTICOID COPEPODS FROM THE INDIAN OCEAN

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ABSTRACT

Pelagic harpacticoid copepods have been studied from the International Indian Ocean Expedition collections. *Macrosetella gracilis* and *Miracia efferata* were the most common species of harpacticoids with high densities near land masses. Other three species, namely, *Clytemnestra scutellata*, *Aegisthus mucronatus* and *Microsetella norvegica* occurred in coastal as well as in oceanic realms.

Copepoda which are major components of zooplankton are usually dominated by Calanoida. Not much is known about the distribution of pelagic harpacticoids from the Indian Ocean. Study of harpacticoids is difficult because very few numbers of a species are obtained in any one particular collection (Swell, 1940). However, a good number of them enjoy almost a world wide distribution. Many of the harpacticoid copepods are benthic and some occur in association with seaweeds. The pelagic harpacticoids have lesser numbers of species compared to their benthic counterparts. Among some of the earlier records of this group are studies from Pacific, Atlantic and Indian Oceans (Giesbrecht, 1892; Scot, 1909 and Wilson, 1932), Madras waters, (Krishnaswamy, 1953) and Laccadive Sea (Madhupratap, Wafar, Haridas, Narayanan, Gopala Menon and Sivadas, 1978). Mori (1964) has given an account of the harpacticoids from the waters of Japan.

The present study is based on the zooplankton samples collected during the International Indian Ocean Expedition (1960-1965). The methods of sampling and the details of environmental parameters are given in IOBC Handbooks (1969, 1971). The harpacticoids were separated from samples selected from each 5° square and counts transformed for the upper 200 m water column occupying approximately 192 m³ of water. Of the total 611 samples examined, 60% contained harpacticoids.

The distribution of the different species of harpacticoid copepods in the Indian Ocean is given in Figs. 1-3. Only five species belonging to five genera were found to represent this group in the IIOE samples. They are *Macrosetella gracilis*, *Miracia efferata*, *Clytemnestra scutellata*, *Aegisthus mucronatus* and *Microsetella norvegica*.

Macrosetella gracilis

This species was more abundant along the east and west coasts of India and to a lesser extent north of western Australian coast. Along the Indian coast they showed a fairly uniform distribution (Fig. 1). This species was sparse along the African coast

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and central Indian Ocean. Maximum numerical abundance of this species which is present in about 50% of the samples occurred (170/haul) in a night collection at station No. Ki. 319 (12°00' N, 94°00' E) in the eastern Bay of Bengal. The maximum and minimum temperature and salinity of the water column were 27.8–12.4°C and 34.9–13.4‰ respectively. The northern Indian Ocean showed higher abundance

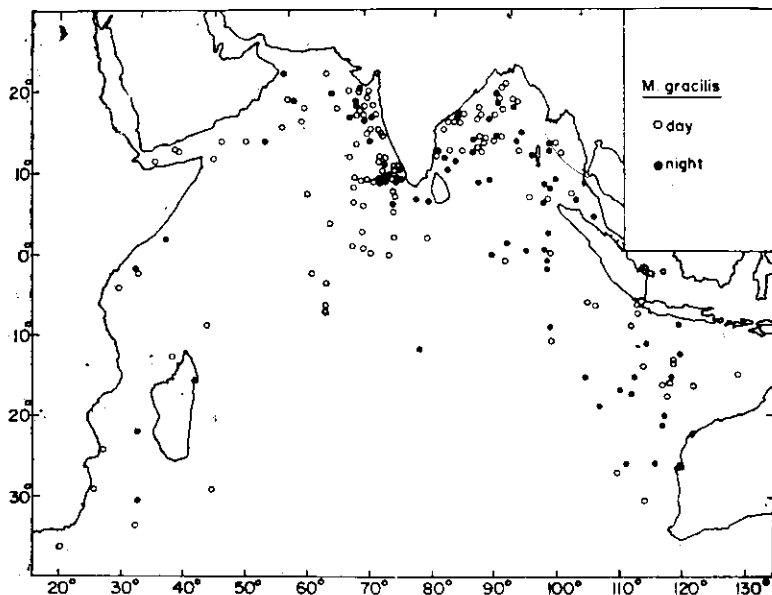


Fig. 1. Map showing the distribution of *Macrosetella gracilis* in the Indian Ocean.

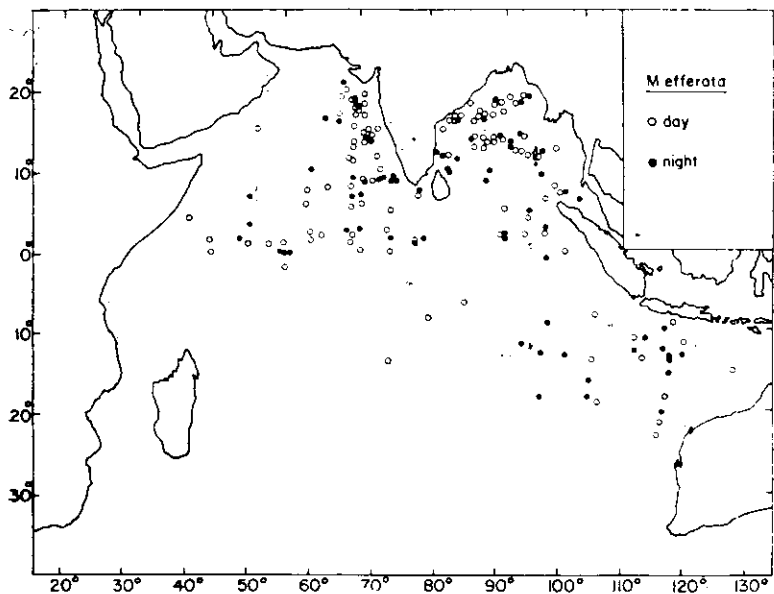


Fig. 2. Map showing the distribution of *Miracia efferata* in the Indian Ocean.

and contributed about 80% to the total. The areas of abundance generally coincided with areas of high zooplankton biomass (IOBC, 1968).

Miracia efferata

The distribution of this species largely followed the same trend as that of *Macrosetella gracilis* (Fig. 2). They were second highest in numerical abundance and occurred in about 45% of the samples. Maximum number (102/haul) was observed at Station No. Ki. 587 (12°49' N, 80°51' E) in the Bay of Bengal. Maximum and minimum temperature and salinity of the water column were 26.35–13.93°C and 35.01–32.85‰ respectively. They were absent in the African coast.

Clytemnestra scutellata

This species was found to be widely distributed in the Indian Ocean occurring in coastal and oceanic stations (Fig. 3). Its abundance was noted along 94° and 110°E south of equator up to 25°S. Maximum number of this species (75/haul) was observed at Station No. Di. 75 (20°00' S, 110°00' E) off Australian coast. Range of temperature and salinity of the water column at this station were 23.7–18.59°C and 35.52–34.80‰ respectively.

Aegisthus mucronatus

This species occurred in too low numbers (only in 10% of the samples) to draw any general conclusions on their distribution. 75% of the occurrence of this species were in night hauls.

Microsetella norvegica

This species also showed low numerical abundance and occurred in less than 10% of the samples only.

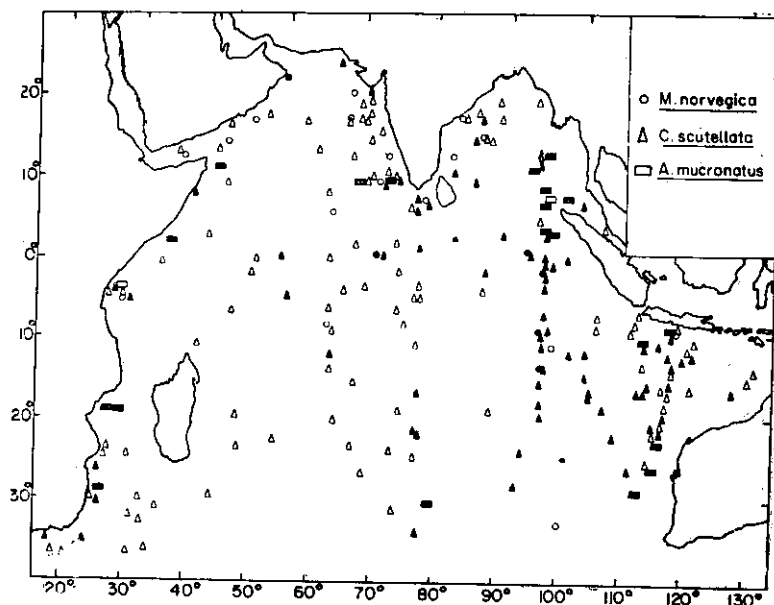


Fig. 3. Map showing the distribution of *Clytemnestra scutellata*, *Aegisthus mucronatus* and *Microsetella norvegica* in the Indian Ocean. Open signs represent day collections and closed signs represent night collections.

Among the species encountered, *M. gracilis* and *M. efferata* were more abundant near the land masses. Other species had a more or less even distribution and were found to inhabit oceanic waters also. *Macrosetella gracilis* and *Microsetella norvegica* have been found to be the most common forms in the Laccadive waters (Madhupratap, Wafar, Haridas, Narayanan, Gopala Menon and Sivadas, 1978). Saraswathy (1967) has recorded all these species from Trivandrum coast.

Euterpina acutifrons, a common coastal harpacticoid was not present in any of the IOOE samples. Krishnaswamy (1953) has reported the occurrence of this species from Madras coast. Saraswathy (1967) observed this species to be present throughout the year in the inshore waters of Trivandrum coast. Madhupratap and Haridas (1975) recorded this species from the estuarine and nearshore waters of Cochin during the high saline premonsoon period. Their absence in the IOOE collections is probably due to their preference to inshore waters.

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