

## Ostracods of Andaman Sea

Rosamma Stephen & P.P. Meenakshikunjamma

National Institute of Oceanography, Regional Centre, P.B. No. 1913.  
Cochin - 682 018

### ABSTRACT

Distribution of 12 species of ostracods was studied from the waters around Andaman-Nicobar area. *Euconchoecia aculeata* was the most abundant species occurring mostly as swarms with a maximum density of 9732 specimens/1000 m<sup>3</sup>. *Cypridina dentata* was represented only in 6 stations. High abundance for most of the species was observed during premonsoon period.

### INTRODUCTION

Ostracods are frequently found in zooplankton collections and sometimes they outnumber the copepods. Swarming of certain species of ostracods is reported to be a regular phenomenon in coastal waters (Tranter & George, 1972; Paulinose & Aravindakshan, 1977). Prior to 1969 only a very few reports are available on the Indian Ocean ostracods (Müller, 1906; Cannon, 1940). The most extensive work on this group is based on the material from the International Indian Ocean Expedition (1962-65) (George, 1969, 1976, 1977). Distribution of ostracods in the northern Indian Ocean is reported by George & Nair (1980) and along the southwest coast by George *et al.* (1975). During the IIOE emphasis was given to deal the vast extent of Indian Ocean and hence a systematic coverage of each section was not attempted.

Oceanographic studies of the Andaman Sea are very few. Desai *et al.* (1986) pointed out the discontinuity in the surveys conducted so far in the Andaman Sea. An account of ostracods from Andaman Sea is given in a study of crustacean groups of this sea (Madhupratap *et al.* 1981; Nair *et al.* 1981). The *FORV Sagar Sampada* had conducted cruises in the EEZ including the Andaman and Nicobar islands and provided zooplankton material that can be utilized for studies in space and time. This paper deals with the distribution, abundance and seasonal variations of some important genera of ostracods collected from this area during 1986-90.

## MATERIALS AND METHODS

The material for this study was sorted out from the zooplankton samples collected onboard *FORV Sagar Sampada* during her cruises 14, 29, 46, 48, 50, 52, 55, 56, 60 and 69 which cover most of the months. The area of investigation is between lat. 15° and 5° N; long. 89° to 96° E. Samples were collected with Bongo 60 net from 150 - 0m. Ostracod number from each sample was converted to no/1000 m<sup>3</sup> according to the procedure given by Mathew *et al.* (1990).

## RESULTS AND DISCUSSION

Figures 1 and 2 show the distribution of abundant and common ostracod species. Table 1 presents the average values for the three seasons, premonsoon (Feb.-May), monsoon (June- Sept.) and postmonsoon (Oct.-Jan.).

Ten genera (*Cypridina*, *Halocypris*, *Euconchoecia*, *Metaconchoecia*, *Orthoconchoecia*, *Spinocoea*, *Paraconchoecia*, *Conchocoetta*, *Conchoecia*, *Conchoecilla*), were identified from the samples. Genus *Cypridina* was represented by *Cypridina dentata* which was present only at 6 stations on the western side of the north Andaman Sea (Fig. 1). Highest density of 5137 no/10000 m<sup>3</sup> was observed during day in May.

In the genus *Euconchoecia*, *E. chierchiae* and *E. aculeata* were encountered in the Andaman area. *E. aculeata* was the most abundant species with an average density of 1006/1000 m<sup>3</sup>. Swarming was observed in many stations and maximum density of 9732 no/1000 m<sup>3</sup> was found near north Andaman island in May. Ostracods of more than 2500 no/1000 m<sup>3</sup> were found in patches especially between 13.5°N and 14.5°N and between 8°N and 10.5°N (Fig. 1). *Halocypris brevirostris* (Fig. 1) was also widespread in the Andaman Sea with high densities between 9° and 11°N.

*Paraconchoecia procera* and *P. elegans* were found scattered in the Andaman and Nicobar area (Fig.2) *Conchocoetta giesbrechti* was represented in appreciable numbers. High density was found in the central and southern parts of the area studied. *Orthoconchoecia striola* and *Metaconchoecia rotunda* (Fig.2) were observed in very few numbers, the former being mostly confined in the southern region and the latter towards northern and central regions.

*Spinocoea Porrecta* was fairly represented in the area studied (Fig. 2) whereas *Conchoecia magna* was sparsely encountered from few stations around Andaman islands. *Conchoecilla daphnoides* was recorded from only 3 stations from the northeastern side of Andaman islands during April.

George & Nair (1980) have discussed the distribution of ostracods in the northern Indian Ocean, based on IIOE samples collected during 1962 to 1965, which gave an overall picture of the ostracod species. Later Nair *et al.* (1981) studied the ostracods collected during January-February 1979. Periodic investigations on the biodiversity of any group is essential to assess any long-term changes in the species assemblage of

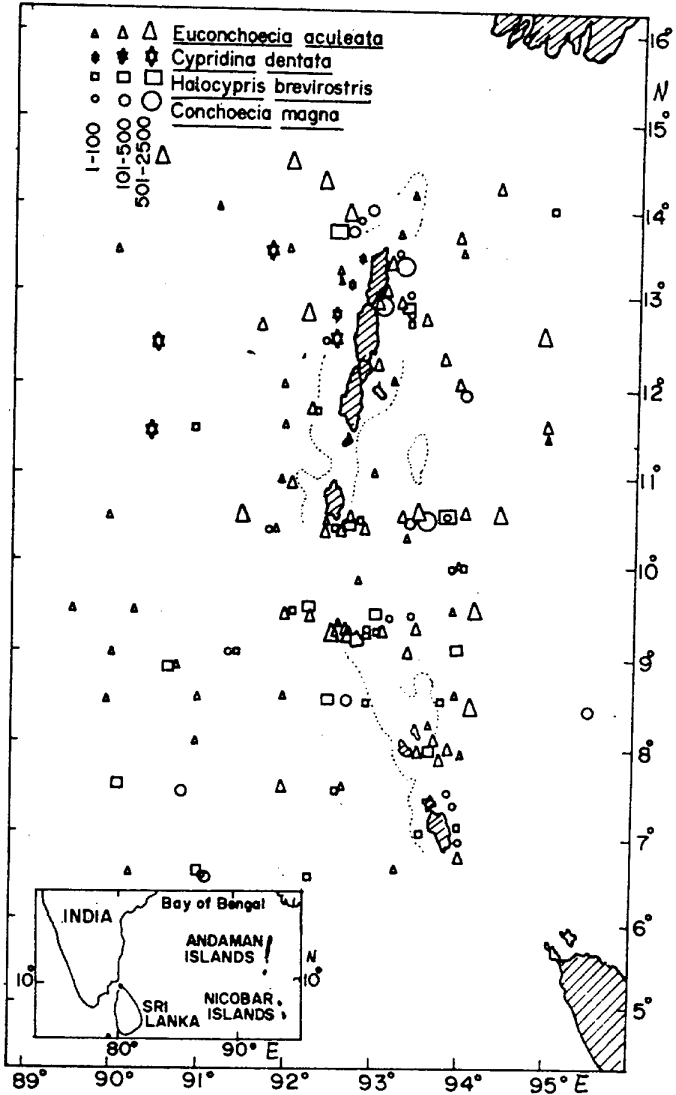


Fig. 1-Distribution and abundance of common species of ostracods in the Andaman Sea (no. per 1000 m<sup>3</sup> of water)

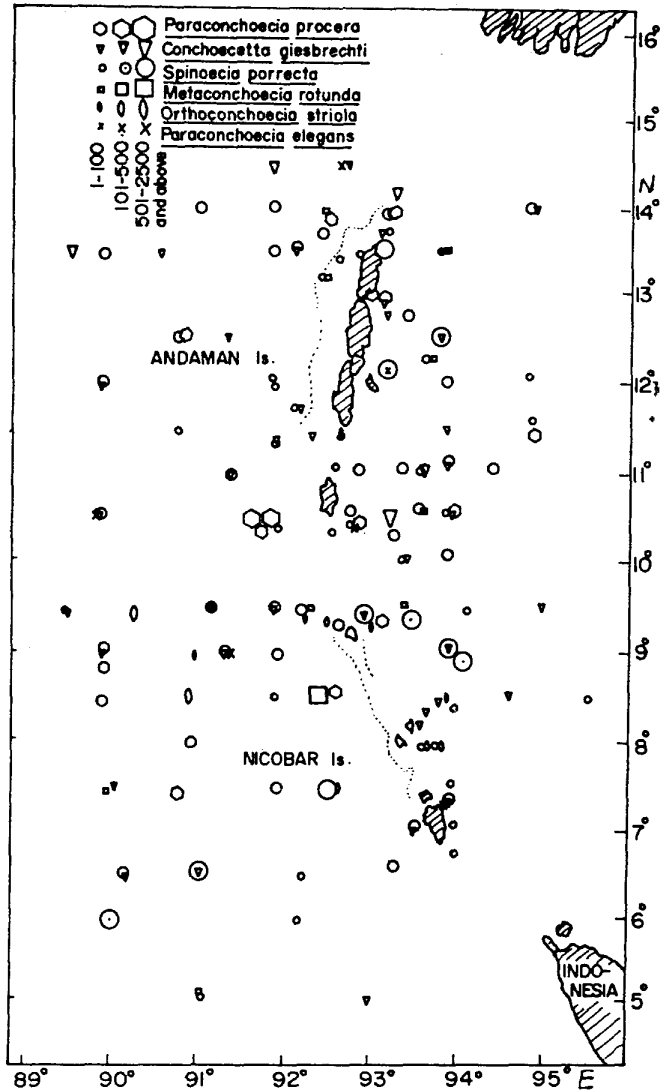


Fig. 2- Distribution and abundance of common species of ostracods in the Andaman Sea (no. per 1000 m<sup>3</sup> of water)

Table 1 - Seasonal variation in the common ostracod species in the Andaman Sea (average no. per 1000 m<sup>3</sup> of water)

Species	Season		
	Premonsoon	Monsoon	Postmonsoon
<i>Cypridina dentata</i>	65	0	4
<i>Halocypris brevirostris</i>	29	11	58
<i>Euconchoecia aculeata</i>	228	1657	1132
<i>Metaconchoecia rotunda</i>	24	0	36
<i>Orthoconchoecia striola</i>	9	0	0
<i>Spinocoea porrecta</i>	183	212	84
<i>Paraconchoecia procera</i>	192	0	47
<i>Conchocetta giesbrechti</i>	35	14	21
<i>Conchoecia magna</i>	132	0	90

a particular environment. The samples of *Sagar Sampada* form excellent material for making comparison.

*Cypridina dentata* the most abundant neritic species of the west and east coasts, occur only sporadically in the Andaman Sea. Nair *et al.* (1981) and Madhupratap *et al.* (1981) reported this species from the eastern Andaman Sea. In the present study swarms of the species were observed from few stations. The sudden swarming of this species may be associated with special ecological conditions of the environment probably due to rains and small-scale upwelling. Santhakumari & Saraswathy (1981) had also reported swarms of *C. dentata* from the east coast in November after the heavy rains of the northeast monsoon. *Conchoecia magna* and *Metaconchoecia rotunda* were well represented during January to April. *Conchoecilla daphnoides* is reported to be more common in Andaman and Indonesian region. (George & Nair 1980). The present data also showed its presence in the eastern side. The comparison of the earlier studies indicated that the composition of ostracods has not changed over the years. The main feature that controls the distribution of ostracod species is salinity. Surface salinity in the Andaman area is 32.8‰ (Babu & Sastry, 1976) during late winter. The salinity of the Bay of Bengal during the monsoon is very low and this can inhibit the dispersal of higher saline species.

Compared to the species in IIOE (George & Nair, 1980) few species are encountered in the *Sagar Sampada* collections. These samples represent the fauna in 150 to 0 m and hence the lesser number of species. However it is possible to trace the seasonal variation in species composition. Table 1 shows the average numerical abundance for the species. Most of the species showed high average values during the premonsoon period. *Euconchoecia aculeata* was abundant during the monsoon period with a moderately high value in the postmonsoon period. *Cypridina dentata*

was present only in May but with very high values. The sudden swarming of *C. dentata* may be associated with the frequent rains associated with the monsoons. George & Nair (1980) reported *E. aculeata* as the most abundant species in the Bay of Bengal. This study also revealed a regular swarming of the species. Further evidence on the preference of these two species to the waters of the Arabian Sea and Bay of Bengal can be brought to light by the analysis of ostracods collected by *FORV Sagar Sampada* in different seasons from the west and east coasts of India.

### ACKNOWLEDGEMENT

The authors are grateful to the Director, CMFRI, Cochin for allotting the material for this study and to Dr.K.J.Mathew of the Institute for providing the data. They are indebted to the Director, NIO, Goa and to the Scientist-in-Charge Regional Centre, NIO Cochin for their encouragement.

### REFERENCES

- Babu, R.V. & Sastry, J.S. 1976. Hydrography of the Andaman Sea during late winter. *Indian J. Mar. Sci.*, 5: 179.
- Canon, H.G., 1940. *Scientific Report of the John Murray Expedition*, 6: 319-320.
- Desai, B.N., Bhargava, R.M.S., Sarupria, J.S. & Pankajakshan, T. 1986. Oceanographic coverage of Andaman and Nicobar Seas. *Proc. Conf. on Sci., Tech. Inputs for Island Develop.* (DOD/Indian Ass Advancement Sci. New Delhi) 86-102.
- George, J. 1969. A preliminary report on the distribution and abundance of planktonic ostracods in the Indian Ocean, *Bull. Nat. Inst. Sci. India*, 38: 641-648.
- George, J., Purushan, K.S. & Madhupratap, M. 1975. Distribution of planktonic ostracods along southwest coast of India, *Indian J. Mar. Sci.*, 4: 201-202.
- George, J. 1976. Cypridid ostracods in Indian Ocean plankton, In: *Proc. Symposium on warm water zooplankton*, (UNESCO/NIO, Goa) Abstract No. 12.
- George, J. 1977. *Studies on planktonic ostracods of the northern Indian Ocean*, Ph.D. thesis, University of Cochin, Cochin.
- George, J. & Nair, V.R. 1980. Planktonic ostracods of the northern Indian Ocean. *Mahasagar-Bull. Nat. Inst. Oceanogr.* 13 (1): 29-44.
- Madhupratap, M., Nair, S.R., Achuthankutty C.T. & Nair, V.R. 1981. Major crustacean groups and zooplankton diversity around Andaman - Nicobar Islands, *Indian J. Mar. Sci.* 10:266-269.
- Mathew, K.J., Naomi, T.S., Antony, G., Vincent, D., Anilkumar, R & Solomon, K 1990. Studies on zooplankton biomass and secondary and tertiary production of the EEZ of India. In: *Proceedings of the workshop on Scientific results of FORV Sagar Sampada*, edited by K.J. Mathew (CMFRI, Cochin) 59-69.
- Müller, G.W. 1906. *Ostracoda Wissenschaftliche Ergebnisse Deutschen Tiefsee Expedition auf dem Bampfer Valdivia*, 8: 29-154.
- Nair, S.R.S., Nair, V.R., Achuthankutty, C.T. & Madhupratap, M. 1981. Composition and diversity of plankton in western Bay of Bengal. *J. Plankton. Res.* 3 (4): 493-508.
- Paulinoose, V.T. & Aravindakshan, P.N. 1977. Zooplankton biomass, abundance and distribution in the north and northeastern Arabian Sea. In: *Proceedings of the Symposium on Warm Water Zooplankton*, (UNESCO/NIO, Goa) 132-136.

- Santhakumari, V. & Saraswathy, M. 1981. Zooplankton production along Tamil Nadu coast, *Ma-hasagar-Bull. Natn. Inst. Oceanogr.* 14(4): 289-302.
- Tranter, D.J. & George, J. 1972. Zooplankton abundance at Kavarathi and Kalpeni atolls in the Laccadives, In: *Proceedings of the Symposium on Corals and Coral Reefs* (Marine Biological Association of India) 239-256.

\* \* \*