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EUPHAUSIIDS OF SOMALIAN WATERS AND GULF OF ADEN COLLECTED IN S. W. MONSOON SEASON

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Fifteen species of Euphausiacea belonging to 5 genera were reported from the coastal waters of Somalia and Gulf of Aden. Ten species were found in the Gulf of Aden and eleven were collected off Somalian coast. Five species were common in the Gulf and Western Indian Ocean (0° – 10°N) while 4 of these species were also reported from Red Sea. Bathypelagic species of the genus *Thysanopoda* were present off Somalian waters and absent in the Gulf of Aden samples. Sex ratio and abundance are also discussed.

Key words: Euphausiacea, Indian ocean, Gulf of Aden.

INTRODUCTION

The western Indian Ocean (0° – 10°N) off Somalia and Gulf of Aden has a diverse fauna of euphausiids. Brinton and Gopalakrishnan [1] and Ponamareva [2] studied the distribution of euphausiids in the Indian Ocean based on International Indian Ocean expedition material. The present study documents the occurrence, abundance and sex ratio of euphausiids collected in July 1973.

MATERIAL AND METHOD

In July 1973 nine zooplankton samples were obtained from the western part of Indian Ocean and Gulf of Aden (Fig. 1). Sampling was done by Indian Ocean Standard net (mesh size 0.33 mm) on Board P.N.S. Zulfiquar. Five stations were located off Somalia and four in the Gulf of Aden. Euphausiids were sorted and examined under microscope and identified to species with the help of Boden [3] and Brinton [4]. Observations on sex ratio were also made.

RESULTS AND DISCUSSION

A total number of 1957 specimen belonging to 5 genera and 15 species were identified in 9 zooplankton samples (Table 1). Station 1-4 represent a part of western Indian Ocean (0°-10°N). Station 5-9 represent the Gulf of Aden. In the Aden Gulf 4 genera and 10 species were encountered (Table 2), while in western Indian Ocean 5 genera, and 11 species were found (Table 3). 3 genera and 5 species: *E. sibogae, E. diomedeae, S. carinatum, S. affine* and *N. gracilis* were common in both the areas. *S. carinatum* was the dominant species in the Gulf of Aden, while in western Indian Ocean *E. tenera* was in the greatest number *E. diomedeae, E. sibogae,* and *S. affine* had a wide range of distribution, these 3 species occurred from Red Sea Panomareva [5] through Gulf of Aden to the western Indian Ocean. Although Red Sea had very high temperatures and salinities while in Gulf of Aden oceanic conditions prevail Ponomareva [5]. The sample from station 2 was richest in number of species as well as in quantity. This

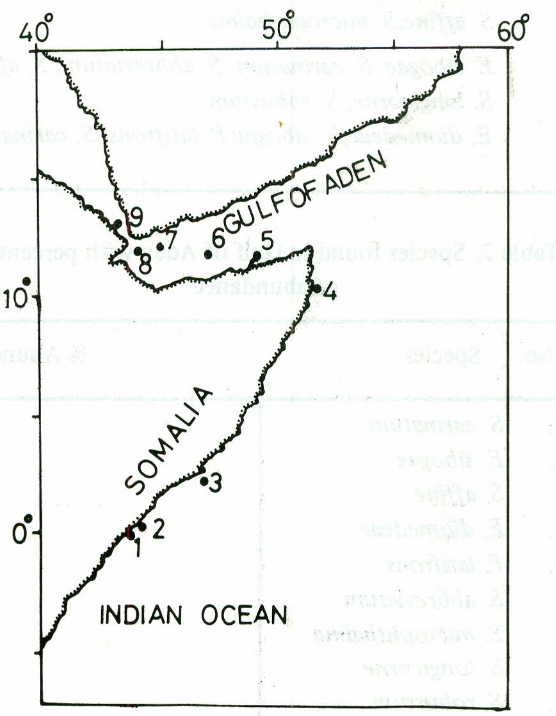

Fig. 1. The map showing locations of stations where sampling was done.

station corresponds to the nutrient rich upwelling area of Somali current.

In order of frequency of abundance *Stylocheiron carinatum* was the commonest, and hauled at 4 stations, *Stylocheiron affine* and *Thysanopoda tricuspidata* at 3 stations *Thysanopoda monacantha* and *Euphausia diomedeae* at 2 stations each, while the rest of them were found at 1 station only. In regard to quantity *Euphausia tenera* was the predominant species followed by *Euphausia diomedeae* and *Thyanpoda astylata* ranked third. Ponomareva [2] reported 3 genera and 8 species in the western Indian Ocean off Somalia; *E. paragibba* and *Thysanopoda acutifrons* reported by her, were not found in the present study, Brinton and Gopalakrishnan [1] mentioned abundance of 4 genera and 8 species in the western Indian Ocean. Findings of the present study agree well with those of Brinton and Gopalakrishnan [1].

Table 1. Occurrence of species of euphausiids at nine stations shown in Fig. 1.

Station No.	Species collected
1.	*S. carinatum, T. tricuspidata,T. monacantha*
2.	*E. diomedeae, E. sibogae,E. mutica E. tenera,S. affine, S. microphthalma, T. astylata, T. tricuspidata.*
3.	*S. carinatum, S. microphthalms, S. affine,T. tricuspidata*
4.	*E. diomedeae,S. carinatum, S. affine*
5.	*S. longicorne, S. carinatum,N. gracilis, S. affine,*
6.	*S. longicorne, E. sibogae*
7.	*P. latifrons, S. longicorne, S. carinatum, N. gracilis, S. affine,S. microphthalma*
8.	*E. sibogae, S. carinatum, S. abbreviatum, S. affine, S. longicorne, S. robustum*
9.	*E. diomedeae,E. sibogae P. latifrons, S. carinatum*

Table 2. Species found in Gulf of Aden with percentage of abundance.

S. No.	Species	% Abundance
1.	*S. carinatum*	35.00
2.	*E. sibogae*	13.30
3.	*S. affine*	10.90
4.	*E. diomedeae*	9.70
5.	*P. latifrons*	2.40
6.	*S. abbreviatum*	1.20
7.	*S. microphthalma*	1.20
8.	*S. longicorne*	1.20
9.	*S. robustum*	1.20
10.	*N. gracilis*	1.20

Table 3. Species found in western Indian Ocean ($0^o - 10^o$N)

S. No.	Species	% Abundance
1.	*E. tenera*	47.30
2.	*E. diomedeae*	21.0
3.	*T. astylata*	8.2
4.	*S. affine*	6.1
5.	*E. mutica*	5.1
6.	*S. carinatum*	3.5
7.	*T. tricuspidata*	2.8
8.	*S. microphthalma*	1.2
9.	*T. monacantha*	1.0
10.	*E. sibogae*	0.76
11.	*N. gracilis*	0.5

Sex ratio has been studied in abundantly encountered species. *Euphausia tenera* had nearly equal ratio of males and females (1:1:2). *Euphausia diomedeae, E. mutica, Thysanopoda astylata* and *Stylocheiron affine* had almost twice the number of females than males. In *Stylocheiron carinatum* and *Thysanopoda tricuspidata* juveniles and immature specimens dominated. As to subarctic species it is known that females are higher in number before breeding, males prevail after breeding Ponomarava, [6]; if the same is true for tropical species it may be assumed that breeding of *E. diomedeae, T. astylata* and *S. affine* in western Indian Ocean take place in July while in *S. carinatum* and *T. tricuspidata* breeding had ceased long before, as larval stages and juveniles occurred in the plankton. Time of breeding might have some relationship with temperature and salinity of Sea water but I could not find any significant relation with these physical parameters.

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