

## DISTRIBUTION OF SCYPHOMEDUSAE IN THE INDIAN OCEAN

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### ABSTRACT

Geographic distribution of Scyphomedusae in the Indian Ocean is described. 1548 standard plankton collections of the International Indian Ocean Expedition (IIOE) were considered for this study. In 326 samples Scyphomedusae were encountered. Highest degree of concentration of Scyphomedusae were found in the eastern Arabian Sea and in two patches along the northern part of Bay of Bengal. High concentration areas were observed off the north-east coast of Arabia, off Bombay and in the northern part of Bay of Bengal. Low concentration areas were more in Bay of Bengal than those in the Arabian Sea. Lowest population density extended over greater areas of central and southern Indian Ocean as compared to the northern.

The Scyphomedusae are generally coastal dwellers and mostly have both sessile and pelagic stages with the exception of some benthic sessile forms. The common pelagic species like *Nausethre* do not have a sessile stage in their life cycle. The sessile polyps are restricted in their distribution, but the swimming medusae can be carried far away by currents. Information regarding this group is found in Maas (1903), Light (1914, 1921), Mayer (1917), Uchida (1934, 1935, 1954) and Russell (1962, 1967). Though this group is treated here as a whole without reference to constituent species or genera, the paucity of information on distribution of this group from the whole Indian Ocean makes this study worth attempting.

The present report is based on the data obtained from the zooplankton samples collected during the International Indian Ocean Expedition (IIOE) and processed at the Indian Ocean Biological Centre (IOBC), Cochin. The bulk of the samples were classified as standard, *i. e.*, they were obtained using a net of 1 m<sup>2</sup> mouth opening and 0.33 mm mesh size (Currie, 1963, UNESCO, 1968) hauled vertically from a depth of approximately 200 m to the surface. 1548 standard samples were considered for this study. The numerical abundance of the Scyphomedusae was calculated for each haul and the catch per standard haul was considered for preparation of the distribution chart. The number of Scyphomedusae separated from aliquots of the whole sample from each station was totalled and these figures were used to plot at each station position and the areas of similar density within the slab limits were contoured.

It can be seen that 21.06% of the standard samples contained Scyphomedusae (Table I). Numbers ranged from 0 to 2433 per haul. The average representation was 22.54. Out of the 326 samples which contained Scyphomedusae only 55 samples contained more than 200. The hydrographical and other details for three stations, with highest abundance of Scyphomedusae are given in Table II. It is clear from Fig. 1 that the Scyphomedusae were more abundant in neritic areas than in oceanic areas. Highest concentration area of Scyphomedusae (<2000) was encountered off Bombay and in northern

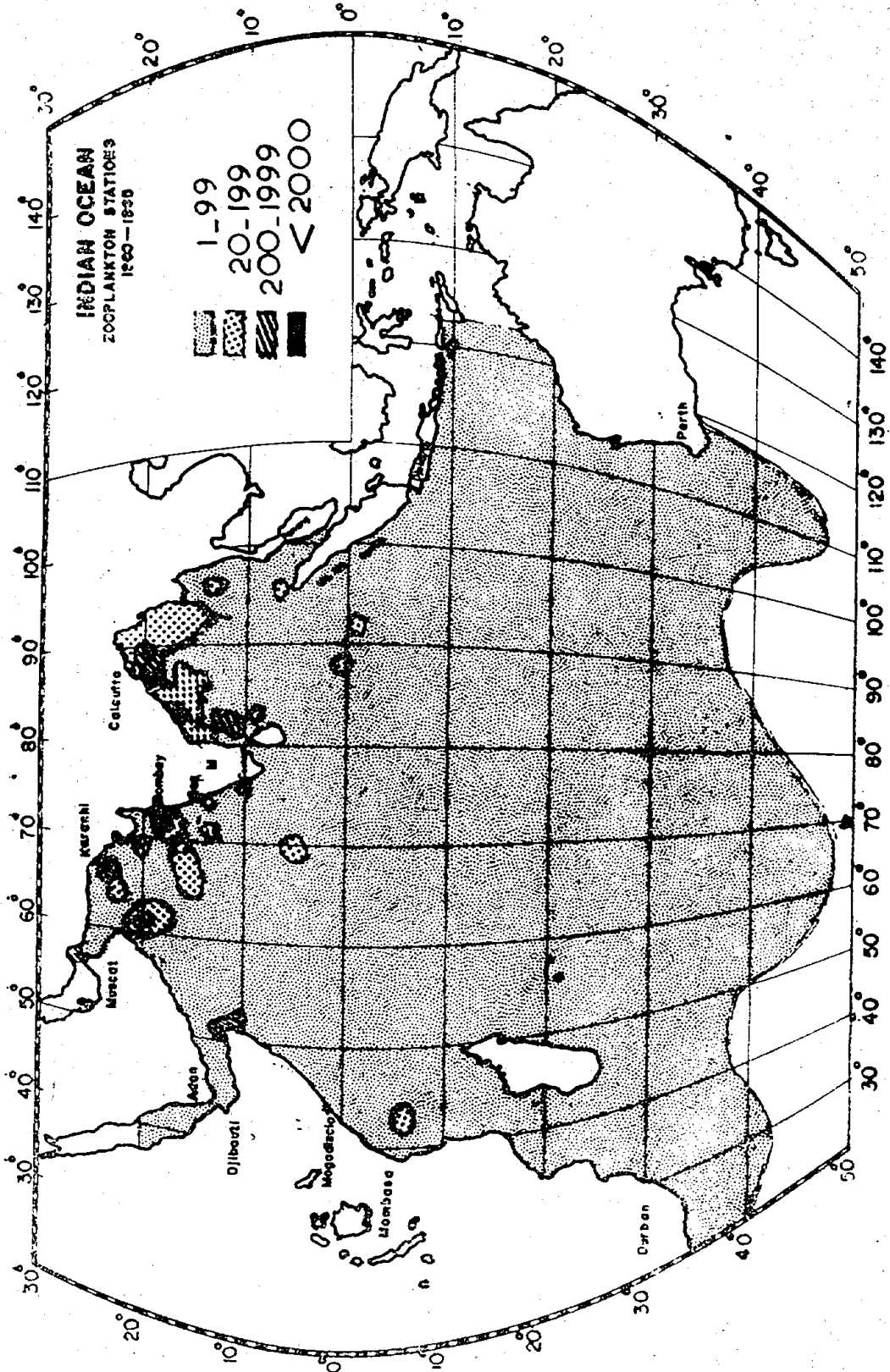


Fig. 1. Distribution of Scyphomedusae in the Indian Ocean.

*Distribution of Scyphomedusae in the Indian Ocean*

*Table I.* Occurrence of Scyphomedusae according to category of sample.

Category of samples	Number of samples	% of total No. of samples	Scyphozoa present in No. of samples	% presence
Standard total	1548	100.00	326	21.06
Day	826	53.36	182	11.76
Night	722	46.64	144	9.30
S. W. Monsoon	836	54.00	169	10.92
N. E. Monsoon	712	46.00	157	10.14

*Table II.* Hydrographic details of stations where large number of Scyphomedusae were found. (All in the Bay of Bengal)

Ship	Cruise	Data	Date	Gear	Position	O <sub>2</sub> range 200 m layer (ml/l)	Temp. range 200 m layer (°C)	Salinity range 200 m layer (‰)	No. of Scypho-medusae 200 m layer
INS <i>Kistna</i>	21	560	20-1-1965	IOSN	18°52'N 85°30'E	0.17- 4.54	14.44- 26.81	32.93- 34.98	2433
<i>Varuna</i>	32	1800	13-5-1963	IOSN	18°30'N 71 30'E	—	26.66- 30.60	35.10- 35.79	2381
<i>Pioneer</i>	442	14	6-5-1964	IOSN	19°22'N 89°13'E	1.35- 4.53	17.21- 29.00	34.33- 35.25	2160

part of Bay of the Bengal. The areas of high concentration (200-1999) were observed off the northeast coast of Arabia, off Karachi, off Bombay, northern part of Bay of Bengal and southeast coast of India. Low concentration (20-199) areas were found off Mombasa and northeast coast of Arabia. These areas were found to be extended from Andhra coast to the entire region of head of Bay of Bengal. This area was found more in Bay of Bengal than in Arabian Sea. Lowest concentration (1-99) areas were spread throughout the central and southern Indian Ocean.

Scyphomedusae were found in 11.76% of the day hauls and 9.30% of the night hauls (Table II). The average catch per day haul was 23.73 and per night haul 21.33. There also was not much difference between the average number recorded for the southwest monsoon (22.25) and the northeast monsoon (23.03). No comparable results could be obtained from hauls taken at the same station with the same net from 200 m to the surface and from lesser depth to the surface and it showed that thermocline did not act as a barrier in the vertical distribution of this group.

The whole image of distribution and abundance of Scyphomedusae closely resembles that of Copepods and fish larvae with slight alterations here and there (Kasturirangan, Saraswathy and Gopalakrishnan, 1973; Peter, 1968). The Scyphomedusae were abundant (<2000) in the northern part of Bay of Bengal, while the *Copepod maxima* extended south to Gulf of Aden and along the Somali coast. Areas of highest degree of concentrations of hydromedusae, the allied group, were noticed off the Somali coast and along the southwest coast of India (Santhakumari, 1977). A comparison of this group

in relation to zooplankton biomass distribution (Prasad, 1969), in the Indian Ocean for the whole year revealed that the peaks of both are located towards the northern part of Arabian Sea and head of the Bay of Bengal. The total data, irrespective of seasons and times of collection, showed a higher concentration of Scyphomedusae towards the northern part of Indian Ocean, especially in areas enriched by upwelling and land drainage or areas near to them.

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