

# DISTRIBUTION OF ECHINODERM LARVAE AND TORNARIA LARVAE IN THE INDIAN OCEAN

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Distribution of echinoderm larvae and tornaria larvae in the Indian Ocean based on the study of the material collected during the International Indian Ocean Expedition (1960-1965) is presented. Echinoderm larvae were present in 16% of the total samples and tornaria larvae in 15%. Areas of high abundance of echinoderm larvae were recorded at the mouth of the Gulf of Oman, Gulf of Aden, off Kathiawar and near Burma. Tornaria larvae were recorded in the central Arabian Sea, Madras coast and of Madagascar. Statistical analysis of the data showed that the number of tornaria larvae caught during the SW monsoon (April 16 - October 15) was significantly high when compared to that of NE monsoon (October 16 - April 15).

## INTRODUCTION

Literature pertaining to the larvae of echinoderms and enteropneusts in the Indian waters are rare and scattered. Echinoderm larvae and enteropneusts have been recorded from Madras coast (Menon, 1931) and off Mandapam (Prasad, 1954). Menon (1945) and George (1953) reported echinoderm larvae from Trivandrum and Calicut coasts respectively. The tornaria larvae have been recorded from Kurusadai island by Devanesan and Varadarajan (1940) and from the east coast by Rao (1962). The present paper deals with the distribution of the larvae of echinoderms and enteropneusts in the Indian Ocean.

## MATERIAL AND METHODS

The echinoderm larvae and tornaria larvae were sorted out from 1548 standard zooplankton samples (IOBC, 1969) collected during the International Indian Ocean Expedition (1960-1965). The sorting procedure of the samples and the station lists are given by Hansen (1966). Based on numerical abundance of the specimens, distribution maps were prepared (IOBC, 1973). These maps form the basis of the present study. Data on day and night catches irrespective of seasons and seasonal catches, irrespective of day and night were compared and subjected to statistical analysis.

## RESULTS AND DISCUSSION

*Echinoderm larvae* (Fig. 1): The echinoderm larvae were present in 16% of the standard samples. The larvae were abundant (100 and above) in the Gulf of Aden, coast of Arabia, Gulf of Oman, Kathiawar coast and west coast of Burma. The maximum number (522/standard haul) was recorded in the Kathiawar coast.

Moderate values (10-99) were noticed near the coast of Lourenco Marques, off Mombasa, Somali coast, Gulf of Aden and adjoining portion of the Red Sea,

off Arabia, Gulf of Martaban, Strait of Malacca and at isolated stations near Sunda islands and at 15° 58'S and 58° 00'E.

Low values (1-9) were recorded at isolated stations in the central and southern parts of the Arabian Sea, southwest coast of India, Bay of Bengal, off Thailand, in the Strait of Malacca and along 110°E meridian. Low values were also found at a very few stations south of 5°S in the remaining areas of the Indian Ocean. From the hydrographical data, it is clear that these larvae tolerate wide variations in temperature (10.77 - 29.98°C) and salinity (31-59 - 35.5‰).

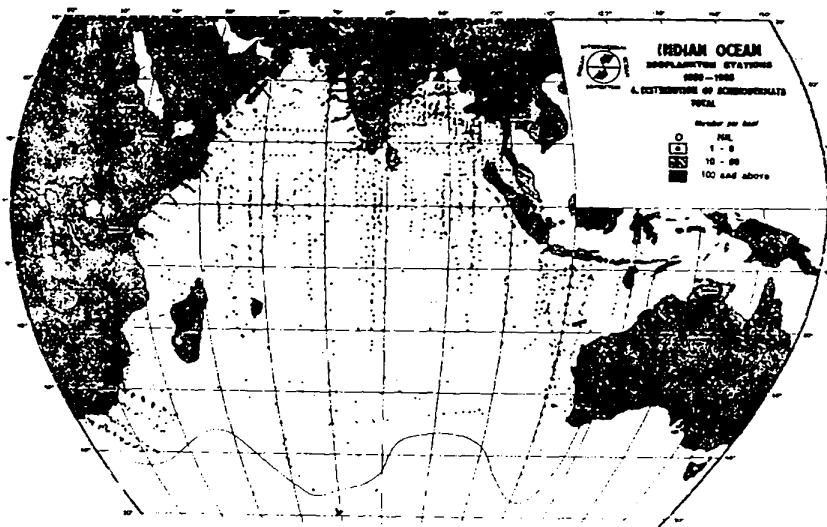


Fig. 1. Distribution of echinoderm larvae in the Indian Ocean

The 't' value for day and night catches was 0.4634 and that of the seasons was 1.40 (d. f. 1546 in both cases) indicating that there is no significant catch difference in the number of echinoderm larvae at 5% level.

*Tornaria larvae* (Fig. 2): *Tornaria* larvae were present in 15% of the standard samples. They were abundant (100 and above) off Madras, central Arabian Sea and off Reunion and Mauritius islands. The maximum number (993/ standard haul) was recorded in the central Arabian Sea.

Moderate values (10-99) were recorded along the 110°E meridian between 20°S and 30°S, off Djakarta, Strait of Malacca and nearby areas, central part of the Bay of Bengal, off Madras, off east coast of Ceylon, southwest coast of India, Gulf of Aden (mouth) off Mombasa, Mosambique channel off Durban, off Reunion and Mauritius islands and in central Indian Ocean.

Low values (1-9) were recorded in isolated stations around 110°E, Strait of Malacca, central and southern part of Indian Ocean between 10° and 20°S and between 50° and 70°E. Except at a few stations, they were totally absent south of 30°S and north of 10°N.

The 't' value for day and night catches was 1.229 (d. f. 1546). This value is not significant at 5% level indicating that there is no significant difference

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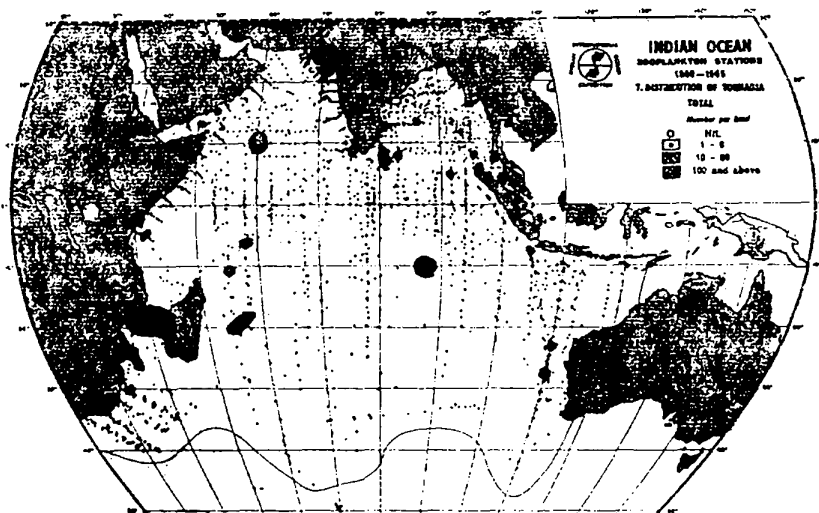


Fig. 2. Distribution of tornaria larvae in the Indian Ocean

in the average number of individuals caught during day and night. The 't' value calculated for comparison of catches in two seasons ( $t=2.018$ , d. f. 1546) is significant at 5% level indicating that there is significant difference in the average number of individuals during seasons. Significantly higher catches were observed in SW monsoon.

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