

Myctophid Resources of the Arabian Sea and the Bay of Bengal

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Analysis of the catch composition of fish larvae collected from the Arabian Sea and the Bay of Bengal during the International Indian Ocean Expedition revealed that Myctophidae outnumbered all the other groups. This family was represented in 70.8% of the stations contributing to 25.3% of the total larvae collected. The common genera represented in the area were *Diaphus*, *Lampanyctus*, *Diogenichthys*, *Symbolophorus*, *Hygophum*, *Notolychnus* and *Myctophum*. Myctophids were found to be the most widely distributed family of fishes in the Arabian Sea and Bay of Bengal as in oceans. This group which at present serves only as a forage food in the ocean is a potential source of protein from the sea.

The initial investigations of the myctophids were carried by the European workers, who were studying the plankton of the Mediterranean Sea and the North-eastern Atlantic. The studies of myctophid larvae of the Indian Ocean are limited to the works of Becker (1964), Pertseva-Ostroumova (1964, 1974), Ahlstrom (1968), Valsa (1977) and Peter (1982). However no attempt has been made so far to assess the resources of this group or to investigate the possibility of exploiting its fishery.

During the International Indian Ocean Expedition 935 IOSN collections were made (vertical hauls from 200-0 m) from different parts of the Arabian Sea and the Bay of Bengal. The myctophid larvae sorted out from these samples formed the material for this study. The total number of larvae in each sample was estimated and the pattern of distribution illustrated (Fig. 1).

Results and Discussion

Analysis of the catch composition of fish larvae revealed that larvae of Scopeliform fishes outnumbered all the rest of the groups in their percentage of abundance. Among the various groups of larvae classified at the family level, myctophidae ranked first contributing to 25.3% of the total larvae collected from the Arabian Sea and Bay of Bengal. They were represented in 70.8% of the stations and recorded throughout the year.

In the Arabian Sea myctophid larvae contributed to 26.8% of the larvae collected from that area. The larvae had a very wide distribution covering major parts of the offshore and oceanic regions (Fig. 1). The area nearer the coast was represented by small numbers of larvae. However the dominance was noticed in certain pockets along the Somali coast, Red sea, Arabian coast, part of Kerala coast, south of South India and Sree Lanka. A total of 8301 myctophid larvae were collected from 396 stations. The highest number of 258 larvae

per haul was recorded from a station off northern Arabian coast. This group exhibited a very wide temperature tolerance varying from 17 to 30°C. The surface salinity of the areas of occurrence ranged between

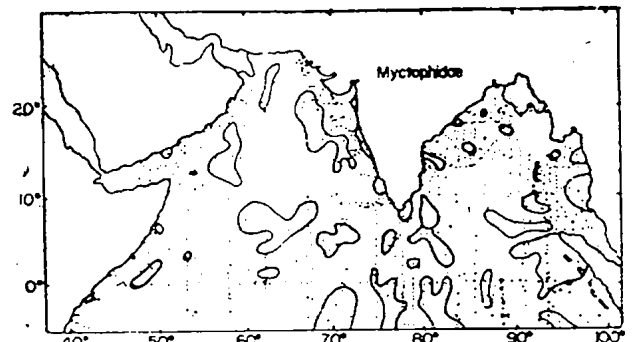


Fig. 1. Distribution of larvae of Myctophidae in the Arabian Sea and Bay of Bengal

32 and 36 ‰, 59% of the larvae were from waters of surface salinity 35‰.

The contribution of myctophids in the Bay of Bengal was 20.8% of the total larvae collected from that area. The distribution was very wide as in the Arabian Sea. The areas which did not record the larvae were the head of the Bay towards the north-eastern side, west of Thailand, south of Andaman Nicobar Islands, northwest of Sumatra and several pockets in the equatorial region as well as in the central and northern parts. 251 stations recorded a total of 4,175 larvae. The highest number of 114 larvae per haul was recorded from a station off West Bengal. The surface temperature of the areas of occurrence of larvae was between 24 and 30°C. The salinity range was between 28 and 35‰.

The larvae of lantern fishes are very peculiar and show great diversity of forms. Species of different genera differ from each other in the shape of eye, finfolds,

pectorals, pattern of pigmentation, etc. The group is represented by large number of genera and species. Among the various genera of myctophids *Diaphus* had the highest abundance followed by *Lampanyctus*, *Dio-genichthys*, *Sympolophorus* and *Hygophum*. *Notolychnus* and *Myctophum* were also common.

Arabian Sea recorded a higher percentage of larvae than in the Bay of Bengal. The presence of larvae throughout the season indicates that the breeding is continuous. The general pattern of distribution shows that they are abundant in offshore and oceanic waters. Ahlstrom (1968) estimated the percentage of myctophids in 50 HIOE samples of the Indian Ocean to be 47.6. The present estimate of larvae in the Arabian Sea and Bay of Bengal comes to 25.3% of the total larvae collected from that area. Moser & Ahlstrom (1970) reported that in the California Current region myctophids contributed to 10–15% of the total larvae collected. The NORAC and ESTROPAC expeditions which surveyed two widely different ecological regions emphasised the dominance of this group in most oceanic waters. This group is perhaps the most widely distributed family of fishes in the world oceans. Myctophids being most abundant and widespread must constitute one of the primary forage foods in the ocean, and hence they are a vital link in the food web (Moser & Ahlstrom, 1970). Alverson (1961, 1963), Watanabe (1960) have observed species of *Benthosema* being fed directly by tunas. Fitch & Brownell (1968) have given evidence supporting that myctophids are a major food of cetaceans at depths of 200–250 m. So this group of tiny fishes which are considered to be not of much economical importance, at present, can turn out to be the biggest potential source of protein from the sea in future.

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