

M.S.25. PETER, K.J.—Studies on some fish larvae of the Arabian Sea and Bay of Bengal—1982—Dr. C.V. Kurian

The major objective of this study was to assess the composition, distribution and abundance of fish larvae of the Arabian Sea and Bay of Bengal during the period from 1960 to 1965 based on the collections of the International Indian Ocean Expedition. The quantitative data obtained have been used to determine the relative abundance and distribution of larvae both in space and time with a view to providing information for the stock assessment and management of fishery resources of the region.

The important oceanographic parameters such as topography, current system, water masses, upwelling, hydrological parameters and zooplankton biomass of the area studied during the expedition were reviewed with the aim of finding out the possible correlation with the abundance and distribution of fish larvae.

Fish larvae numbering 53486, separated from 935 standard zooplankton samples were identified and grouped into 54 families. The larval characters, area, period of occurrence and percentage contribution of fish larvae belonging to 45 groups

were dealt with in detail.

Larvae of scopeliform fishes outnumbered all the rest of the groups in percentage of abundance contributing to 26.7% of the total larvae collected. Of these Myctophidae ranked first with wide-spread oceanic distribution. Gonostomidae ranked second in abundance contributing to 12% of the total larvae collected. Clupeoides comprising of coastal species such as sardines and anchovies which were also recorded in the offshore waters contributed to only 3.8% of the larvae collected. Of these, the major share was that of engraulids. Bregmaceroidae which was third in the order of abundance contributed to 3.7%. Among percoids, carangids had the highest contribution of 1.2%. Scombroids like Thunnidae, scombridge, scomberomoridae and Histiophoridae contributed to 0.95% of the total. The general distribution of fish larvae showed higher abundance in the coastal and offshore waters. Based on their distribution, nine different zoogeographical areas reflecting the hydrological regimes in the Arabian Sea and Bay of Bengal were differentiated.

Numerical abundance of fish larvae ranged from 0 - 1600 per haul and comparatively high values were noticed towards the western sea Arabian Sea, and western Bay of Bengal. The record of higher numerical abundance of larvae in the Bay of Bengal than in Arabian may probably be an indication of the presence of a hitherto unexploited fishery. Distribution studies of fish larval population based on four seasons indicated the concentration of larvae as large patches with maximum during May-August and minimum in September-October period showing the effect of monsoon. Month wise distribution studies in the Arabian Sea revealed great fluctuations in the distribution pattern showing maximum abundance in July and considerable fall in May-December months, whereas in Bay of Bengal the maximum yield of larvae was in February and minimum in December. Analysis of day and night catches of fish larvae indicated nocturnal abundance more than double of that during day.

The distribution and abundance of larvae in relation to environmental parameters such as salinity and temperature showed that majority of the families occurred both in the Arabian Sea and Bay of Bengal irrespective of the differences in the range of salinity and temperature. Areas of high abundance of larvae and their continuous occurrence over extensive periods observed in several cases could be looked upon as indication of spawning grounds and breeding season. Distribution of engraulids indicated the presence of an exploitable resource of that group in the offshore waters. The resources of scombroids, particularly tunas and certain other perciform fishes also are appreciable in the offshore and oceanic waters. Another probable exploitable resource of the oceanic waters is the Myctophidae.

The above findings provide valuable basic information for the exploitation of the fishery resources of the Arabian Sea and Bay of Bengal as they help in the detection of spawning ground and breeding season and also in the estimation and assessment of the commercially important species. A study of this kind and magnitude for this area is unique and made for the first time.