

D-12: Vertical distribution of small pelagic fish during the year with respect to thermocline off the west coast of Sri Lanka

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Ambligaster sp, *Sardinella* sp, and *Anchoviella* sp are major small pelagic species of fish that are widely caught in the coastal waters of Sri Lanka. They contribute about 40% to coastal fish production of the country. Fish contributes 16.25% to the protein requirement of the people.

The purpose of the present study was to ascertain the vertical distribution (swimming layer) of these species during the year with respect to mixed layer depth (MLD) and thermocline.

This study was started in September 1989 and completed in September 1996. Surface water temperature and salinity once a week, and vertical temperature profile and salinity up to a depth of 150 m once in three months, were monitored in the coastal waters off Negombo. Fish caught in gill nets were identified and measured. The height of the dropline of the nets and the position of gilled fish with respect to float line were measured once a week in 10% of the nets operated.

The temperature of the surface water ranged from about 25.4°C to 31.0°C within the year and the salinity ranged from 30.2 to 34.5 ppt. The mixed layer depth

ranged from 60-80 m during pre and post monsoon period and exceeded 150 m during the monsoon period.

About six major species of fish are caught daily by the mesh gill nets, of which *Sardinella gibosa* and *S. melanura* are dominant species. Most of the fish are mature. These fish are distributed at narrow depths of the water column during pre and post monsoon periods when the sea is calm and the thermocline is shallow. Each species had its own swimming layer daily between 0400 – 0600 h. *Leognathus* sp (pony fish) and *Caranx* sp occupied the layer just above the bottom. They are distributed over a wide range of depths during monsoon period when the sea is stormy and the thermocline is deep. There was no evidence of clear swimming layers during this period. Two way ANOVA test was carried out taking fishing depth and season. It was found to be significant ($p > 0.05$). The height of the drop line and gill net could be adjusted accordingly for efficient exploitation of the resource.

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