Abundance, distribution and species composition of ichthyoplankton in surface coastal waters of Sri Lanka

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Eventhough the knowledge on ichthyoplankton (fish eggs and larvae) is important for fisheries management, such information are often lacking in Sri Lanka waters. The aim of this study was to find out the abundance, distribution and diversity of ichthyoplankton in six coastal regions (North East, Central East, South East, South, South West and North West) of Sri Lanka. Ichthyoplankton samples were collected by continuous underway fish egg sampler (CUFES) method during the Ecosystem Survey conducted in Sri Lankan waters by RV Dr. Fridtjof Nansen from 23 June 2018 to 16 July 2018. Fish eggs and larvae were separated from other plankton and identified to the lowest possible taxonomic level. A total number of 3735 fish eggs belonging to 33 morphological categories and 146 fish larvae belonging to 32 families were collected from 49 stations. The most abundant larval families were Bregmacerotidae (16.7%), Engraulidae (11.1%), Pomacentridae (11.1%), Microdesmidae (7.4%) and Leiognathidae (7.4%). An average abundance of 50/100 m^3eggs and 1.64/100 m^3 larvae were recorded. According to the Kruskal-Wallis test, the abundance of both fish larvae (P=0.057) and eggs (P=0.891) were not significantly different among the regions. However, the diversity of fish larvae was significantly different (P=0.001) while the fish eggs were not significantly different (P=0.792) among the regions. The highest abundance of fish eggs and larvae recorded from a single station was found in the Central East region, having 225 eggs (6% of total eggs) and 42 larvae (29% of total larvae), an area bordering the mouth of Kumbukkan Oya. This study concludes that there was a high abundance, diversity and variation in the distribution of pelagic, demersal and mesopelagic ichthyoplankton in Sri Lankan waters. Since this was a preliminary study, continuous studies are recommended to be carried out especially within the aim of studying the spatial and temporal variation in the abundance and diversity of ichthyoplanktons in Sri Lankan waters. Results of such studies could be integrated for conservation and management of marine resources in Sri Lanka.

Keywords: ichthyoplankton, fish eggs, fish larvae, Sri Lanka, Dr. Fridtjof Nansen Ecosystem Survey

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