Abundance and Diversity of Ichthyoplankton in the West Coast of Sri Lanka, from Kelani River Estuary to Maha Oya Estuary

A.P.R. Silva[1], M.I.G. Rathnasuriya[2,3], K.P.G.K.P. Guruge[1] and R.P.P.K. Jayasinghe[2]

[1]*Department of Animal Science, Uva Wellassa University, Badulla, Sri Lanka*
[2]*Marine Biological Resources Division, National Aquatic Resources Research and Development Agency, Colombo 15, Sri Lanka*
[3]*Faculty of Fisheries and Ocean Sciences, Ocean University of Sri Lanka, Tangalle, Sri Lanka*

Fundamental understanding of fish resources has become an urgent need in Sri Lanka for the sustainable management of fish stocks. As studies on ichthyoplankton (fish eggs and larvae) in Sri Lankan coastal waters are scarce, a preliminary study was carried out with the aim to find the abundance, distribution and composition of ichthyoplankton in the west coast. Samples were collected in five stations bordering Kelani river estuary, Negombo lagoon and Maha *Oya* estuary in the west coast where human interactions are relatively high. Horizontal surface sample and a vertical sample were collected from each station using Working Party 2 (WP2) plankton net (180 µm mesh size) for three months in 2018: March, September and October representing 1st inter-monsoon, Southwest monsoon and 2nd inter-monsoon respectively. Fish eggs and larvae were separated from plankton and identified to the lowest possible taxonomic level under the stereo microscope using the standard keys. A total of 4095 fish eggs and 465 fish larvae belonging to 23 families were collected from the study area. An average abundance of 8772 eggs and 996 larvae per 1000 m^3 were recorded. Most abundant taxonomic level in each month were, Family Siganidae in March, Family Blennidae in September and Order Clupeiformes in October. The highest abundance of fish eggs was found in Station 3 (22158 per 1000 m^3 in vertical sample and 13934 per 1000 m^3 in horizontal surface sample) and larvae was found in Station 4 (1196 per 1000 m^3 in vertical sample and 2537 per 1000 m^3 in horizontal surface sample) which is located adjacent to Maha *Oya* estuary, showing estuaries' ecological services as nursery grounds for early stages of fish. This study infers that there is a high pelagic and demersal fish diversity and abundance in the west coast of Sri Lanka. Since this is a preliminary study, comprehensive studies on the spatial and temporal variation of abundance and diversity of ichthyoplankton in Sri Lankan waters are recommended.

Keywords: Ichthyoplankton, Fish larvae, Fish eggs, West coast, Sri Lanka