

**ABUNDANCE AND DIVERSITY OF
ICHTHYOPLANKTON IN THE WEST COAST OF
SRI LANKA, FROM KELANI RIVER ESTUARY TO
MAHA OYA ESTUARY**

A dissertation submitted to the
Faculty of Animal Science and Export Agriculture
Uva Wellassa University
in partial fulfillment of the requirement of
the degree of
Bachelor of Science in Aquatic Resources Technology

By

ALANKARAGE PUBUDINI RANAHANSIKA SILVA

**Department of Animal Science
Faculty of Animal Science and Export Agriculture
Uva Wellassa University**

2018

ABSTRACT

Fundamental understanding of fish resources has become an urgent need in Sri Lanka for the sustainable management of fish stocks. A preliminary study was carried out with the aim to find the abundance, distribution and diversity 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. A 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. Fish eggs and larvae were separated and identified to the lowest possible taxonomic level under the stereo microscope using the standard keys. A total of 4095 fish eggs from which 3 families: Clupeidae, Engraulidae and Cynoglossidae were able to identify. And 465 fish larvae belonged to 23 families from which 19 were demersal. The 5 most abundant larval families recorded from the study site were Siganidae (30%), Blenniidae (28%), Clupeidae (7%), Gobiidae (5%) and Engraulidae (4%). An average abundance of 8.772 /m³ eggs and 0.996 /m³ larvae were recorded. The results of one-way ANOVA revealed that the spatial variation of larval abundance was significant ($P < 0.05$). The highest abundance of fish eggs was found at station three (22.158 /m³ in vertical sample and 13.934 /m³ in horizontal surface sample). Further, egg abundance was found to be highest in March. Highest larval abundance (1.196 /m³ in vertical sample and 2.537 /m³ in horizontal surface sample), number of families (19), Simpson index (0.261), richness (8.584) and dominance (0.755) were recorded at station four which is located adjacent to Negombo lagoon mouth and Maha Oya estuary. 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