

Zooplankton biomass variation in relation to temperature and salinity for upper 30 m around Sri Lanka

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Zooplankton play a vital role in the marine environment by transferring the energy to higher tropic levels through the food web. However, the studies on zooplankton in the coastal waters of Sri Lanka are deficient. The present study was conducted from 23rd June to 16th July, 2018 as a part of a marine ecosystem survey using the Research Vessel RV Dr. Fridtjof Nansen. Twenty seven zooplankton samples were collected by vertically hauling the WP2 plankton net with 180 μm mesh size. The net was taken from 30 m to surface from ten transects in six regions. Each zooplankton sample was divided into two equal halves using a Motoda splitter. The first part of the sample was size fractionated successively by using three sieves with mesh-sizes of 2000 μm , 1000 μm and 180 μm . The content on each screen was rinsed with freshwater to remove salt and transferred to pre-weighed Aluminum trays. The trays were dried at 60 °C for 24 h and frozen on-board. These samples were dried once more and weighed for estimation of biomasses. Among six regions, the highest zooplankton biomass (0.0596 gm^{-3} dry wt) was observed in South West region followed by South region (0.0452 gm^{-3} dry wt). The lowest average zooplankton biomass was recorded in North East region (0.0161 gm^{-3} dry wt). For the upper 30 m of the ocean, the highest temperature was recorded in the North East region and highest salinity recorded in North West region. According to correlation analysis, significant negative relationship was observed between zooplankton biomass and temperature ($r=-0.82$, $p<0.05$) and significant positive relationship was observed between zooplankton biomass and salinity ($r=0.69$, $p<0.05$). This relationship of zooplankton biomass with temperature and salinity are important to understand plankton population dynamics in Sri Lankan waters. Since zooplankton are one of the major food sources for planktivorous fish, this study provides important parameters into models used for predicting fish abundance in Sri Lankan waters.

Keywords : zooplankton, biomass, temperature, salinity, RV Dr. Fridtjof Nansen Ecosystem Survey

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