

Environmental effect on the skipjack tuna
(*Katsuwonus pelamis*) fishery in the
Sri Lankan waters

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Abstract

Skipjack tuna (*Katsuwonus pelamis*) is one of most important species in Sri Lankan waters and this species and fisheries show highly sensitive to their environmental changes. This study shows variation of skipjack tuna abundance in Sri Lankan waters in relation to changing environmental parameters. Nine year satellite derived environmental parameters (sea surface temperature (SST), sea surface chlorophyll (SSC) and sea surface height (SSH) and offshore skipjack tuna catch and effort data were obtained. Results of the analysis showed that skipjack tuna showed seasonal variations in their abundance with environmental parameters. An empirical cumulative distribution function (ECDF) approach identified that high catch per unit effort (CPUE) of skipjack tuna occurred when SST

ranged from 28 to 29.5 °C, SSC concentration ranged from 0.05 to 0.5 mg/m³ and SSH ranged from 80 to 90 cm. Cross correlation functions (CCF) results of the average SST with CPUE were positive and significant, with positive time lag of 2 months during the study period. CCFs of the average SSC with the CPUE were positive and significant, with positive time lag of 6 months. These results showed SST and SSC are important environmental parameters affecting on abundance of skipjack tuna resources in Sri Lankan waters.