Preliminary Study of Bioluminescence Species in the Southern Bay of Bengal

H.B.U.G.M. Wimalasiri"[2], S.U.P. Jinadasa', D.C.T. Dissanayake[2], A. Weidemann[3], H. Wijesekera[3]

'National Aquatic Resources Research and Development Agency (NARA), Sri Lanka.
'Department of Zoology, University of Sri Jayewardenepura, Sri Lanka
'Naval Research Laboratory (NRL), USA.

Marine organisms ranging from bacteria to fish make their own chemically induced light called bioluminescence, it is used to hunt, frighten predators, attract mates, communicate, or camouflage them. The bioluminescence phenomenon was studied in the southern Bay of Bengal during August 2015 onboard R/V Roger Revelle operating from Colombo, Sri Lanka. The intensity of light produced by bioluminescence spices was measured using Recoverable Bathy Photometer (RBP). The RBP recorded light intensity while free falling at a speed of about 1-1.5 m/s. Several RBP profiles in the upper 200 m were collected at six different sites encompassing a region 5 - 8N, 85.5 - 88.5E. All samples were collected in the night time to minimize interferences from other light sources. Zooplankton samples were collected using 150 1.11T1 mesh size plankton net from each location to identify light producing zooplankton species. The RBP measurements showed the existence of bioluminescent organisms in all the sampling locations and high light intensity was found up to 150-200 m water depths. *Sapphirina sp* belonging to the family Sapphirinidae of phylum Arthropoda was identified as one of the light emitting zooplankton species. Studies are underway to examine the luminous substances, and vertical and spatial distribution of these species, especially around Sri Lankan coastal waters.

Key words: Bioluminescence, Recoverable bathy photometer, Zooplankton, Bay of Bengal.