Marine environmental indicators in the aspects of biodiversity at port of Trincomalee

A.A.S.H. Athukoorala[1*], W.A.A.U. Kumara[2], P.A.K.N. Dissanayake[3], K.P.G.K.P. Guruge[3], P.D.R.S. Pethiyagoda[4] and P.B.T.P. Kumara[5,3]

[1]Marine Biological Resources Division, National Aquatic Resources Research and Development Agency

[2]Faculty of Fisheries and Ocean Sciences, Ocean University of Sri Lanka, Tangalle, Sri Lanka

[3]Department of Oceanography and Marine Geology, Faculty of Fisheries and Marine Sciences & Technology, University of Ruhuna

[4]Department of Zoology, Faculty of Applied Sciences, University of Sri Jayewardenepura

[5] Marine Environment Protection Authority, Colombo 09, Sri Lanka

sujeewahemanthi@gmail.com

Abstract

Fish are the key indicators of the marine ecosystem which can provide the idea about healthiness of the marine ecosystems. A small number of keystone species can have a huge impact on the balance of the ecosystem. Therefore, indicators are measureable metrics of a particular aspect of ecosystem's health. Trincomalee is one of the major biological hot spot within Sri Lankan coast having huge diverse of marine resources. The Trincomalee port is the largest and the finest natural harbor in Asia. Continues disturbances made by shipping activities and invasion of alien species may have negative impacts to change the balance of the ecosystem. The original ecosystem condition must be known not only to assess the later impacts but also to restore the damaged ecosystems. Therefore a biological baseline survey has been conducted for the understanding of the current situation of the Trincomalee port. Underwater Visual Census (UVC) was carried out at the pre identified 16 piers (Ashroff jetty, Claperbury Island, Coral Cove, Diving unit pier, Elephant Island, Fishery harbor, Holland Cove, IOC pier, Marble beach, Navy pier, Nicolson Cove, Peper, Prima,

Sygan, Tokyo cement) with the aim of finding out the fish species diversity of the harbor in August 2014. Fish species were recorded from a video camera on separate swims along 50 m long 2 m wide transects. The fishes were identified using standard identification keys (Rajasooriya (2013), (1997) and FishBase (ver. 06/2011).The results indicated that, there were 193 fish species belonging to the 46 families. Among them Labridae(11%), Acanthuridae(11%) and Pomacentridae (10%) are the most common families. Species diversity is 120 species/1000 m^2 and ranging to very high species richness category according to the Hilomen's species richness and abundance index of 2000. Elephant Island site shows the highest fish species richness (58 species) followed by Coral Cove (55 species) and Tokyo cement sites (49 species), while IOC site showing lowest species richness (12 species). Therefore, it can be concluded that the Trincomalee port is having high fish diversity. This baseline information is useful for managing and conserving this ecosystem in future.

Keywords: *Baseline survey, Diversity Ecosystem, Fish species, Trincomalee port*