

**ASSEMBLAGES OF PLANKTON IN
TRINCOMALEE INNER HARBOUR BASIN,
SRI LANKA**

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

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2014

Abstract

Introduction of invasive alien plankton through ballast water is a major ecological issue in many countries in the world. Trincomalee harbour is one of the largest commercial port in east Asia due to its strategic location. Therefore, Trincomalee harbour is under risk of introducing alien species through the discharge of ballast water. As there are no local studies addressing this problem, the present study was carried out to gather baseline data of plankton in Trincomalee harbour. Three local sites including Trincomalee inner harbour, Trincomalee north harbour and Trincomalee south harbour were sampled. The plankton density, diversity and physico-chemical parameters of water samples were measured. Data on species density and physico-chemical parameters were analyzed using Pearson Correlation statistical tests as appropriate. There is a strong positive and negative relationship between species density and salinity. Altogether 127 taxa of plankton were found in the samples. Zooplanktons were categorized under 13 major groups and it was found that copepods, crustacean larva and ichthyoplankton were the major contributing groups towards zooplankton diversity and density. Diatoms comprised higher amount of the total phytoplankton population followed by dinoflagellates, Green algae and Blue green algae. The common diatoms were *Chaetoceros* sp. and *Rhizosolenia* sp. Some harmful algal bloom forming phytoplanktons were also observed. Through the study, 39.97 % of *Skeletonema costatum* was recorded and it is an indicator for eutrophication. Plankton abundance showed significant differences ($P < 0.05$) with respect to their location (One way ANOVA) and plankton diversity did not showed significant differences ($P > 0.05$) with respect to their location (One way ANOVA). Further, 47 plankton species were also recorded from the study area that were not recorded in the literature and it was found that there are six species common to Trincomalee harbour basin and ships visited to Colombo harbour.

Keywords: Ballast water, Alien species, Trincomalee harbour, Zooplankton, Phytoplankton