

## **A preliminary study on the invasion of plankton into the west coast of Sri Lanka through ballast water**

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Invasion of alien species through ballast water has become a world-wide serious problem resulting severe ecological and financial damages. Since Sri Lanka is located close to a trans-oceanic shipping route connecting the east and the west, and her Colombo harbour being a popular sea port, there is a high potential of introducing alien species such as planktons into the Sri Lankan maritime zone by ships. Nevertheless, no studies directly or indirectly related to this issue have been carried out in Sri Lanka. Therefore, the present investigation was carried out to investigate whether the ballast water of ships calling at the Colombo harbour contains alien plankton species and the impact of their presence on the marine plankton community native to the western coastal waters of Sri Lanka around the Colombo harbour.

Marine plankton occurring within the Colombo inner harbour and in two other neighboring sites in the open sea bordering the coasts of Panadura and Pamunugama in the west coast were collected using plankton nets. In addition, ballast water of five cargo ships called at the Colombo harbour were also sampled for planktons. The physico-chemical parameters, i.e. temperature, dissolved oxygen, pH, conductivity and salinity, of the water samples collected from all the above sites and ballast tanks were measured using standard water analytical techniques. Altogether 164 taxa of planktons were found in all the water samples. In the ballast tanks alone, there were 58 different taxa of which 28 taxa were not recorded elsewhere within the three study sites. Multivariate statistical tests confirmed that the composition of the plankton community structure of the ballast water samples was significantly different from that of the three sampling sites. However, the physico-chemical parameters of the water samples between the sampling sites and the ships did not differ significantly.

This study showed that the alien plankton species are introduced into the coastal waters of Sri Lanka through ballast water of the cargo ships. Nevertheless, these species have not been recorded from local waters, which may be due to chance events and natural phenomena like sea water dilution and marine predation.