

## Investigating the Plankton Diversity and Density in ballast tanks of ships entering the Persian Gulf (Bushehr Port)

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### Abstract

Shipping is among the most important ways to transfer the non-native species. In the present study, the transferability of the plankton species by the ballast water of 10 ships entering the Bushehr Port in the Persian Gulf has been investigated. The values of physicochemical parameters measured in the ballast waters showed that the average temperature, pH, salinity and TOC, were 26.2 °C, 8.17, 37.90 ppt and 34.73 ppm, respectively. In total, 3 phylum, 3 classes, 18 orders, 23 families, 39 genera and 53 species of phytoplankton were identified. The Ochrophyta with 18 families (78.73%), Myzozoa with 4 families (20.32%), and Haptophyta with 1 family (0.94%) were the highest to the lowest phylum found inside the tanks. Zooplankton species were from 7 phylum, 11 classes, 15 orders, 33 families, 38 genera and 48 species. Arthropoda comprises 57.25% of the species (the highest density) with 23 families and 38 species and Chordata with two families and two species, 1.52% of species (the lowest density). No invasive species were also identified among the species indicating that they pose no threat for the coastal ecosystem of the Bushehr Port due to the transfer of invasive species through the waters of the northern India Ocean. The process of ballast water exchange can be applied as an appropriate managerial technique to alleviate the risk of transferring the non-native species to the Bushehr Port.

**Keywords:** Plankton, Ballast water, invasive species, Persian Gulf.