

## Ecological Study of Macrobenthic Communities of Intertidal Sediments in Delvar (Bushehr)

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Received Date: April 18, 2011

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Accepted Date: December 31, 2012

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### Abstract

To study the ecological status of intertidal ecosystems in Delvar (Bushehr), sediment sampling of three tidal levels from six stations (including two intertidal mud-flats, two sandy and two boulder ecosystems) was carried out during three seasons of cold (winter 2009), temperate (spring 2009) and warm (summer 2009). Ecological indices of infaunal macrobenthic assemblages including Shannon-Wiener biodiversity index, Pielou evenness index, Berger-Parker species dominance index and Margalef species richness along with the environmental variables were measured. Results revealed an insignificant seasonal difference ( $p < 0.05$ ) between environmental variables, especially salinity and temperature in most of stations. Macrobenthic abundance (the highest in Karri,  $75 \pm 2.943$  and the lowest in Delaram,  $6 \pm 0.077$  Ind.m<sup>-2</sup>) was significantly correlated (positive,  $p < 0.01$ ) with fine grain size percentage and TOM. Relatively, lower values of Shannon-Wiener diversity, Pielou evenness and Margalef species richness indices (0.055, 0.183 and 8.353 respectively) and also higher Berger-Parker dominance index (0.972) in Delaram during winter indicated the tough natural condition of this sandy ecosystem. Poorly ecological status in Rustami boulder ecosystems might be consequent of environmental impacts related to the fishing harbor. Although, the results of indices in the study area were not the indication of suitable environmental conditions, Haleh' muddy and Karri boulder ecosystems had better ecological status compared with the other stations (Shannon-Wiener biodiversity 0.833 and 0.792, respectively and Berger-Parker species dominance index 0.133). Harbor also showed the similar ecological properties (e.g. environmental variables and indices) to Haleh. The former as a man made intertidal mudflat showed the possibility of the establishment of these ecosystems in the study area as an ecosystem based management approach. Investigating the results of this study, it is concluded that protection of introduced ecosystems seemed to be something inevitable.

Keywords: *Intertidal ecosystems, Ecological indices, Macrofauna, Delvar, Persian Gulf.*

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