



Environmental conditions assessment in the population structure of artificial reef fishes in the Persian Gulf (Bandar-e-Bostaneh and Salakh)

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Abstract

Principal Component Analysis (PCA) was used to determination impact of physico-chemical parameters of waters on fish families in Artificial reefs of in Bandar-e-Bostaneh (Bandar –e-lengeh) ((two areas one station concrete pipe(A.R_p) and second combination of concrete pipe, pyramidal and Reef ball structures(A.R_{p,p,b})) and Bandar Salakh(Qeshm island) in period 2017-2018 seasonally. The PCA results of physical-chemical parameters(temperature, pH, dissolved oxygen, salinity, chlorophyll-a, ammoniac, nitrate, nitrite, phosphate and turbidity), and aquatic families number showed a significant relationship in A.R_{p,kh} (Sphyraenidae, pomacentridae, apogonidae, serranidae, nemipteridae, soft coral and sponge), A.R_p (Lutjanidae, Sphyraenidae, apogonidae and serranidae) and A.R_{p, p, b} (Lutjanidae, serranidae and sponge) to other aquatic animals. In addition, the results of pearson test showed that between the total number of aquatic animals and the temperature ($R^2 = -0.58$), chlorophyll a ($R^2 = 0.86$), nitrate ($R^2 = 0/38$), and turbidity ($R^2 = 0.64$), and between sphyraenidae and temperature ($R^2 = -0/36$), and lutjanilade and chlorophyll a ($R^2 = 0/38$), have a significant correlation with 95% probability level ($P < 0.05$). In this study, the effect of environmental factors on fish families of artificial reefs in Bandar-e-Bostaneh and Bandar-e-Salkh was concluded.

Keywords: Artificial reefs, Physico-chemical parameters, PCA, Bandar-e-Bostaneh, Bandar-e-Salakh and Persian Gulf.