

Effects of substrate material and depth on spatial distribution of *Saccostrea cucullata* in intertidal zones of the northern Persian Gulf

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Abstract

Substrate material and depth can play a key role in spatial distribution of biofouling species. Oyster *Saccostrea cucullata* is one of the biofouling species residing intertidal zones of the Persian Gulf. In the present study, effects of substrate material and depth on density of this species were investigated. Density and relative frequency of *S. cucullata* on the three substrate types consist of rocks, concrete blocks, and metal substrates were measured in summer 2016 and winter 2017. To determine effects of depth, substrates in the upper and lower intertidal zones were studied. Our results showed that this species reached higher densities on the rocks (39.39 ind. m⁻²) and metal (40.25 ind. m⁻²) substrates. Concrete blocks exhibited lower densities of this oyster comparing with rocks and metal substrates. *S. cucullata* reached the highest relative frequencies on the metal surfaces (70 %) in comparison with the natural rocks (63 %). Depth did not showed any significant impact on density of this species in the studied intertidal areas. It appears using natural rocks as breakwaters could provide this species with favorable substrata and increase density of this biofouling species.

Keywords: Biofouling, Intertidal zone, Distribution, *Saccostrea cucullata*, Persian Gulf.