Egyptian Journal of Aquatic Biology & Fisheries
Zoology Department, Faculty of Science,
Ain Shams University, Cairo, Egypt.
ISSN 1110 – 6131
Vol. 29(4): 989 – 998 (2025)
www.ejabf.journals.ekb.eg

Ecological Study of Some Macroinvertebrates in the Intertidal Sediments of Khor Al Zubair, Basra City, Iraq

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ARTICLE INFO
Article History:
Received: May 14, 2025
Accepted: July 13, 2025
Online: July 18, 202

Keywords:
Intertidal sediments,
Macroinvertebrates,
Physical and chemical properties,
Khor Al Zubair

ABSTRACT

This study aimed to investigate the species composition and relative abundance of aquatic macroinvertebrates **(**mollusks, crustaceans, and annelids**)** in the intertidal zone of the Khor Al-Zubair area. Sampling was conducted from January to May 2024 at three stations along Khor Al-Zubair to determine the dominant species and distribution patterns. Physical and chemical parameters—including water temperature, pH, dissolved oxygen, and salinity—were measured. Results indicated that all parameters were within normal ranges, except for salinity, which reached a notably high level of 62 ppt. Many macroinvertebrate species were absent from the dataset, and the overall diversity appeared low, likely due to the negative impact of elevated salinity on species richness. Based on species that contributed significantly to the ecological structure, four main types of macroinvertebrates were identified. Dominant taxa included the crab *Scylla serrata*, the annelid *Namalycastis annandalei*, the oyster *Crassostrea cucullata*, and the barnacle *Balanus amphitrite*.

INTROUCTION

The Arabian Gulf, an open region with numerous ships, ports, and oil wells, has undergone significant environmental changes due to oil pollution and resource depletion, becoming one of the world's most important conduits for the transport of oil pollutants **(Asadi, 1996)**. This anthropogenic impact has caused ecological disturbances that have adversely affected the diversity of sediment biota **(Montana *et al.*, 2023)**. Macroinvertebrates possess distinct characteristics that set them apart from other invertebrates; some species exhibit a high tolerance to pollution, while others are more sensitive **(Merritt *et al.*, 2008)**. Sediment-dwelling organisms are also influenced by abiotic factors such as temperature **(Haimi *et al.*, 2005)**, sediment moisture **(Tan *et al.*, 2021)**. Among these factors are the sediment texture and structure **(Michael, 1993)** in addition to pH **(Carey, 2004)**. In this context, the availability of micro- and macronutrients **(Hotta *et al.*, 1986; Callaham Jr. *et al.*, 2003)** is to be considered. Their distribution in marine environments also