Environmental Monitoring of Intertidal Coasts of Khark Island Using Bivalvia Distribution (Pollution Indicator)

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Abstract

With their high geographical distribution in seas and lakes, bivalvia are the second most various of mollusks. They are considered among the best indicators of the environmental monitoring assessment in the seas in regard with the toxic substances and greatly help researchers and monitoring in assessing the oil and chemical pollutants of an area. Moreover, variety and distribution of indigenous species and changes in the quality, quantity or even presence or absence of alien species are effective factors in interpreting the pollution (Hossein Zadeh, 2000).

Despite the negative impacts of oil activities on coastal ecosystems and biodiversity of aquatic species, expansion of maritime transportation in the world has led to transfer of many aquatic species to alien environments. Such transfer is mainly conducted by ships and oil tankers that take up large volumes of water to maintain the vessel's stability after they have delivered their oil or cargo to the port of destination and discharge it later on to load cargo, which would raise the risk if the transferred species are able to adapt to the ecological and biological conditions of the new environment. The aquatic species in their larva or adolescent periods will be able to survive in a new environment if they can biologically and ecologically adapt themselves, and they are not threatened by their natural enemies (Emam, 2006).

The environmental monitoring of the intertidal areas on the beaches of the Khark Island was conducted with identification and determination of the distribution of the bivalvia through sampling in four seasons for a period of one year. The monitoring was done in a northern (northwest to northeast) area 5.5 kilometers long and 35 meters wide in three transects with the average distance of 1.5 kilometers, and a southern (southeast to southwest) area 3 kilometers long and 80 meters wide in 2 transects. The sampling was done in the first month of each season at the highest tide using a 30*30*30 cm quadrate. The species mainly lived on sand, gravel and rock beds. The species in the south had higher distribution and diversity, due to the accumulation of oily wastes and chemicals resulting from the petrochemical industries in the area.

Keyword: Monitoring- Khark Island- Intertidal Zone

Preface

The intertidal zone is an area between the land and sea that is exposed to the air and water currents. In the ecological field, the intertidal zone is divided into the three parts of supertidal, intertidal and subtidal areas, differing in the extent they are covered by the water during the tidal movements. These areas house different species which have high adaptability to the differing conditions. In some places, the intertidal zone is also divided into three sub groups.