



Level of Total Petroleum Hydrocarbons in the Water and Sediments of Abu- Zariq Marsh, Thi- Qar Governorate - Southern Iraq

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Abstract: The current study was conducted during the summer and winter of 2021 to study the concentrations of total hydrocarbons in the water and sediments of three stations in Abu- Zariq, Marsh one of the marshes of southern Iraq in Thi- Qar Governorate, Some environmental characteristics were also measured by estimating the organic carbon content in the sediments, air and water temperature, pH, salinity, dissolved oxygen, and biological oxygen requirement. The first station of the summer season recorded the lowest concentration of total petroleum hydrocarbons in relation to water and sediment, and their rates reached (2.73) $\mu\text{g/l}$ for water and (3.87) $\mu\text{g/g}$ dry weight for sediment. The highest concentration of total petroleum hydrocarbons in the water and sediments at the second station was in the winter, and it reached 6.01 $\mu\text{g/l}$ for water and 7.03 $\mu\text{g/g}$ dry weight for sediments. It was noted from the results that there was a seasonal and locational variation in the concentrations of total petroleum hydrocarbons in the waters and sediments of Marsh Abu- Zariq. Clearly higher concentrations were recorded in the winter compared to the summer, and the studied area is somewhat unpolluted. As for other physical and chemical measurements of the water, they showed the highest rate of total organic carbon in sediments, 2.1%, in the second station during the winter, the lowest value was 0.41% in the first station during the summer, and the air temperature recorded the lowest value in the winter in the third station, reaching 18°C, and the highest value during the summer in the third station, reaching 49°C. While the water temperature recorded its lowest value in the winter in the third station, which reached 14°C, and the highest value in the summer in the third station, which reached 35°C. The highest pH rate was recorded at 8.55 in the second station during the winter, while its lowest value reached 7.13 in the first station during summer season. The highest rate of salinity was 2.78 ppm in the second station during the winter, while the lowest rate was 0.56 ppm in the third station during the summer. The highest rate of Dissolved Oxygen(DO) was recorded at 9.1 mg/L in the first station during the winter, while its lowest rate was 6.85 mg /L in the second station during the summer, while the highest rate of Biological Oxygen Demand(BOD) reached 4.99 mg/L in the second station during the winter, while its lowest rate reached 2.59 mg/L in the third station during the summer.

Keywords: Abu- Zariq Marsh- Total petroleum hydrocarbons - Water - Sediments - Thi –Qar.