



## Assessment of Water Quality of East Hammar Marsh Using Water Quality Index (WQI) Following the Cessation of Saline Tide in 2018

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**Abstract:** The water quality index (WQI) was studied monthly, from November 2018 to October 2019, at three stations (Al-Saddah, Al-Burgah, and Al-Marsa) in the Basrah Governorate's East Hammar Marsh. This study measured various environmental factors, including water temperature, pH, dissolved oxygen, biological oxygen demand, light penetration, salinity, total dissolved salts, total hardness, nitrates, nitrites, phosphate, sulfate, calcium, and magnesium. After the end of the salty tide in 2018, the first station showed poor seasonal evidence 43.7 (low WQI score) in the winter, fair 67.6 and 64.9 (third category) in the spring and summer respectively, and marginal 55.9 (fourth category) in the summer and fall. The second and third stations had poor WQI score in the Winter and marginal in the rest of the seasons. The results indicate that the water quality is polluted and deviates from its optimal state. The WQI values varied significantly across all sites. The lack of freshwater drainage and ongoing marine water impacts are the reasons for the deterioration of water quality. Treatment is recommended to address this issue.

**Keywords:** CCME, East Hammar marsh, Inland water, Southern Iraq.

### Introduction

Freshwater is a vital and limited resource necessary for life, as well as for various agricultural and industrial uses. Thus, ensuring an adequate quantity and quality of freshwater is required to develop renewable sources of water (Dunea *et al.*, 2020). Scientific studies support the importance of water treatment for maintaining its quality (Borchardt *et al.*, 2016).

Deterioration of water quality can occur due to human activities, including the discharge of harmful chemicals and an uptick in pollutants. These factors may contribute to elevated nutrient concentrations in surface waters. (Stoner & Albrey Arrington, 2017). These impacts on nature can have dire consequences and upset the balance of natural resources due to society's increasing use of them (Galal *et al.*,