

APPLICATION OF MODIFIED WQI CANADIAN VERSION ON SHATT AL-ARAB RIVER

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Abstract

During the tidal cycles, water samples were collected monthly from four sites along the middle section of the Shatt Al-Arab River. (Spring & Neap Tide) from October 2021 – to August 2022 to determine eighteen parameters (Physical, Chemical and Biological) . Canadian Council of ministers of environment (CCME) was applied to assess the water quality for different uses. Result showed that most water parameters higher than the Iraqi permissible values that classified the water of the middle part of Shatt Al-Arab River as (Poor – Good) general purposes, although it was (Poor) for drinking, and (poor – marginal) for irrigation uses.

Key Words: Water assessment , WQI , CCME , Shatt Al-Arab river , Spring & Neap Tide

Introduction

Water quality depends on the different chemical, physical and biological properties of water in addition to the standard specifications that are used to measure water quality (UNEP, 2006). The quality of water, whether underground or surface, is affected by nature and human activities, or by both. Without human intervention, the water quality is affected by the processes of deposition of particulate matter from the atmosphere, salt carried by wind, dust, metal erosion factors from the rocky bottom, nutrients from the soil, natural deposition of organic matter, in addition to hydraulic factors, all of which change the water's physical, chemical, and biological qualities. Natural water contains a lot of partially dissolved materials and completely dissolved materials. Many dissolved minerals and salts are necessary and help maintain and support the integrity of the organisms that depend on the components of this ecosystem (Al-Khal, 2021). Jahad (2014) mentioned water quality and defined it as a set of chemical, physical and biological properties that are associated with the purposes of water use such as drinking, fishing, agriculture, and recreation. The unsafe and incorrect Utilization of water resources causes many nations to be concerned about water resources. In light of the fact that water will be a scarce resource in the future, water quality evaluation has become a vitally important practice. (Moyel and Hussain, 2015). Traditional techniques of assessing water quality were based on comparing the values of specific experimental variables with established standard values, and this study does not employ water quality indices to provide a global perspective on the temporal and spatial direction of overall water quality. (Qzar et al., 2021; Al-Asadi & Al-Hejuje, 2022). The water quality index can summarize numerous water quality parameters and transform them into data that decision-makers and administrators can readily comprehend and evaluate. (CCME, 2001).