

ASSESSMENT OF THE WATER QUALITY INDEX OF THE MAIN DRAIN, IRAQ

Inass Al-Mallah and Qusay Al-Suhail*

*College of science, University of Basrah, Basrah, Iraq, email: anosa1974@yahoo.com

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ABSTRACT

There are ten monitoring stations along the Main Drain course from Baghdad to Basrah cities, they were used to assess the water quality spatially and temporally. The assessment was achieved by measuring seventeen physical and chemical variables of the water quality. The Canadian Council of Ministers of the Environment Water Quality Index was applied in this study based on three specific international guidelines. The results depict that the quality of the drinking water of the Main Drain can be classified as poor water because it ranges between (14.75% – 46.34%) in all river stations except in station 1 in Baghdad. This considered as marginal indicating worst quality in river water that caused by the discharges of pollutants from agricultural runoff, sewage, domestic wastes to the water system without any treatment. Based on the WQI results for irrigation, which ranged from 11.65% to 50.75%, most water stations in river have poor classification except station 2 of Baghdad and 3 of Babylon that can be classified as marginal type. The WQI of the Main Drain for Maintenance River Systems No.25 at 1967 can be classified as marginal in Babylon and poor in Dewaniya with (3.57% and 50.5%), respectively. The extreme using of fertilizer, pesticides and agricultural effluent towards the Main Drain River deteriorates its quality especially at downstream stations. These results confirm potential pollution of the Main Drain, so it is necessary to control the agricultural and human activities to obtain a good program of the best operation of the main branched drains.

Keywords: Water quality index, Assessment, Guidelines, Physicochemical parameters, Main drain, Iraq

INTRODUCTION

Water is an essential natural resource for sustaining life and environment, today; river is considered one of the major sources for surface water and has substantial contribution to carry water and nutrients to area across the world (Munna *et al.*, 2013).