

## Assessment of Water Quality of Euphrates River at Babylon Governorate, for Drinking, Irrigation and general, Using Water Quality Index (Canadian Version) (CCMEWQI)

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**Abstract :** Water quality index (WQI) is considered as an effective tool in categorization of water resources for its quality and suitability for different uses. The Canadian version of water quality index (CCME WQI) which based on the comparison of the water quality parameters to regulatory standards and give a single value to the water quality of a source was applied in this study to assess the water quality of Euphrates river in Iraq at Babylon Governorate north of Baghdad and determine its suitability for aquatic environment (GWQI), drinking water (PWSI) and irrigation(IWQI). Five stations were selected on the river in Babylon (Euphrates River/AL-Musiab, Hindia barrage, two stations at Hilla city and the fifth station at Al-Hshmeya north of Hilla. Fifteen water samples were collected every month during August 2013 to July 2014 at the study sites and analyzed for the physico-chemical parameters like (Temperature, pH, Electrical Conductivity, Total Dissolved Solids(TDS), Total Suspended Solids(TSS), Total Alkalinity, Total Hardness, Calcium and Magnesium Concentration, some of nutrient like Nitrite, Nitrate, Phosphate also the study of concentration of some heavy metals (Fe, Pb, Zn, Cu, Mn, and Cd) in water and comparison of measures to benchmarks such as guidelines and objectives to assess change in water quality. The result of Canadian version of(CCME .WQI) to assess the irrigation water quality (IWQI) of Euphrates river was (83-good) at site one during second seasonal period while the lowest was (66-Fair) in the second station during the fourth seasonal period, the values of potable water supply index (PWSI)that the highest value was (68-Fair) in the fifth site during the second period while the lowest value (42 -Poor) in the second site during the first seasonal period,the highest value for general water quality (GWQI) was (74-Fair) in site five during the second seasonal period, the lowest value (48-Marginal) in the second site during the first seasonal period. It was observed that the main cause of deterioration in water quality was due to the lack of, unprotected river sites ,high anthropogenic activities and direct discharge of industrial effluent.

**Keywords :** Babylon governorate, Canadian version, water quality, Euphrates river

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