Environmental Engineering and Management Journal

September 2023, Vol. 22, No. 9, 1513-1522
http://www.eemj.icpm.tuiasi.ro/; http://www.eemj.eu
http://doi.org/10.30638/eemj.2023.127

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AN INTEGRATED WATER QUALITY ASSESSMENT OF THE IRANIAN PART OF THE ZAB RIVER USING CHEMICAL AND BIOLOGICAL INDICES

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Abstract

The Zab River, which originates from the northwestern highlands of Piranshahr in Iran, plays an important role in economic development and human and ecological health in Iran and Iraq. The objective of this study is to evaluate the chemical and biological indices of water quality in the Iranian section of the river, providing insight into the region's environmental condition. Specifically, the Canadian Water Quality Index (CWQI) and Biological Monitoring Working Party (BMWP) index were utilized to evaluate the riverine water quality at one upstream station, two stations in mid-stream, and one station downstream between November 2020 and March 2021. According to the CWQI, the classification of river water ranges from "marginal" to "poor" for drinking and aquatic life purposes and "marginal" to "good" for irrigation purposes. Additionally, the macro-invertebrate families recorded at station 1 (upstream) indicate moderate to good water quality at this location. On the other hand, the species which were resistant to pollution were observed on station 4 (downstream). Furthermore, the water quality of the Zab River was classified as "moderate" based on the BMWP index. Notably, the BMWP index correlated with the CWQI for both irrigation and aquatic life indices ($P<0.05$), suggesting that the BMWP index is a valid tool for assessing the water quality of the Zab River.

Key words: bioindicator, biological monitoring working party (BMWP), water quality index (WQI), Zab river

Received: August, 2022; Revised final: August, 2023; Accepted: September, 2023; Published in final edited form: September, 2023

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