The trend of changes in the Trohic State Index (TSI) in Chitgar Lake during ۲۰۱۳-۲۰۱۹

Ali Abedini[۱]*
Siamak Bagheri[۲]*
Ali reza Mirzajani[۳]
Ahmad Ghane[٤]
Mohammad Reza Talakesh[٥]

۱, ۲, ۳, ٤. Inland water Aquaculture Research Center, Iranian Fisheries Science Research Institute, Agricultural Research Education and Extension Organization (AREEO), Bandar Anzali, Iran.
٥. Engineering Organization and Civil of Tehran city, Tehran, Iran

***Corresponding authors:**
aabedinim@yahoo.com

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Abstract

Lake of the Martyrs of the Persian Gulf (also known as the Chitgar Lake) is located in the north-western of Tehran. The construction of this artificial lake was done by Tehran Municipality was filled water of the Kan River in ۲۰۱۲. TN, TP, SD and Chl-*a* was used to determine trophic levels. Water sampling was performed by Rotner sampler and the water quality was investigated on ٥ stations site during ۲۰۱۳-۲۰۱۹. Standard methods were used for Analysis of water parameters. To determine the difference between mean of the studied parameters, the One-way ANOVA variance analysis test and Duncan mean pair test was used, and the confidence level was ۹٥٪. Based on the study, the results indicated that during ۲۰۱۳-۲۰۱۹ the mean yearly EC was ٤۳۲±٦٥ µs/cm, pH was ۷,۷۹±۰,٤٥ and SD was ۳,۷±۰,۹ meter. The mean yearly of dissolve oxygen, total phosphorous, total nitrogen, respectively, were ۸,۳±۱,٤, ۰,۰٤۱±۰,۰۱٥, ۲,۸۲۸±۱,۳٤۲ as mg/l and chlorophyll-α was ٥,۲±۲,۷ µg/l. During the months under study, the water temperature varied between ٥,۸±۰,٤ to ۲۸,۹±۰,۲ as °C. The ratio of total nitrogen to total phosphorus was more than ۳۰ which indicated phosphorus is limiting factor in the lake Eutrophication. Based on multivariate evaluation method, during ۲۰۱۳-۲۰۱۹ mean of TSI was ٤۰,٦±٦,۳ with range of ۲۹-٥۰. In the early years, TSI was oltraoligotrogh and during ۲۰۱٦-۲۰۱۷ the eutrophication state close to the mesotrophic state and then it has almost returned to its original level during the downward trend after the summer of ۲۰۱۸. Introducing fishes and refinery performance are two main factors that have contributed to the declining level of eutrophication in the lake.

Keywords: Water quality, Chitgar Lake, Physical and chemical parameter, TSI.