Study of the Beshar River water quality in the Dena Protected Area

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Abstract

Currently, the Beshar river water is the source of aquatic life and water resource for wildlife and inhabitants around it and it is one of the major tributaries of the Karun river. This study aimed to access the water quality of a part of the Beshar river which pass through the Dena Protected Area (DPA). In this study, eleven stations were selected along the Beshar river in the study area and this 19068 meters' route was sampled during three consecutive days in February 2017 with three replications in each station and a total of 33 samples were collected. The samples were finally transferred to the laboratory in covered glass containers and the parameters of Nitrate (NO3), Phosphorus (P), Biological Oxygen Demand (BOD), Total Dissolved Solids (TDS) and Fecal coliform were extracted. The data were analyzed by One Sample T-test, Independent Sample T-Test, Analysis of Variance (ANOVA) and Spearman Correlation Matrix. The results showed that the mean of P (0.672±0.68) and fecal coliform (4.01±0.17) in the water was higher than the standard limits ($p \leq 0.01$) and in some parts of the river with simultaneous presence of several human, agricultural and industrial uses around it, the two parameters of P (all stations except 2, 4 and 9) and fecal coliform (three stations of 7, 8 and 10) was higher than the standard limits ($0 \leq p \leq 0.05$). Also, the spatial variability of all five factors resulted from the simultaneous entry of untreated wastewater of crusher sites, aquaculture, villages and agricultural lands to the river water. On the other hand, a positive significant correlation between P, TDS, BOD and fecal coliform indicate an increasing load of them from the pollutant sources around the river water simultaneously. Therefore, Beshar river water has deteriorated while passing through the DPA around the stations of 7, 8, 10 and 11 which were simultaneous adjacent to multiple human, agricultural and industrial uses and due to the human and wildlife consumption of its water along the route in the area, the risk of infection, disease and death threat them.

Keywords: Beshar, Dena, Water quality, River, Protected area