

Water Quality Assessment Chahnimeh reservoirs in Sistan basis via NSFWQI, IRWQI_{SC} and Liou indexes

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Abstract

Water quality assessment of Chahnimeh reservoirs is essential as important sources of water supply for drinking and farming the cities of Zabol and Zahedan has been of great interest and value. The aim of this study was to evaluate the quality of water by NSFWQI index, Iran surface water quality (IRWQI) and pollution index (Liou). This study was cross-sectional. Quality parameters needed for NSFWQI, IRWQI and Liou indexes calculation such as pH, dissolved oxygen (DO), BOD, total suspended solids (TS), COD, EC, temperature, total nitrate, total phosphate, turbidity, fecal coliform, hardness, ammonia, and content were measured for 12 months (from July to December 2012) using standard methods at 12 selected stations in Chahnimeh reservoirs. The results of the study showed that the indices observed the NSFWQI index between 53 to 63 with medium quality, the IRWQI index between 50.57 and 75.82 with good quality and medium quality and pollution index (Liou) between 3.5 to 5 polluted with moderate quality. The best water quality based on NSFWQI, IRWQI and Liou indexes was observed 63, 75.86 and 3 in the cold months (January-April) in three Chahnimeh reservoirs and the worst water quality by 53, 49.74 and 5.25 in the fourth Chahnimeh in August. Water quality can be reduced due to increased BOD, depletion of dissolved oxygen, increasing hardness, EC and ammonia water as a result of being trapped water, increased evaporation, Lack of water harvesting in the summer and substrate. The results showed that the Chahnimeh of one, two and three is better quality than the four Chahnimeh. Also, there are differences in the parameters used and the method of calculating the index NSFWQI, IRWQI and Liou indices, the results of all three methods overlap to evaluate water quality.

Keywords: Water quality, Sistan, Chahnimeh, NSFWQI, IRWQI, Liou.