Study the self purification Capacity and Water quality of Qarahsoo River Using Qual2kw and NSFWQI Models

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Abstract

Much domestic sewage, industrial wastewater and many agricultural drainages will enter the Qarahsoo River in itsflow path. Given that each river has a capacity to accept pollutants and self-purification to a certain extent. nowadays, knowing the process of changing the quality and self- purification ability of rivers is very important. In this study, the Qual2kw model's performance was investigated in the assimilative capacity in 2015 to the Qarahsoo River in Ardebil province between Aladisge to Arbabkandi stations with a length of 90.6 km.for this purpose, first, the calibrated model of Qual2kw simulated parameters change of NO_3, BOD_5, DO, pH and temperature for two months of January and July, and then it was compared with observational data in Aladizgeh, Samian, Anzob and ArbabKandi stations. The best model simulation for pH parameter was obtained and in the next ranks, the parameters were, respectively NO_3, BOD_5, DO, and Temperature. In addition, the quality of the water of the Qarahsoo River with the NSFWQI water quality index was monitored during the months of April and January 2015 in the range of stations from Neiragh to Kangerlu according to the samples taken by the Environmental Protection Agency. The results showed that the water quality of the Qarahsoo River in the month of January is in the middle class and in good quality in April. The Kangerlu station with the index of 56 in January had the lowest water quality along the river.

Keywords: Qarahsu River, Self-Purification, Physical and Chemical Parameter, QUAL2K$_w$, NSFWQI.

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