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## **Study and comparison of physicochemical parameters on water quality of Roein river in Esfarayen in summer and winter**

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### **Abstract**

The present study was carried out in Roein River of Esfarain, North of Khorasan Province, to investigate the effect of salmon farm wastewater on water quality indices. Sampling was carried out in two warm and cold seasons from July 2016 to March 2017 by measuring of some water physicochemical parameters including temperature, PH, EC, BOD<sub>5</sub>, TDS, NO<sub>3</sub>, PO<sub>4</sub> and NH as well as total microbial load. According to the results of this study, the parameters of NH, BOD<sub>5</sub>, PO<sub>4</sub> and microbial load after reaching their maximum level at the second station, had a decreasing trend, which according to the expected chart, with increasing distance from the fourth station they will reach their initial value. NO and PH were similar to the same, with this difference that their maximum value was at the second station, and then fell to their initial value. It means the river has a positive impact on the reduction of the above-mentioned physicochemical factors. The TDS and EC, though the process of modifying was incremental, it did not seem to be a limiting factor by looking at their changes in their magnitude, even at a distance from the fourth station. Temperature was the only factor that its changes did not correlate with the river and it was 100% dependent on the temperature of the environment, which increased in summer and decreased in winter, and based on the results, it was found that the decrease in temperature was greater than its increase and the increase in the distance from the farm has had a negative impact on it.

**Keywords:** North Khorasan province, Fish Farm effluent, Esfarain, Roein