

Diffusion of Metal and Non-Metal Parameters Sediment of Quttina Lake

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Abstract

In the present research, the main pollution parameters in sediment of Quttina lake have been determined and correlated with pollution sources situated at lake banks, namely, nitrate and phosphate fertilizer factory. Sediment samples and surface and deep water samples from different sites in the lake have been collected. The samples were chemically analyzed using several techniques where the main metal and non - metal parameters have been determined. The analytical results have shown that concentrations of non- metal and metal parameters increase as approaching the northern part of the lake and especially near the phosphate fertilizer factory discharges; fluoride ions concentration has reached 0.77 mg l^{-1} near the phosphate fertilizer. There was no variations in concentration along depth profiles. In addition, an increase in sulfates, phosphate and nitrates ions concentrations have been also observed as approaching the northern part of the lake, their concentrations have reached 50 mg l^{-1} , 3.66 mg l^{-1} and 16 mg l^{-1} for SO_4^{-2} , PO_4^{-3} and NO_3^{-1} , respectively . Moreover, total suspended particulates and total dissolved salts in lake water have been increased significantly (double) in the northern part in comparison with the southern port of the lake. Results of sediment analysis have shown that sediment pollution by metal parameters is relatively low, and the high concentrations observed in some locations, are clearly due to discharges of industrial facilities, situated at the eastern part of the lake. On the other hand, large portion of suspended matter stay in water, which contain metal parameters in addition to phosphor and nitrogen; the most parameters affecting Quttina lake water quality, which should be studied in details.

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