Effect of efteni lake wetland area on melen river non-point pollution

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Efteni lake is located within in northwest of Turkey between the latitudes 41° 50’ to 40° 40’ North and the longitudes 30° 50’ to 31° 40’ East. Besides the biological richness of this buffer zone, it is located on a special hydrological area. The lake is inter-wined with Melen river that is being considered to fulfill the future water necessity of important nearby cities. The main purpose of this study is to investigate the effects to water quality at all inflow-inside area and outflow (Bigger Melen River) to Buffer Zone. This study is the first study to reveal hydrological importance of the field variance in terms of nonpoint pollution. In this study water quality parameters of the water (inflow-outflow) were monitored during spring. The flow rates were measured and samplings were made. Some basic water quality parameters (pH, electrical conductivity, dissolved oxygen, total dissolved solids, resistivity, salinity and temperature) were measured in the field. The nitrate, nitrite, ammonia, TOC and phosphorous parameters were analyzed in laboratory. The results show that the buffer zone had overall positive effect on water quality. The nitrite in May and the nitrate in June reach their corresponding peak values. The pH decreased slightly but it was always higher than 7, the dissolved oxygen (from 10 to around 3 mg/L) and saturation dramatically decreased during spring time. As a result, being located at an important location, the Efteni wetland deserves to be protected and monitored in order to have positive effects on water quality.

Biography

Ahmet Celebi continues his doctoral studies since 2007 at Sakarya university-Turkey and Oulu University-Finland about water pollution, metals and risk assessment. He has studies about Global warming, Water quality and Watershed management.

Metal pollution in the melen watershed-Turkey, its impacts on human health and risk assessment

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Various factors such as metal type, metal quantity, human age, living conditions, weight, etc., have been identified as important in determining the metal toxicity. Besides many metals have been demonstrated as carcinogenic agents. United States Environmental Protection Agency is the leading organization in the risk assessment studies in all over the world. Especially in the recent 20 years there have been studies on the toxicity of various substances and related risk assessments have been carried out. Though risk assessment studies in drinking and utilization waters have been initiated by US yet very new for many countries. The study area (Melen watershed-Turkey) is located in 30.5–31.4 East and 40.3-41.1 North. The main purpose of the present study is to determine the metals that are possessing risks. For monitoring water samples were collected during one year (October 2010-September 2011) and 26 different metals were analyzed according to EPA 200.7 and ISO 11885 standards. The hazard coefficients of the metals in ground and surface waters were calculated for children and adults by ingestion and dermal tests. In the calculation the mean values of the current water quality were used. Also, the scenario was altered for the maximum pollution and the corresponding hazard coefficients were calculated. According to the results groundwater risk coefficients are higher than surface water coefficients. In the groundwater ingestion there is a higher risk for the arsenic, manganese and zinc. It is important to execute regularly the risk assessment studies combined with risk monitoring in all drinking water watersheds

Biography

Prof. Dr. Bulent SENGORUR has completed his PhD. in 1994 from Yildiz technical university. He has published many articles about Hydrology and Environmental Pollution. He has studies about Global warming, Water quality, Hydraulic and Watershed management.

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