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STREAM INPUTS TO LAKE HAZAR (EASTERN ANATOLIA-TURKEY)

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Abstract

Lake Hazar is one of the largest and deepest lakes in the Eastern Anatolia Region of Turkey. It is an outstanding natural resource and famous for its blue, clear, deep and alkaline waters. However, a drastic decrease in water quality and water clarity of the lake has occurred in recent years. This decrease is mainly a result of nutrient and sediment transport to the lake. This study was conducted to assess water quality of Behrimaz Stream and amounts of freshwater, nutrients, major ions, biological oxygen demand (BOD₅), chemical oxygen demand (COD) and total suspended sediment (TSS) carried by the stream into the lake. It was determined that the stream had a major impact on water regime, nutrient enrichment and siltation of the lake. Annual water discharge, annual total nitrogen (TN) and total phosphorus (TP) loads carried into the lake were estimated to be 29×10^6 m³, 103.77 t and 5.23 t, respectively. The contribution of TSS load of the Behrimaz Stream to the lake was 24.913×10^3 t y⁻¹. Over 60% of annual TSS load occurred in April. About 52% of the annual water discharge, 47% of the TN load and 52% of the TP load occurred within two months from March to April. The annual nitrogen and phosphorus loadings to the lake were below permissible loading levels according to Vollenweider's criteria.

Keywords: eutrophication, nutrient enrichment, stream input, suspended sediment, water quality

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