Nature and Movement of Sediments in King Talal Dam

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Abstract

King Talal Dam lies about 42 Km north west of Amman, with storage capacity of 90 MCM. It was constructed on Zerqa and Kurnub groups.

King Talal Dam forms the largest artificial body of water in Jordan. Zerqa river is the main source of water collected in the dam which constitute about 93% of the total water discharged to the dam. Effluents of twenty three different industries located along the banks of the Zerqa river and collected at the dam, which cause a pollution in the sediments of King Talal Dam from the heavy and toxic metals.

53 bottom sediment and 13 core sediment samples representing the lake of King Talal Dam were studied.

All samples were mineralogically analyzed, carbonate minerals, clay minerals, quartz, organic matter and total carbonates were determined.

All samples were chemically analyzed for major elements (Ca, Mg, K, Na and Fe) and trace elements (Pb, Cd, Zn, Mn, Cu, Co, Ni, Cr, Ba, Sr and Rb). The chemically analyzed samples was found to have high concentrations of heavy metals especially lead, zinc, cadmium, chromium, iron and copper.

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Sedimentation rates indicate that an average of 0.5 Mm$^3$/year occurs in the lake and the quantity of sediments are related to the quantity of discharged water during the year especially in the flood times.