PHYSICAL-CHEMICAL-HEAVY METAL PARAMETERS IN WATER OF THE CONCHOS RIVER BEFORE AND AFTER A MAN-MADE CAPTION DAM

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Abstract: The state of Chihuahua is located in northern Mexico. Approximately half of the state is considered to be a semiarid or arid environment. The Boquilla dam is the largest in Chihuahua with a capacity of approximately 3,593 Mm³. This dam is capturing the water from the Conchos River which is the most important for the State. The objective of this study was to quantify the water quality in terms of physical-chemical-heavy metals at two locations points; before the water is captioned in the La Boquilla dam and after being released from the dam. Thirty water samples were collected in Valle de Zaragoza (before dam) and 30 samples in San Francisco de Conchos (after dam). The samples were collected at 0.30 m depth in the Conchos River. The measured variables were pH, EC, temperature and the following heavy metals; Al, As, B, Ca, Cr, Cu, Fe, K, Mg, Mn, Na, Ni, Pb, Se, Si y Zn. The hypothesis established was that the dam is impacting the water quality flowing in the Conchos River. An ANOVA was conducted for each parameter to detect location differences. The concentration of As, Fe, B, Mg, Na, Ni, Ca, Si were higher in Valle de Zaragoza. It was concluded that the man-made dam is helping to improve the water quality of the Conchos River downstream.

Key words: heavy metals, Chihuahua, Mexico, water contamination, Conchos river.

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