ASSESSMENT OF WATER QUALITY IN THE LA BOQUILLA DAM IN CHIHUAHUA, MEXICO

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Abstract: Water is the most important natural resource and essential for mankind. For this reason, man-made dams and different sorts of reservoirs help to maintain this vital liquid. The state of Chihuahua is located in northern Mexico and about half of its territory is characterized as a semi-desert region. During the last 50 years, Chihuahua’s agricultural and industrial activities have multiplied and consequently, surface water and water reservoirs have been contaminated. However, we hypothesized that the La Boquilla dam has escaped this phenomenon because it is capturing the water upstream from the Conchos River. This dam is the largest one in Chihuahua with a capacity of 3.5 Mm³. Therefore, the objective of this study was to assess the water quality of the La Boquilla dam in Chihuahua, Mexico. Twenty randomly selected sampling points and two water samples were obtained at the surface (0.20 m) and at 1.0 m depth. A total of 40 water samples were analyzed. Physical (temperature, total solids), chemical (pH, Ec) parameters as well as the following heavy metals were quantified: Al, As, B, Cd, Pb, Se, Ca, Cr, Cu, Fe, K, Mg, Mn, Na, Ni, Si and Zn. In general, there were no differences in sample depths and the variable amounts were under the Mexican norm for ecological purposes. This conclusion is extremely important when considering that la Boquilla dam is supporting one of the most essential fishing cooperatives of Chihuahua and that most fishing consumption for Chihuahua’s inhabitants comes from this man-made reservoir.

Key words: heavy metals, pollution, reservoirs, Chihuahua, Mexico,

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