WATER QUALITY OF THE LAGUNA DE BUSTILLOS IN CHIHUAHUA, MEXICO

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Abstract. The aquatic ecosystems overseas are being polluted by anthropogenic activities. The Laguna de Bustillos is an ecological icon in the north of Mexico; unfortunately, agricultural, livestock, domestic and industrial waste has been discarded in this lagoon. The objective was to determine the water quality in terms of physical and chemical variables of the Laguna de Bustillos, Chihuahua, Mexico. Water samples were obtained randomly from November 2015 to March 2016. All samples were collected according to legislated Mexican standards. The following variables were quantified in situ; potential hydrogen (pH); electrical conductivity (EC); temperature (T), and total dissolved solids (TDS). The anions and cations were estimated as follows; Fluoride (F⁻), Chloride (Cl⁻), Sulfate (SO₄²⁻), Sodium (Na⁺), Ammonium (NH₄), Potassium (K⁺) and Calcium (Ca⁺). The ion’s determination was made through the use of a (Dionex ICS-1100) Ion Chromatography at the Laboratory of chemical science of the Autonomous University of Chihuahua. The results of physicochemical variables were; pH (8.63), EC (1.44 µS cm⁻¹), T (12.86°C) and TDS (956.67 mg L⁻¹). For the anions it was found; Cl⁻ (363.67 mg L⁻¹) and SO₄²⁻ (483.04 mg L⁻¹), while for the cations the presence of Ca⁺ (212.51 mg L⁻¹), Na⁺ (2046.54 mg L⁻¹) y K⁺ (43.11 mg L⁻¹) were reported. The existence of high concentrations of Cl⁻, Na⁺ y SO₄²⁻ in the water are indicated a negative potential impact to this ecosystem due to the constant discharges from diverse sources. Therefore, if the water of the lagoon were utilized for agricultural and livestock activities, there would be direct repercussions in the soil, crops, wildlife and in the whole ecosystem.

Keywords: Water body, Pollution, Cations and Anions, Mexico.