



Analysis agriculture's impact in a system of lakes on a karst environment with tropical climate.

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This paper has as main object to analyze the impact of agriculture in the water quality of the "Lagos de Montebello" area; which is located in the Southeast of Mexico. This area is prominent by its tropical climate and a karstic environment.

The issue arises in a lake system affected by pollution in the later years, which has turned its former clear water into a highly sedimented muddy water in the topographically lower terrains while no polluted on the higher ones; therefore it is intended to determine if the rise in agricultural activity in the lower terrains has induced this phenomenon.

The impact of agriculture has been historically studied in temperate climates with karstic environments; nevertheless it has not been very well studied in tropical climates; which are the reason of this proposal to perform a study to analyze the impact of the intensive agriculture running in the area.

To develop this project we studied the area regarding to the types of crops that has being established in the zone, being mostly tomato, corn, and bean; and the fertilizers and pesticides applied to them. A groundwater monitoring plan was designed with a variety of phases such as: piezometers building, measurement of groundwater levels, measurement of field parameters, with a two months intervals (Ph, temperature, electric conductivity, total dissolved solids), and water samplings for laboratory analysis (major ions, nutrients, total organic carbon, pesticides) at twice a year, once during rainy season and then on drought.

The rates of pollution agents infiltration depends on the type of soil retention and volume of water. The materials found in the soil by the piezometers are clay, silt, sand and variations between them. We determined that the geochemical qualities of the groundwater vary from calcic bicarbonate to calcic sulfated.

The results reached with this monitoring provides a preliminary diagnosis on the possible causes and other implications that intensive agriculture in a tropical climate with karstic environment has produced, by way of groundwater flow to the lake system of Montebello.