

QUALITY EVALUATION OF EUTROPHICS SEDIMENTS AT ST. AUGUSTIN LAKE, QUEBEC, CANADA

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REFERENCE

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ABSTRACT

St. Augustin Lake is located 20 kilometers west from Quebec City in the territory of Quebec's Provincial Capital. The whole basin land is largely urbanized with some agricultural and wetland zones, some forest spots and surrounded by an important network of highways. The lake neighbors an industrial park that includes airport installations and storage facilities for chemical products. In 1993, a first quality study revealed the presence of some toxic metals in lake sediments. Although, lower levels were found, these analyses were performed at a time where neither standards methods nor quality guidelines were available in Canada. Recently launched, a major City project aims to open the lake to public recreational activities and involves the cleaning of water. St. Augustin Lake is in a eutrophic state most of the year, and all usages have been limited. However, a recent paleo-limnologic study showed that the lake used to be in the past (60 years ago) rather mesotrophic. The water clean-up program cannot succeed without the evaluation and restoration (if needed) of the bottom sediments. Indeed, bottom sediments may constitute important reservoirs for contaminants such as phosphorus, nitrogen, heavy metals and hydrocarbons. These contaminants may be strongly attached to organic colloids, clay and carbonates that are usually present in sediments. This study shows metal profiles and their distribution and correlations between metals and some sediment constituents.