

AN ANALYSIS OF FACTORS THAT MAY BE  
CONTRIBUTING TO THE POLLUTION OF  
LAKE MEMPHREMAGOG  
An Exercise Undertaken by Third Year  
Geography Students

This study was undertaken by the following geography students taking the course, Geography 306 (Cartography), during the 1968/69 academic year.

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## INTRODUCTION

Implicit in this report is the fact that the shores of Lake Memphremagog are widely used for recreational purposes. Pollution has therefore been understood, although not defined, as being the result of actions that have led to, or may lead to, a decline in water quality as viewed by the public using the lake for recreational pursuits. This implies a concentration on pollutants that are readily detected by our senses, or which produce side effects that are aesthetically if not actually obnoxious. For example, soil erosion resulting from poor farming practices will lead to turbidity in lake waters. While the silt and clay particles suspended in the waters may not be considered pollutant for many purposes, public objection to swimming in muddy brown water has led us to consider soil erosion as an undesirable effect and also any practices that represent poor soil husbandry. Alternatively, a lack of dissolved oxygen in the shore waters will pass undetected by the bather, provided the problem has not led to the development of anaerobic algae or bacteria. Fishermen will, however, be aware of this form of pollution - if only through deterioration in the quality of their recreational facilities.

For recreational purposes water should therefore possess the characteristics of low turbidity, low bacteria counts, and complete lack of taste and smell.

## PREFACE

The object of this project was to train students in the collection, organization, analysis and cartographic representation of data. The subject was chosen because of (i) current public interest in aspects of water pollution; (ii) an interest in the Lake Memphremagog region because of the McGill University Summer School held at Stanstead, Quebec; and (iii) because little research has been done with regard to how normal rural life (excluding industry) contributes to a deterioration of water supplies.

The data presented in this report has been obtained from many sources of varying reliability. Analysis and interpretation has been undertaken by students of varying competence, and the final map presentations utilized many different techniques and formats. Photography has been employed to reduce the maps to a common scale and mode of presentation, the effectiveness of this presentation is, however, limited because many of the original cartographic techniques did not lend themselves to this form of reproduction.

In studying this report it is imperative that the reader recognize that the persons involved in its preparation have had no experience with pollution per se. The value of the data lies in the fact that it may prove to be useful background material for interpreting pollution patterns that are found to occur; data of this type not being readily available.

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## MAPS ACCOMPANYING THIS REPORT

1. General Location of the Area Studied
  2. Ion Contribution from Geological Formations
  3. Ground Water Flow Patterns
  4. Geology of the Vermont Watershed
  5. Soil Textures
  6. Soil Drainage
  7. Land Suitability for Pasture
  8. Land Suitability for Hay, Clover and Oats
  9. Land Suitability for Corn and Potatoes
  10. Land Use
  11. Population Distribution (Quebec Portion)
  12. Population Distribution (Vermont Portion)
- (An extremely detailed map of slope categories has not been reproduced because of technical difficulties; it may be consulted in the Geography Dept, McGill University until such time as it is reproduced).