



Parlee Beach, Shediac is New Brunswick's most popular beach destination. The bacterial levels are of concern to residents of Shediac in terms of health and tourism impacts, especially as development continues.



Mount Allison UNIVERSITY



Advanced GIS
GENS 4721

Analysis of Shediac Bay and Surrounding Area



Strata 2

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PROJECT OBJECTIVES

High levels of faecal coliform contamination have been found in Shediac Bay, raising concerns about the impact of urbanization and commercial development.

The purpose of the project is to analyze Shediac and the surrounding area to determine whether there is a relationship between factors of urbanization and levels of bacteria in the bay.

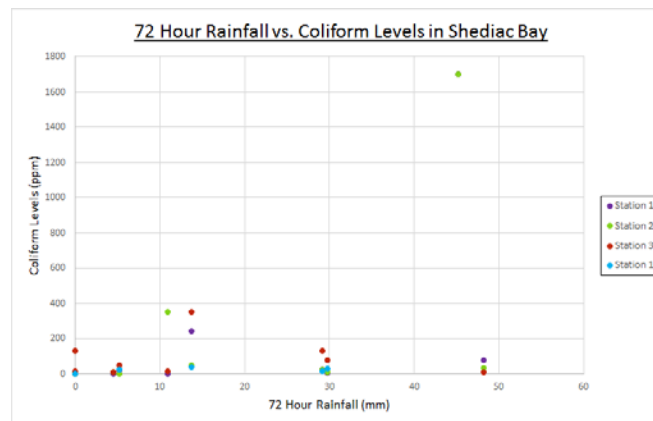
Our strata contains a part of Shediac including Pointe-du-Chêne and Parlee Beach.

METHODOLOGY

We used a GIS-based analysis to complete this project. Data was obtained from various sources; some from government websites, some was digitized by hand. Various statistics which could impact coliform were calculated such as building density, % of agricultural fields, and density of impervious surfaces.

A multivariate mixed modal linear regression was used to determine the strength of the relationship, if any, between various factors and coliform levels. These factors include distance to sewage lift stations, distance to sewage outflow spots, rainfall in the previous 72 hours, and tide & storm surge levels.

ANALYSIS AND FINDINGS



The regression to determine the relationship between 72 hour precipitation and bacterial levels (above) found:

- P Value = 0.00961
- R² Value = 0.536
- SIGNIFICANT RELATIONSHIP

The regression to determine the relationship between tide levels and bacteria found:

- P Value = 0.3998
- R² Value = 0.994
- NOT SIGNIFICANT

When the regression was performed to determine the relationship between distance to lift stations and bacteria, the data did not pass the normality assumption, therefore a log transformation was performed.

- P Value = 0.6311
- R² Value = 0.1361
- NOT SIGNIFICANT

ELLA PORTER

Ella is a third year Bachelor of Arts student at Mount Allison with a major in geography and a minor in GIS. She hails from Lower Onslow, NS where she lives on her family's dairy farm. Ella is involved with various groups and activities at Mount Allison such as Because I am a Girl and intramural hockey. She hopes to one day pursue a career involving GIS in some capacity.

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LAURA PENNEY

Laura is a third year environmental science student with a minor in sociology. Her interests include biogeography, ecology, and environmental management and policy. Laura also enjoys painting and sneaking into Mount Allison's music building to play their pianos.

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NAIA NOYES-WEST

Naia is a third year university student, majoring in environmental studies and minoring in geography. She is concerned with our ability to comprehend current human-environmental issues in such a way that we may take proactive and positive action. Her hobbies include yoga and hiking in her home, the Canadian Rockies.

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