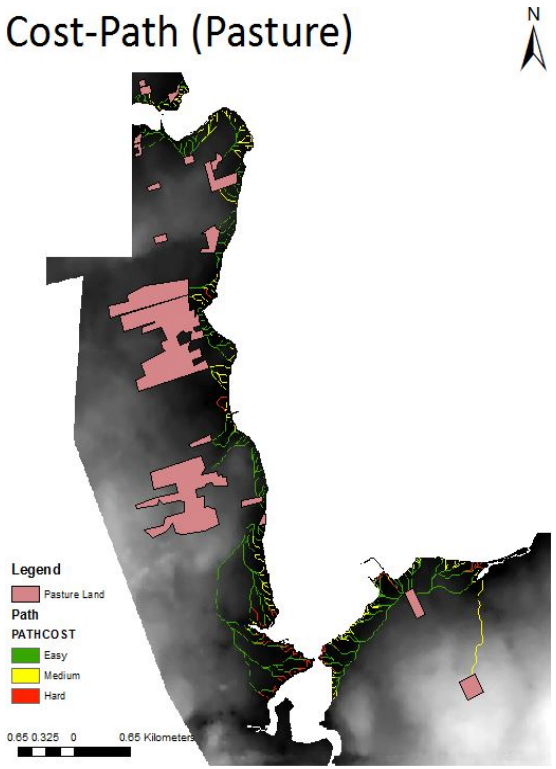


Discussion

Continue monitoring land use.

No influence from 72hr storm surge but 72hr rainfall did influence coliform levels.

Increasing impervious surfaces will increase coliform levels.

Future directions:

- Decrease wetland development.
- Continue monitoring coliform levels.

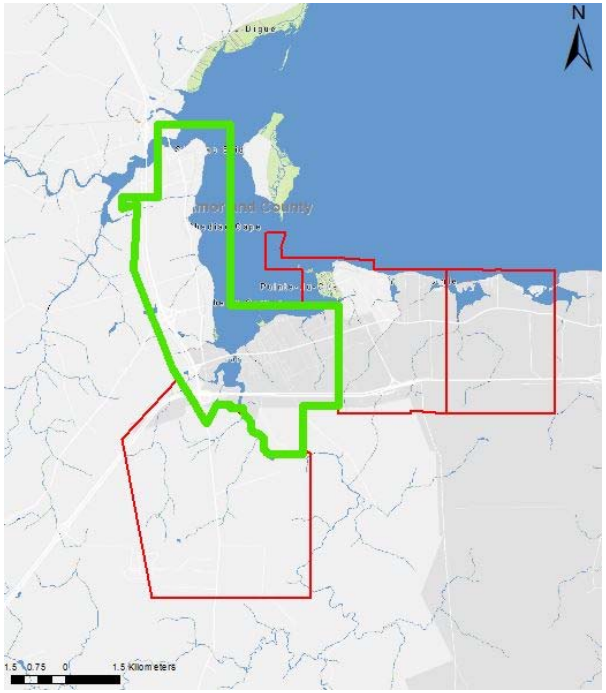
Acknowledgements

Dr. Lieske, Christina Tardiff & Dr. Campbell's Environmental Microbiology class

Mount Allison University

Shediac Bay Contamination: A GIS Perspective – Strata 1

Jessie McIntyre, Leah Rudderham, Vasanth Kannan & Robert Gallant



ADV GIS – GENS 4721

Shediac Bay & fecal contamination

Shediac, N.B is a small town on the Eastern Coast of New Brunswick. Home to over 6,000 residents and an extensive tourism industry that boasts over 20,000 vistors per year.

Shediac Bay has been experiencing increasing rates of coliform in the Shediac Bay and surrounding areas. These high levels of coliform have lead to poor water quality and the closing Parlee beach on numerous occaisions, impacting local the tourism industry, an important feature of the Shediac region.

GIS (Geographic Information Systems) and various techniques have been used to to analyze the spatial relationships in other coliform contamination techniques, making it a useful tool to examine the contamination in Shediac Bay.

Wetlands play a key component of filtering the landscape from poullutants and excess nutrients, including sewage effluent that may pass over the land. Development of wetlands causes a problem for the poor water quality in Shediac.

Methods

Shediac was divided into 5 strata in addition to the control in Kouchibouguac.

Imagery of features was streamed from GeoNB

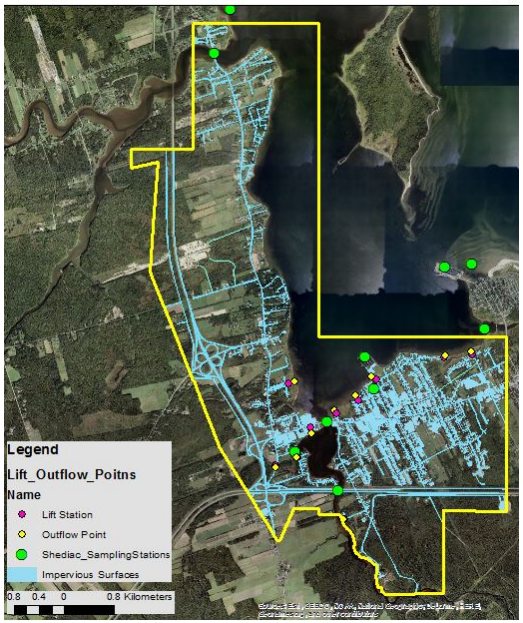
Features including houses, wetlands, parks and campgrounds were digitized into polygons

Roads were provided from NBRN and a 3m buffer was applied to this layer to calculate total area and length

A cost path analysis was done on houses, campgrounds and agricultural land

Multivariate mixed model linear regression between 72hr precipitation, storm surge and coliform in Rstudio.

Impervious Surfaces



Results

Relationship with 72hr precipitation

There was significant relationship found between 72hr rainfall and coliform levels.

No significant relationship was found between 72hr storm surge and coliform levels.

Feature	Land cover strata 1 (%)	Land cover control (%)
Campground	0.35	0.074
Housing	5.62	0.00
Roads	2.53	0.52
Total imperious surface	8.50	1.1
Wetlands	5.22	34.15
Agriculture	8.65	0

Important Features