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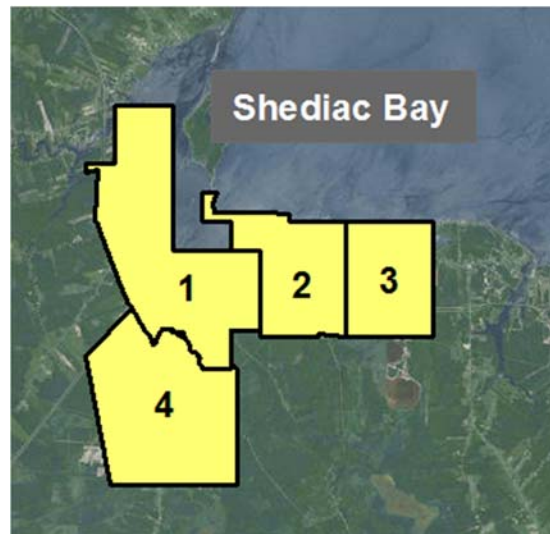
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Shediac Bay Faecal Contamination

Kouchibouguac (Control Area)



GENS 4721

Advanced Geographic
Information Systems

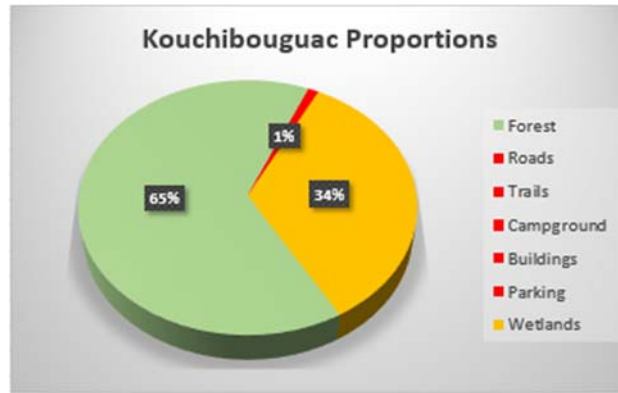
Objectives

- Identify the possible sources of coliform bacteria contamination in Kouchibouguac National Park.
- Correlate coliform levels with rainfall, proportion of wetlands, and visitor rate.
- Establish a baseline for the other strata.

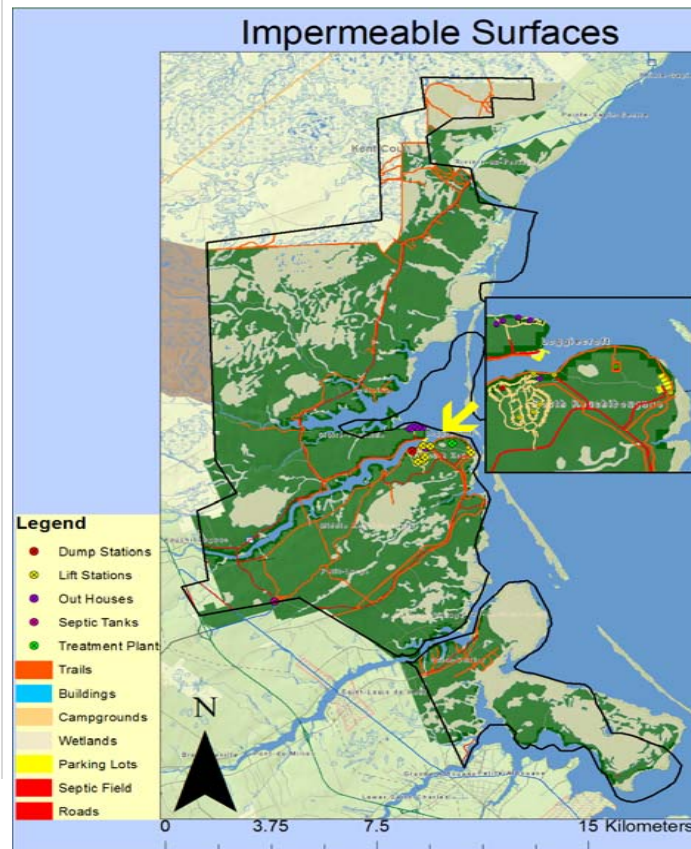
Methods

- Digitizing forests, wetland, and impermeable surfaces in order to find its proportions to the park area
- Finding the water drainage with help of a digital elevation model (DEM)
- Using a Kernel-Density Analysis around the lift stations and septic tanks to interpolate coliform levels
- Using a least cost path analysis to determine coliform runoff
- The program R was used to test P and R² values

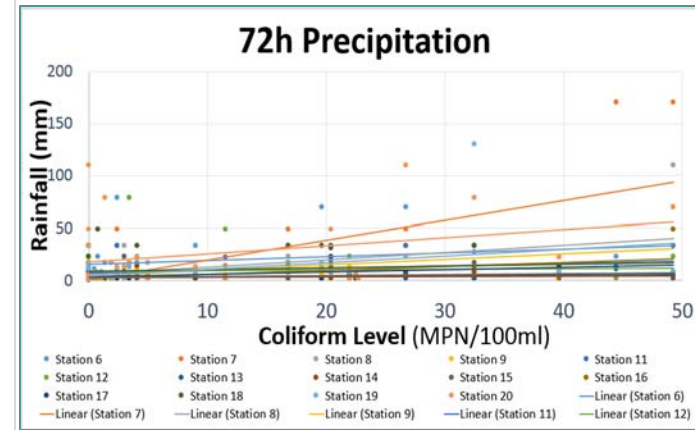
GIS Analysis



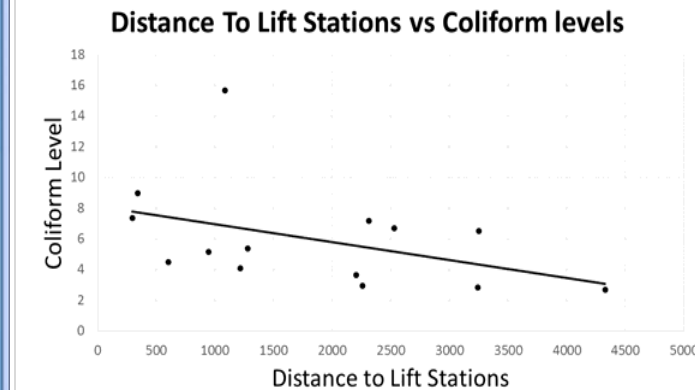
- Most of the park is composed of forest and wetlands
- Approximately 1% of the park area is composed of impermeable surfaces



Results



- There is a positive correlation between coliform levels and rainfall ($P = 9.154 \times 10^{-12}$ and $R^2 = 0.125$)



- No significant correlation appears when comparing distance to lift stations and coliform levels. ($P = 0.1314$ and $R^2 = 0.1793$)