Rissers Beach Provincial Park Coastal Hazards and Implications for Future Management





18 June 2024



CBCL Project site and objectives









- Recent storm damage
- Flood hazard
- Erosion hazard
- Long-term recommendations







Little Rissers, post-tropical storm Lee (September 2023)









CBCL Fall 2023 storms





CBCL Site photos – Little Rissers





CBCL Rissers Point





CBCL Trail connection



- Date & Time: Wed Nov 15 12:46:18 AST 2023 Position: +044.25158° / =064.47703°
- Altitude: 12m
- Datum: WGS-84
- Azimuth/Bearing: 250° S70W 4444mils (True)
- Zoom: 1X

CBCL West end of beach



Date & Time: Wed Nov 15 12:15:24 AST 2023 Position: +044.22759° / -064.43483° Altitude: 2m Datum: WGS-84 Azimuth/Bearing: 297° N63W 5280mils (True) Zoom: 1X





- Recent storm damage
- Flood hazard
- Erosion hazard
- Long-term recommendations



CBCL Climate Change & Sea Level Rise





Source: Canada's changing climate report, 2019



CBCL Components of Coastal Flooding





CBCL Regional wave and storm surge model 📚 NOVA SCOTIA



- Offshore boundary waves and storm surge
- Calibrated to Halifax tide gauge

CBCL Storm waves from the South





CBCL Flooding from Wave Runup

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NOVA SCOTIA PARKS



CBCL Scenario 1 – Typical storm





Present: 50% annual probability

CBCL Scenario 2 – Hurricane Lee (Sep 2023)







Present: 10% annual probability Future: 50% annual proba. with 0.5m sea level rise

CBCL Scenario 3 – Extreme storm





Present: 1% annual probabilityFuture: 10% annual proba. with 0.5m sea level rise50%1m

CBCL Scenario 4 – Future extreme storm





Future: 1% annual proba. with 0.5m sea level rise10%1m





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CBCL Historical Evolution





CBCL Shoreline change rates













CBCL Erosion from Surge and Sea Level Rise 😻 NOVA SCOTIA





EXAMPLE AT Chezzetcook, NS







Source: https://www.youtube.com/watch?v=UKtnCZiuPvg

Example of recent barrier beach breaching and accelerated migration at Lower East Chezzetcook, NS

CBCL Currents along the beach





CBCL Potential erosion projections





Imagery Date: 5/26/2023 20 T 385310.18 m E 4898197.06 m





- Recent storm damage
- Flood hazard
- Erosion hazard

Long-term
recommendations



CBCL Long-Term Adaptation Options





Source: CLIMAtlantic

https://climatlantic.ca/wp/wp-content/uploads/2023/05/CLIMAtlantic-Managed-Retreat-Discussion-Paper-FINAL-March-15-2023.pdf

Problems with Hard Shore 'Protection'



1. Loss of beach at seawalls





2. Adjacent erosion



CBCL Managed Retreat





- + Maintains natural features
- Does not allow beach camping

Recommended as the most sustainable strategy for this site





Future Park management must consider coastal processes:

- Limited natural sediment supply, continued wave action and sea level rise
- Flood and erosion risks will increase
- There is available space for managed retreat approach, which is more sustainable





Thank you Questions and discussion





