



BACKGROUND

In the Climate Change: Newfoundland video you saw that the town of Ferryland, NL, has recently dealt with replacing their breakwater twice after increased strength and frequency of storms over the last 10 years. The following assignment will allow you to research and evaluate the construction of breakwaters and construct your own.

CURRICULAR OUTCOMES:

Grade 8: *Water Systems on Earth (311-10, 311-11, 311-9) and Environmental Science 12 Unit 2 (Sustainable Development) and Unit 3 (Investigating Environmental Issues)*

PROJECT PART A: ESSAY

Breakwaters are constructed all around the world using a variety of designs and materials. Your task is to write a short essay on the different approaches to breakwater construction, including an analysis of their strengths and weaknesses. Discuss the different approaches that are used around the world, how various factors such as population, shipping and availability of resources influence how and where breakwaters are built.

GUIDING QUESTIONS

Note these questions don't have to be directly answered, but their themes could be used to enrich your final essay.

1. How does the size of a community influence the construction of a breakwater?
2. How does the presence of a shipping industry in a community influence breakwaters?
3. Why are breakwaters so expensive to build and maintain?

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GUIDING QUESTIONS (CONT'D)

4. How does the availability of construction resources (and a community's wealth) influence the materials used to construct a breakwater?
5. What have been the consequences to communities who have not invested in breakwaters?
6. How has the construction of breakwaters changed in the past 20-30 years?
7. Has climate change had a measurable impact on breakwaters?

PROJECT PART B: MODEL DEVELOPMENT

Based on your research, you will build a model of a breakwater that you believe would be suitable for a community in Atlantic Canada.

Don't forget to consider:

1. What might be the best resources for construction?
What resources are readily available to most areas in Atlantic Canada?
2. Would your breakwater be suitable for all communities? How might your approach change based on the affluence of the community? How might your response change based on scale (i.e. a 500 m-long breakwater vs. a 5 km-long one)
3. What landscape features around the community might make it easier or harder to build and maintain the breakwater?



CONCEPT QUESTIONS

1. What is the price per capita of the breakwater wall in Ferry Newfoundland?
Is this level of investment within the community sustainable? Explain why or why not.
2. What solutions were presented in the film for residents of the town to deal with the increased strength and frequency of storms in Atlantic Canada?
3. What kind of social implications may result from the pressure on the community to build, maintain, and pay for the new breakwater wall? What could be some social implications for the community if they had chosen another solution?

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