



## BACKGROUND

In the Climate Change: New Brunswick video, we learned about the serious issues that the residents of Indian Island, NB, are facing due to increased storm surges as a result of climate change. For this project, we will model how increased flooding may affect communities in New Brunswick.

### CURRICULAR CONNECTIONS:

**Grade 8:** *Water Systems on Earth (311-9, 311-10),*

*Environmental Science 12: Unit 2 (Sustainable Development) and Unit 3 (Investigating Environmental Issues)*

## PROJECT

1. Go to <http://geonb.snb.ca/flood/>
2. Before navigating to your desired community, turn to the flood information side bar and **turn off** the following features:
  - 2008 Flood Zone
  - 1973 Flood Zone (Fredericton)
3. Once these layers are turned off, navigate to a community that has the potential to be impacted by increased flooding (i.e. a community that borders a major river, such as Fredericton, Quispamsis, Perth-Andover, Moncton, etc.)
4. Decrease the transparency of your flooding enough so that you can make out the outline of the original waterway. Take a screen shot of the community and paste it into a word document to answer question 1.
5. Determine the average distance between the 20 and 100 year flood lines by estimating the distance between the flood lines based on the scale bar on the bottom left of the screen and using at least 5 different points. Answer question 2.



## QUESTIONS

1. Determine approximately the area (in hectares) covered by 1:20 year flooding and 1:100 year flooding within the boundaries of your selected community.
  - *What is the difference between the two values?*
  - *Using the legend and Google maps on satellite view, describe the terrain and any human infrastructure that exists in the potential flooding areas.*
2. There are a variety of models and observations that suggest there will be some change in frequency and intensity of storms over the next century if the current rate of climate change continues. Assuming that climate change will cause the frequency of such flooding to increase, make another copy of your photo and delineate a rough sketch of where flood waters could reach, also assuming that the 1 in 100 year area becomes the new 1 in 20.
  - *How much more land area is lost?*
  - *Using the legend and Google maps on satellite view, describe the terrain and any human infrastructure that exists in the new extreme version.*

## CONCEPT QUESTIONS

1. How has the community of Indian Island responded to the increased risk of storm surges?
2. How are storm surges and flooding different? How are they similar?
3. Why does Chief Ken Barlow (*Chief of Indian Island First Nation*) consider that their community is just "buying time" as opposed to having a permanent solution?
4. What might be the social implications if the community must eventually move entirely?



#### ADDITIONAL LINKS FOR EDUCATORS

The following links can be used to enrich the lesson.

1. This link is Alberta's equivalent to New Brunswick's GeoNB map. It provides a province wide assessment of potential flood areas in addition to city, street and waterway layers.
  - <http://www.envinfo.gov.ab.ca/FloodHazard/>
2. This link is to an Environment Canada page that summarizes all the flood risk areas. It also provides links to provincial departments that manage flooding information.
  - <http://www.ec.gc.ca/eau-water/default.asp?lang=En&n=D44BCC98-1>

#### FOR MORE INFORMATION VISIT:

[WWW.FUNDY-BIOSPHERE.CA](http://WWW.FUNDY-BIOSPHERE.CA)



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