



Be a Climate Science Explorer

Time: 30 minutes to 1 hour+

Materials: Computer, paper, drawing materials.

INSTRUCTIONS

- 1. The Islands.** The Boston Harbor has 34 islands and *peninsulas*. For thousands of years, these islands have protected the Boston coastline from storms and now this job is more important than ever. *Global warming* is making Earth's weather patterns extreme, meaning many of the storms we experience will become more powerful.
- 2. Stormy Seas.** Imagine you are standing outside during the strongest storm you can imagine. What does the sky look like? What do you hear? What do you feel on your skin? Now imagine you are standing on an island during this same storm. What does the ocean look like? What is happening as the waves hit the shore?
- 3. Making Waves.** During powerful storms like the one you imagined, the islands in the Harbor protect Boston's coastline from large waves. Can you guess how? Well, when big waves crash on the islands first, they lose some of their power, so by the time they reach Boston's shore, they are not as strong.
- 4. What are the islands made of?** Boston Harbor Islands are made of two materials: *bedrock* and *glacial deposits*. On the [Boston Harbor Light Webcam](#), Look for the white house with dark rocks on the shore. These dark rocks tell us the island is made of bedrock which is a very strong material. Now find the island to the right of the house. This island is called Great Brewster. Notice the cliffs that look like they are made of sand. This tells us the island is made of glacial deposits which is a mixture of pebbles and rocks.

- 5. Washed Away.** Strong waves crashing on the islands takes a toll over time. Water is powerful enough to wear down rocks and carve cliffs into hillsides. This process is called *erosion*. Many of the islands in the Boston Harbor are eroding, partly because of strong waves. Looking at the webcam, which island material do you think erodes faster (bedrock or glacial till)? See the answer below!
- 6. Erosion in Action.** What does it look like when an island erodes? The answer is right in front of you! Take a look at the cliffs on Great Brewster Island. These structures are called *eroding bluffs*, and they can be found on many of the islands in the Harbor.
- 7. Protect your city!** Download the activity sheet attached to this document or draw an imaginary coastal city. Imagine how the community and buildings will be affected by storm events and big waves. Now it's time to protect your city! Draw something in the water that will help slow powerful waves before they reach your city. You can imagine something natural or human made.
- 8. Share your designs.** Take a minute to share your imaginary city and storm solutions on social media using #FindYourParkAnywhere!



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Did you notice any *italicized* words? Scroll down or flip this page to read the definitions!

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QUESTION TO CONSIDER:

Looking at the Boston Harbor Light webcam, you will notice some important numbers. In the top right corner, it tells you the date and time. In the bottom left corner, there is the "*tide* height." This number tells you how many feet the tide has risen or fallen.

Did you know the Boston Harbor Islands double in size when the tide is very low? What do you think happens when the tide is very high?



Question 5 Answer: Glacial Deposits





GLOSSARY

- 1. Peninsula:** A piece of land that is surrounded by water on three sides.
- 2. Global Warming:** The process of the Earth rapidly heating up due to human activity that releases heat-trapping gases into the atmosphere.
- 3. Bedrock:** Hard, solid rock underneath the surface of the land.
- 4. Glacial Deposit:** Land material that is moved by large masses of ice and left behind after the ice melts.
- 5. Erosion:** The gradual process of land material being worn away and moved by natural forces like wind or water.
- 6. Eroding Bluff:** Tall, steep land formations found near water bodies. They slowly break down over time due to the force of water and wind, often resulting in parts of the bluff collapsing into the water.
- 7. Tide:** The regular rise and fall of the ocean surface.

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