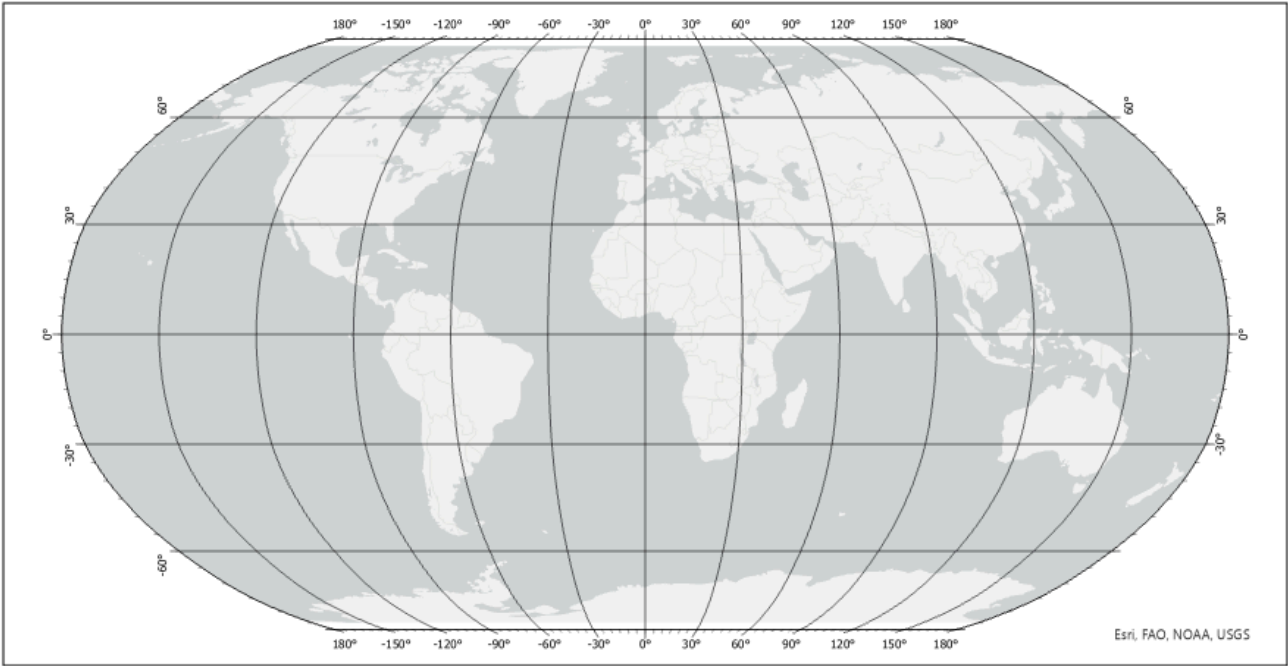


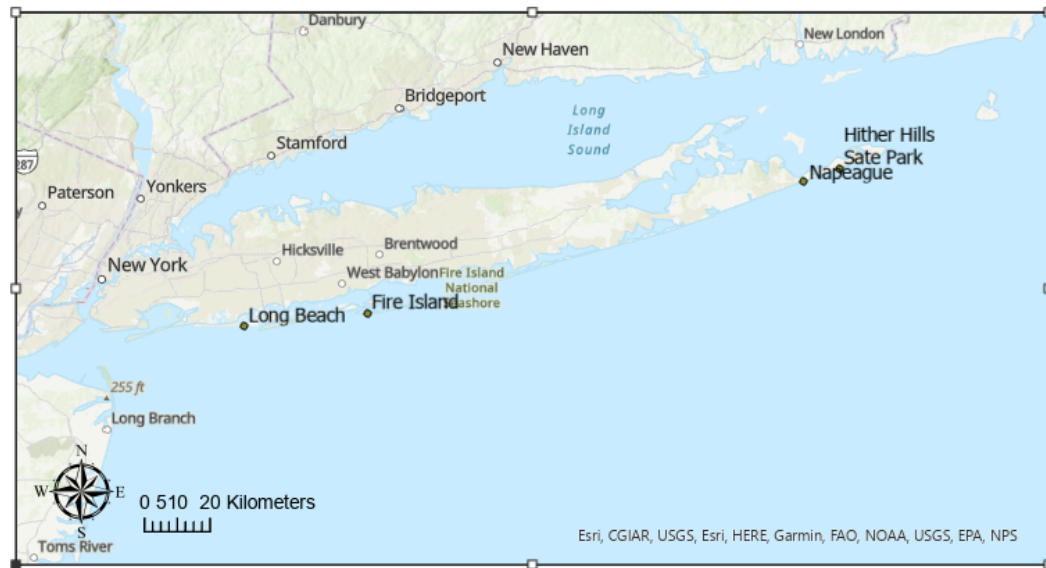
Investigation 1



Use the SandSnap database to explore sites around the world. Record your observations below. Locate the site on the world map, use the site number to identify the site.

| Site Number | Name | Description |
|-------------|------|-------------|
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |

Examine the sand samples below. Higher resolution images can be viewed online at <https://arcg.is/1WyyTj>.



Hither Hills State Park



Napeague



Fire Island

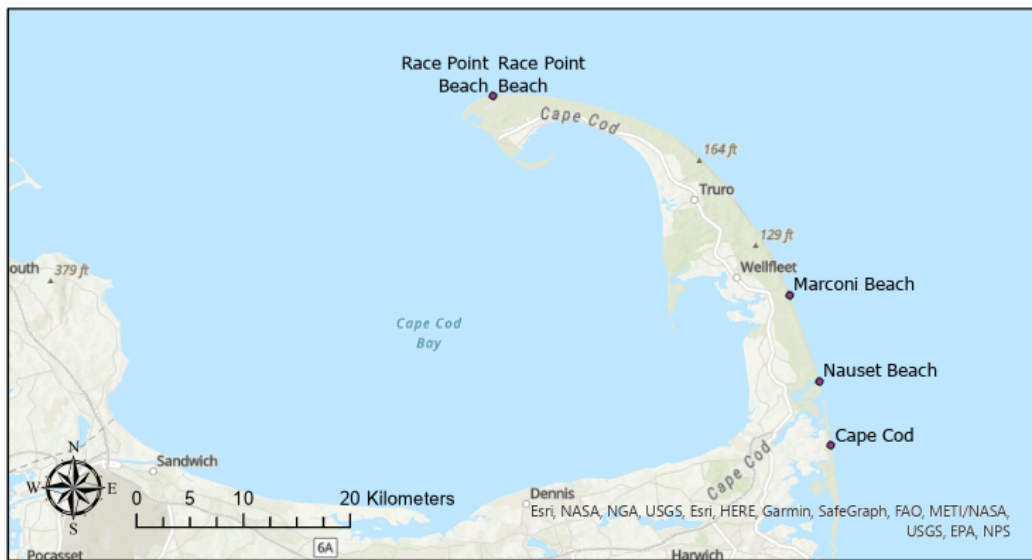


Long Beach

1. List your observations about the sand below. All observations are valid, but try to focus your observations on color (mineralogy), grain size, and the shape of the grains.

2. Based on your observations, which sample is most weathered?
3. Based on the degree of weathering and location of the sample, which direction is the longshore current moving?

Based on the sediment data below, which direction is the longshore transport moving?



Race Point



Marconi Beach



Nauset Beach



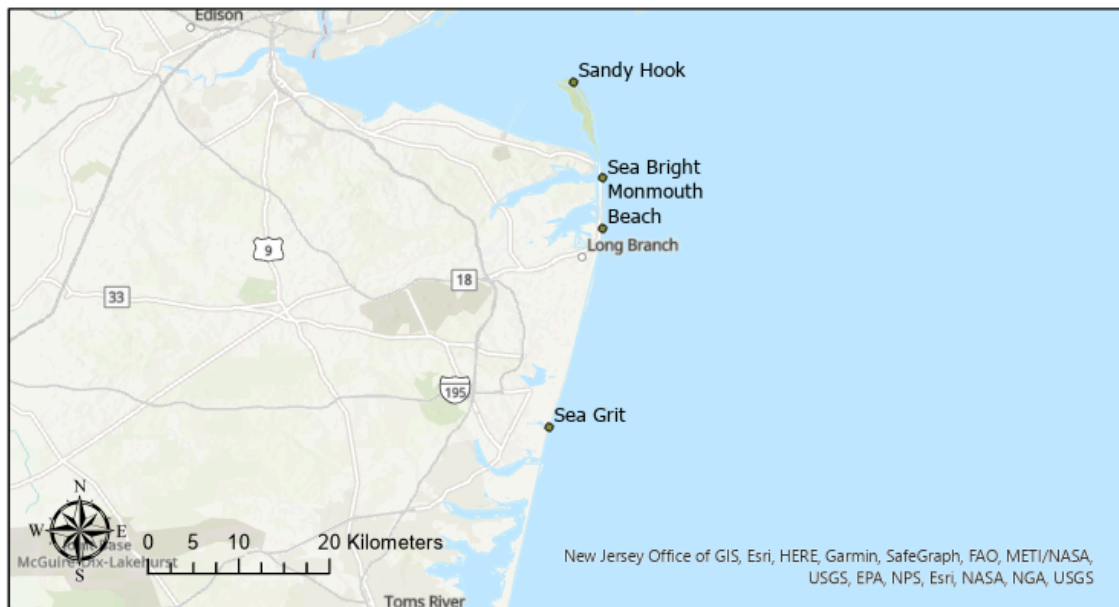
Cape Cod Beach

4. List your observations about the sand below. All observations are valid, but try to focus your observations on color (mineralogy), grain size, and the shape of the grains.

5. Based on your observations, which sample is most weathered?

6. Based on the degree of weathering and location of the sample, which direction is the longshore current moving?

Based on the sediment data below, which direction is the longshore transport moving?



Sea Grit, NJ



Monmouth Beach, NJ



Sea Bright, NJ



Sandy Hook, NJ

7. List your observations about the sand below. All observations are valid, but try to focus your observations on color (mineralogy), grain size, and the shape of the grains.

8. Based on your observations, which sample is most weathered?

9. Based on the degree of weathering and location of the sample, which direction is the longshore current moving?

Investigation 2

Test the predictions you made above using Google Earth.

Long Island Example

I predicted the longshore transport along the coast of Long Island would move _____.

The evidence I saw for longshore transport on the beach was....

My original prediction was correct/incorrect (circle the appropriate response).

Cape Cod Example

I predicted the longshore transport along the coast of Long Island would move _____.

The evidence I saw for longshore transport on the beach was....

My original prediction was correct/incorrect (circle the appropriate response).

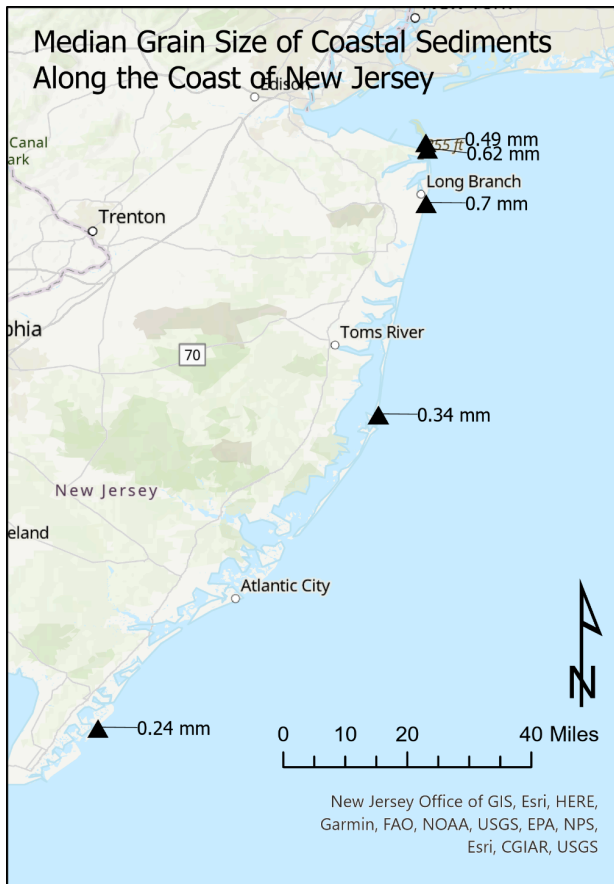
New Jersey Example

I predicted the longshore transport along the coast of Long Island would move _____.

The evidence I saw for longshore transport on the beach was....

My original prediction was correct/incorrect (circle the appropriate response).

Investigation 3



Sand size for sample sites in New Jersey and Mississippi. Sediment data is from the SandSnap database.

1. Observation: Describe the differences in sand size between the New Jersey coast and the coast of Mississippi.

2. Create a hypothesis: Why do you think the sand size is different in each location? List all possible answers. You will test the possible answers later.

-
3. Collect Data to test your hypothesis. Your teacher will provide data sources for tides, sea level rise, and wave height. Complete the data table below for the two sites.

| Parameter | units | New Jersey | Mississippi |
|---------------------|-------|------------|-------------|
| Sea Level Rise | | | |
| Average Wave Height | | | |
| Tide Range | | | |
| Beach Slope | | | |

4. Analyze the data you collected above. Based on this data, what do you believe is the cause of the sand size difference between the two beaches?

5. Sediment size, sea level rise, and wave height will affect the stability of the coast. Based on the data you collected, which beach do you think will be the most stable?

6. Next, explore the sites in Google Earth using the historical imagery. Explore the coastlines and look for evidence of shoreline change. You can use the ruler tool to measure the change. Below, describe the changes you see. Do these observations support or refute your prediction in the previous question?
