

## Beaches and Coastal Erosion

Constructed Response

### Stimulus

Superstorm Sandy hit the East Coast of the United States in late 2012. The storm had high winds causing pounding waves and flooding. This storm destroyed homes, roads and beaches. When Sandy hit land it destroyed hundreds of miles of beaches and dunes. Some towns took years to recover from all the damage.

Many of the beaches along the East Coast have been hit by hurricanes in the past ten years. These storms caused erosion of the beaches. Beaches are constantly eroding. Storms can speed up this process. These storms typically cause three different types of erosion. The first is a collision. This is when the waves pound the base of sand dunes and cause erosion. The second is overwash. Waves and water rush over the dunes and carry sand inland. The third is inundation. Water from the storm surge floods the beaches and dunes.

Communities need their beaches. People on vacation like to go to these beaches. They spend money in the community. This money is important for the businesses and people who live in the community. To help the beaches avoid erosion many strategies are used. Sometimes the storms are so strong that people cannot stop the erosion.

Communities will use heavy equipment to move the sand from one place to another. They will try to recover sand inland and put it back on the beach. Communities in Cape Cod have used sand found in areas of the ocean off shore and brought it onto the beach. Towns in New Jersey replenish their beaches every year. The town of Strathmere used three times more sand in 2014 than it did in 2012.

Other towns build walls to help protect homes and towns from water and sand. These walls protect the structures but they do not prevent erosion. Jetties are used to help sand stay in a general area. These jetties are typically made of rocks and built by humans.

Over time, off shore sand will help rebuild the dunes and beaches naturally. Beaches can rebuild themselves in a year. Dunes can take years. Winds help create dunes and usually take longer than sand carried on the water. Many of these communities do not have the time to wait to re-build their beaches. As storms keep hitting these areas, erosion continues as a natural process despite the best efforts of towns to limit the damage.

### Prompt

How are beaches affected by coastal erosion and human actions?