

Reading Guide for Part I: Erosion of the sand and cliffs on beaches



Sandwich 07/10/19 - People walk along the iconic Sandwich Boardwalk as the sun sets. It was first built in the 1870's and was rebuilt in the 1990's. Back to back Nor'easters in March of 2018 extensively damaged the structure. The Town of Sandwich voted in 2018 to allocate \$2million for long-term repairs. Photo by John Tlumacki/Globe Staff(metro)

A. Review the following key vocabulary words for this section of the article:
coastline, cliff, cresting wave, erosion, sea level, sediment, sand dune, tide
B. As you read, use details from the text to respond to the following questions:
<ol style="list-style-type: none"> 1) How does the Dave Sprang measure changes to the coastline in Cape Cod? 2) According to the article, how was Cape Cod formed over the last 18,000 years? 3) How do ocean waves erode the coast of Cape Cod, and how have patterns of erosion changed in the Cape? 4) How many feet of shoreline has the Cape lost each year to erosion? 5) According to the article, how many inches has sea level risen in the past 43 years? 6) What is “retreat”? 7) How do sand dunes protect homes? 8) Why did John and Liam Ohman close their restaurant in Cape od?
C. Write a 2-3 sentence summary of the section using key details.

Reading Guide for Part II: Coastal Ecosystems and Migration of Birds



Chatham-09/24/19 - Jared Bennett, a 29-year old fisherman primarily catches dogfish and skate on his boat White Cap. A seagull sits on the bow of the boat in the early morning in at Chatham Fish Pier. He says it's hard to get deckhands these days. Photo by John Tlumacki/Globe Staff(metro)

A. Review the following key vocabulary words for this section of the article:
ecology, habitat, migration, ornithologists, predators, salt marshes, sand bar, tidal waters, vegetation
B. As you read, use details from the text to respond to the following questions:
<ol style="list-style-type: none"> 1. What are salt marshes, and how do they form? 2. How do salt marshes support the coastal environment? 3. What does Brad Winn mean when he says that a whimbrel bird is, “...an ambassador of the larger system?” 4. How does Winn conduct his study on whimbrel birds? 5. What is a low marsh, and how does it differ from a high marsh? 6. Why is there less vegetation on the coast of the Cape, and why is that causing an increase in the population of purple marsh crab? 7. What does the author describe as the “destructive feedback loop”? 8. How has a warming climate changed the migration pattern for bluejay birds?
C. Write a 2-3 sentence summary of the section using key details.
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Reading Guide for Part III: Fishing and Access to Food for Fish



Barnstable, MA, 06/18/2019 - Casaundra Healy, of Wareham (cq) (R) pulls back a netting as she discovers an area of winter kill in the clam bed where she and Charles Carvalho, of Medford were trying to harvest seedlings at A.R.C. Farms in Barnstable. (Jessica Rinaldi/Globe Staff)

A. Review the following key vocabulary words for this section of the article:
algae blooms, commercial fishing, ecosystem, food chain, hatchery, ocean currents, species
B. As you read, use details from the text to respond to the following questions:
<ol style="list-style-type: none"> 1. What is the impact of warming oceans on wildlife in the Cape? 2. What is the connection between rising temperatures in the Arctic and rising ocean temperatures in Cape Cod? 3. What animals have started to appear in the Cape as a result of rising ocean temperatures? 4. Why is the population of cod fish decreasing in the Cape? 5. How is the decreased population of cod affecting the lives of people who live in Cape Cod? 6. How are people who fish for a living in Cape Cod changing their work in response to a reduced population of cod? 7. What methods are scientists using to increase the population of oysters in the Cape? 8. How is oyster farming affected by rising temperatures in Cape Cod?
C. Write a 2-3 sentence summary of the section using key details.

Reading Guide for Part IV: Roads, Buildings and Other Infrastructure



Chatham, MA - 1/20/1988: A small group of onlookers gather around a house on Andrew Harding Road in Chatham, MA as waves hit the beach at high tide on Jan. 20, 1988. Soil erosion has threatened the home. (Barry Chin/Globe Staff)

A. Review the following key vocabulary words for this section of the article:

coastline, erosion, Federal Emergency Management Agency (FEMA), low tide, marshes, sand dunes, wetland, zoning

B. As you read, use details from the text to respond to the following questions:

1. What factors are causing loss of land on the Cape’s beaches?
2. What percent of land in the Cape is in a special flood hazard area designated by FEMA?
3. How many towns make up Cape Cod, and how do those towns work together to respond to the impacts of climate change?
4. What rules has the Cape Cod Commission made to combat the impacts of climate change?
5. What are “living coastlines” and how they protect homes?
6. What are more great white sharks appearing close to the shore of Cape Cod?
7. How are business and homeowners currently working to rebuild beaches?
8. What challenges are communities in Cape Cod facing when trying to create plans that would permanently protect the beaches and buildings on the coast from flooding?

C. Write a 2-3 sentence summary of the section using key details.

Reading Guide for Part IV: Storms and Flooding



Wellfleet-09/07/19 - Hurricane Dorian gave a glancing blow to Cape Cod, as high tide in the early morning brought 5-20 foot waves along Nauset Light Beach. Photo by John Tlumacki/Globe Staff(metro)

A. Review the following key vocabulary words for this section of the article:
evacuation, hurricane, insurance, jetstream, sea level
B. As you read, use details from the text to respond to the following questions:
<ol style="list-style-type: none"> 1. What are the lasting impacts of flooding in the Cape? 2. What solutions does Reverend Kate Wilkinson suggest for preparing for future storms? 3. How have past hurricanes affected land and communities in Cape Cod? 4. How much sea level risen since a hurricane hit Cape Cod in 1938? 5. How has land in the Cape changed since the 1938 hurricane? 6. According to storm simulations, or programs that use scientific data to imagine the impact of storms, what kind of damage would a hurricane cause in Cape Cod today? 7. According to scientists cited in the article, why are hurricanes stronger now than they were in the past? 8. How do warming temperatures in the Arctic impact the strength of hurricanes worldwide?
C. Write a 2-3 sentence summary of the section using key details.