

Episode: Changing Sands

EXPLORING NORTH CAROLINA



USEFUL VOCABULARY

accrete
barrier island
biological diversity
continental shelf
dynamic
estuary
flood tidal delta
Hatteras
inlet
maritime forest
Ocracoke
overwash
panacea
public domain

CHAPTER 2 (0:00-3:21)

1. Barrier islands have been moving in response to sea level changes for at least _____ years.
2. Barrier islands move in response to high-energy _____.
3. Where are barrier islands most affected by storms?

CHAPTER 3 (3:21-9:41)

4. How much lower was sea level 18,000 years ago? Why do you think sea level was lower then?
5. How old are the Outer Banks?
6. What have scientists been able to learn about the Outer Banks by using the technique “optically stimulated bioluminescence”?
7. Age vs. Sea Level. Fill in the chart below:

Age (years ago)	Sea Level (feet below present)	Major Events
18,000	-450	Last ice age occurs; North Carolina shoreline is many miles to the east of present location.
		No barrier islands; rising sea level floods Pamlico Creek and creates narrow estuaries.
		Estuaries continue to flood and become wider. Pamlico Creek becomes Pamlico Bay, separated from land by a long, sandy peninsula.
		Barrier islands (Outer Banks) form (a little farther out from where they are now). Islands are very similar to how they appear today.
		Barrier islands are similar to today's, but there are many more inlets.

8. Within each parenthetical phrase, circle the boldfaced word that correctly describes the changes you would notice when comparing North Carolina's modern maps to maps created 7,000 years ago.
- Effects of (**rising** or **falling**) sea level*
*(**Development** or **loss**) of barrier islands*
*Creation of (**narrow** or **wide**) estuaries*
9. Ocracoke Inlet has remained in the same location for the past _____ years.

CHAPTER 4 (9:41-15:59)

10. List some traits of simple and complex barrier islands.
11. Did early settlers live on simple islands or complex islands?
12. When did people begin to build on simple barrier islands?

CHAPTER 5 (15:59-25:23)

13. Why does Dr. Stephen Culver say that the maps drawn by the first European settlers support the idea that barrier islands are dynamic?
14. What does it mean to "harden" the shoreline?
15. What tends to happen to the beach when hard structures are built?
16. Beach nourishment is the process of supplementing sand on the front side of barrier islands with sand from other sources. What are the problems with this?
17. What changes do Dr. Culver and Dr. Riggs think would help minimize the effect of development on barrier islands?
18. Which North Carolina island is mentioned as a model for using barrier islands sustainably?