COASTAL MANAGEMENT REVIEW SHEET

From Who Moved the Beach? – A NOAA lesson plan on shoreline erosion [*http://oceanservice.noaa.gov/education/classroom/lessons/09\_coastmanag\_erosion.pdf*](http://oceanservice.noaa.gov/education/classroom/lessons/09_coastmanag_erosion.pdf)

*The following reports and articles contain the information needed to complete this worksheet:*

[**“Evaluation of Erosion Hazards”**](https://www.fema.gov/media-library-data/20130726-1553-20490-1159/hz_erosn.pdf) prepared by the H. John Heinz III Center for Science, Economics and the Environment (summary report) for the Federal Emergency Management Agency, April 2000. [*https://www.fema.gov/media-library-data/20130726-1553-20490-1159/hz\_erosn.pdf*](https://www.fema.gov/media-library-data/20130726-1553-20490-1159/hz_erosn.pdf)

[**“Mapping Coastal Change Hazards”**](https://marine.usgs.gov/coastalchangehazardsportal/)U.S.G.S. website beginning at <https://coastal.er.usgs.gov/hurricanes/> - click on National Assessment of Coastal Change Hazards: <https://marine.usgs.gov/coastalchangehazardsportal/>

[**“Coastal Erosion: Where’s the Beach?”**](http://www2.vims.edu/bridge/DATA.cfm?Bridge_Location=archive0500.html) Bridge Data Tips at <http://www2.vims.edu/bridge/DATA.cfm?Bridge_Location=archive0500.html>

Elevation data for Ocean City, Md. At <http://www2.vims.edu/bridge/TipsContent/CoastalErosion/beachdata.txt>

[**“Beaches on the Brink”**](http://us.cnn.com/2000/fyi/news/09/20/coastal.erosion/index.html) CNNfyi.com article at <http://us.cnn.com/2000/fyi/news/09/20/coastal.erosion/index.html>

1. Beach sand originates mainly from \_\_\_\_\_\_\_\_\_\_, and also comes from \_\_\_\_\_\_\_\_\_\_, and from \_\_\_\_\_\_\_\_\_\_.

2. Coastal erosion is a natural process that removes sediment from shorelines. Another natural process that deposits sediment on shorelines is known as \_\_\_\_\_\_\_\_\_\_.

3. Sand is generally moved offshore by high-energy waves during \_\_\_\_\_\_\_\_\_\_ months, and is returned by gentle waves during \_\_\_\_\_\_\_\_\_\_ months.

4. Movement of sand parallel to the coast by wave action, wind, and currents is known as \_\_\_\_\_\_\_\_\_\_.

5. Sea walls, jetties, and bulkheads may contribute to erosion because \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

6. The \_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_ (if there is no dune present) are the “first line of defense” against coastal erosion from wind and waves. oceanservice.noaa.gov/education 10 Coastal Management Shoreline Erosion | Review oceanservice.noaa.gov/education

7. \_\_\_\_\_\_\_\_\_\_ are composed primarily of sand and are the most dynamic land masses along the open-ocean coast.

8. The impact of a storm on a barrier island is dependent on storm characteristics and the \_\_\_\_\_\_\_\_\_\_ of the barrier island when the storm makes landfall.

9. The Coastal Change Hazard Scale categorizes net erosion during storms into \_\_\_\_\_\_\_\_\_\_ impact levels or “regimes.”

10. In the \_\_\_\_\_\_\_\_\_\_ Regime, waves cross the base of dunes, causing erosion and semi-permanent changes.

11. In the \_\_\_\_\_\_\_\_\_\_ Regime, storm waves are high enough to completely submerge the island, allowing sand to be transported over a distance of one or more kilometers toward the mainland.

12. In the \_\_\_\_\_\_\_\_\_\_ Regime, waves exceed the elevation of the dune or beach berm (if no dune is present), causing sand to be transported toward the mainland so the barrier island “migrates” landward.

13. In the \_\_\_\_\_\_\_\_\_\_ Regime, waves are confined to the beach. Sand may move offshore, but will be eventually returned so there is no net erosion.

14. Over the next 60 years, erosion may claim \_\_\_\_\_\_\_\_\_\_ of every \_\_\_\_\_\_\_\_\_ houses within 500 feet of the U.S. shoreline.

15. Most of the damage from erosion over the next 60 years will occur in low-lying areas that also have the highest risk from \_\_\_\_\_\_\_\_\_\_.

16. When the Cape Hatteras lighthouse was constructed in 1870, it was \_\_\_\_\_\_\_\_\_\_ feet from the shore. By 1987, the lighthouse was \_\_\_\_\_\_\_\_\_\_ feet from the sea due to coastal erosion.

17. About 87,000 homes are located on low-lying land or bluffs that are likely to erode into the ocean or the Great Lakes over the next 60 years.

18. Without additional beach nourishment or structural protection, roughly \_\_\_\_\_\_\_\_\_\_ homes and the land on which they are built will be lost to erosion each year.

19. The average annual erosion rate along the Atlantic coast is about\_\_\_\_\_\_\_\_\_\_ feet.

20. The highest erosion rates in the United States are in coastal areas bordering \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

21. A major storm can erode the coast inland \_\_\_\_\_\_\_\_\_\_ feet or more in a single day.

22. The \_\_\_\_\_\_\_\_\_\_ coast has the largest number of structures located within the 60-year erosion hazard area.

23. Ecological concerns related to erosion arise primarily because of the scarcity of \_\_\_\_\_\_\_\_\_\_.

24. Coastal erosion may increase during the next 50 to 100 years if polar ice caps melt and cause a rise in \_\_\_\_\_\_\_\_\_\_.

25. People have three choices when erosion poses a threat: \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_, or \_\_\_\_\_\_\_\_\_\_.