

Case Study 13: Consideration of Shackleford Banks Renourishment, Cape Lookout National Seashore, North Carolina

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Shoreline erosion along the western portion of Shackleford Banks is accelerating due to adjacent channel dredging. Image credit: NPS.

Goals

Cape Lookout National Seashore had to evaluate whether it was appropriate to pursue opportunities to mitigate shoreline erosion along Shackleford Banks, a proposed wilderness area.

Challenges and Needs

Navigational channel dredging along the North Carolina coast has contributed to erosion along Shackleford Banks, an undeveloped barrier island that is part of the proposed wilderness area within the park. This island supports important habitat for shorebirds and protected species of birds, sea turtles, and plants; provides recreation; and is home to an iconic feral horse population. It also serves as a natural laboratory and control site for multiple research efforts.

In early 2013, the US Army Corps of Engineers released its draft 20-year dredge material management plan for the adjacent Beaufort Inlet, and requested to deposit the sediment spoils on Shackleford Banks. The park expressed interest in future opportunities for beach renourishment and nearshore placement along Shackleford Banks to mitigate erosion on its western tip and related impacts on island ecosystems. The local communities objected, desiring that the entirety of the sediment be committed to beach renourishment along the adjacent developed Bogue Banks instead. Through the environmental impact statement process the National Park Service (NPS) analyzed the impacts of the actions of depositing sand on the island as a means of mitigating the dredging-caused erosion as well as restoring wilderness.

To improve long-term decision making related to erosion mitigation, the park needed additional information about local sea level rise, ongoing inlet maintenance, and future impacts on Shackleford Banks such as size reduction and ecosystem degradation. The park also recognized the need to engage in a public dialogue about regional sand management strategies, acknowledging that competition for dredged sediments may intensify with increased recognition of climate change impacts.

Responsive Actions

In June 2014, after receiving feedback from the public and consulting with additional scientists, the park withdrew its request for sediment. The park recognized that it needed additional data to determine the rate of sediment loss, the proportion of erosion that could be attributed to channel maintenance rather than natural processes, and the intention to intervene in proposed wilderness areas to mitigate the impacts of human actions.

This case study is an example of the following adaptation strategies:

- Incorporating climate change into policies, plans, and regulations
- Coordinating planning and management across institutional boundaries
- Increasing/improving public awareness, education, and outreach efforts
- Conducting/gathering additional research, data, or products
- Conducting vulnerability assessments and studies
- Developing/implementing an adaptation plan

For more information:

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