

# Study finds knowledge gaps on protecting cultural sites from climate change

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Cape Lookout lighthouse and 1873 keeper's dwelling at the national seashore in North Carolina. Credit: Erin Seekamp, North Carolina State University

North Carolina's Cape Lookout lighthouse has survived threats ranging from Civil War raids to multiple hurricanes, but the Outer Banks site can't escape climate-related changes such as rising sea levels, coastal erosion and flooding from stronger storms.

A North Carolina State University study in *Climatic Change* found little research exists on how to protect cultural resources like those at Cape Lookout National Seashore, a 56-acre site that includes historic buildings in addition to the iconic lighthouse and scenic beaches.

"Cultural heritage sites provide a lot of benefits, from sociocultural value in giving a community its unique identity to economic benefits from recreation and tourism," says lead author Sandra Fatoric, a postdoctoral researcher with NC State's College of Natural Resources. "We see a significant gap in knowledge of how to adapt to climate change and preserve cultural resources for future generations."

Researchers searched worldwide for peer-reviewed studies of cultural resources - archaeological sites, natural landscapes and historic buildings - at risk due to climate change. About 60 percent of the studies referenced sites in Europe, most commonly in the United Kingdom. Another 17 percent of the research covered sites in North America, a majority of them in the United States. About 11 percent dealt with resources in Australia and the Pacific Islands and 10 percent mentioned Asia, mostly China. All but six of the 124 studies were published in English-language journals, with South America and Africa rarely represented in the research.

"We were struck by how recent much of the research was, with the first article appearing in 2003," Fatoric says, adding there's a need for more multidisciplinary work and research that involves local residents and stakeholders. "That process reveals what a community most values about a site."

Co-author Erin Seekamp, an associate professor and tourism extension specialist in the Department of Parks, Recreation and Tourism Management at NC State, is working with stakeholders to set priorities for protecting cultural resources at Cape Lookout as part of a project with the Department of Interior's Southeast Climate Science Center. Seekamp and Fatoric are evaluating 17 buildings in terms of their significance and their value to the site's operations, working with managers from the National Park Service and North Carolina State Preservation Office. The research team, which includes U.S. Geological Survey analysts Mitch Eaton and Max Post van der Burg, is combining this information with earlier research by Western Carolina University's Rob Young which found that most of the buildings at Cape Lookout are at high risk from flooding, erosion and rising sea levels.

"We're looking at all of the options for each structure," Seekamp says. "Which buildings should be maintained? Which could be moved to higher ground? Does that change the character of the site? Does changing a building's use - from storage to visitor programs, for example - affect its relative value?"

An overview of Seekamp's research is part of a National Park Service report titled ["Cultural Resources Climate Change Strategy"](#), which ranked as the most downloaded government website document in the week following the 2017 presidential inauguration, according to the Washington Post.

"Park managers face difficult decisions in prioritizing which resources to protect," Seekamp says. "We hope to develop a method that will help with decisions on protecting Cape Lookout's historic buildings as well as informing policy for protecting cultural resources at other national parks facing climate adaptation."

**More information:** "Are cultural heritage and resources threatened by

climate change? A systematic literature review" *Climatic Change*, 2017.

Provided by North Carolina State University

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