

Sea-level rise threatens archaeological and historic sites

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Joshua Wells. Photo courtesy of IU South Bend

Rising sea levels resulting from climate change will threaten vast numbers of archaeological and historic sites near the Atlantic and Gulf coasts of the southeastern United States, according to a study co-

authored by Indiana University researchers.

The study finds that a rise of 1 meter in sea levels, widely expected by the end of this century using accepted climate models, would submerge over 13,000 recorded archaeological sites, including more than 1,000 listed on the National Register of Historic Places.

"Every archaeological [site](#) is like a unique experiment that provides information about the particular people who lived in a particular area," said co-author Joshua Wells, associate professor of anthropology and social informatics at IU South Bend. "Every time one of those is lost, that's another set of knowledge that is washed away."

In addition to Wells, co-authors include 2017 Ph.D. graduate Kelsey Noack Myers and doctoral student R. Carl DeMuth of IU Bloomington. Other authors are at the University of Tennessee, Northern Kentucky University, Oak Ridge National Laboratory and the California-based Alexandria Archive Institute.

The results, published in the journal *PLOS One*, come from analysis of data collected by the Digital Index of North American Archaeology. The index, known as DINAA, is a collaborative project by IU South Bend, the University of Tennessee and the Alexandria Archive Institute that aggregates archaeological and historical data sets from numerous sources.

Wells said archaeologists have historically thought sites were vulnerable to human disturbances like construction and looting. But [sea-level](#) rise is a new threat, one the researchers could analyze by combining climate projections with DINAA data.

"I think we were surprised by the scale," Wells said. "We knew it would be significant, because throughout humanity's existence, coastlines have

been popular places for people to live. But we had no idea what the numbers would turn out to be."

Threatened areas include American history icons like Jamestown, Virginia, and Charleston, South Carolina, along with sites that record the stories of people who lived in the Southeast before the arrival of Europeans, communities of escaped slaves and others. In addition to sites that would be inundated, others could be threatened as coastal residents move inland to escape rising seas.

The research demonstrates the importance of large, linked data sets such as DINAA, which make information accessible to researchers and policymakers, Wells said. It also can help raise awareness of what's at stake with rising sea levels, sparking conversations about what can be done.

"We feel it's vitally important to get this information out now when we have time to think about ways to save data and materials from these sites, and to do it strategically," Wells said.

Since the study's publication last week, Wells has been quoted in news stories in USA Today, Wired and National Geographic, and the research has also been covered by the Guardian, The Washington Post, Pacific Standard and other publications. More importantly to the authors, policymakers and researchers have already been in touch about using the results and the DINAA data.

"It's really exciting to be all over the news," Wells said, "but it's even more exciting that the work is proving useful."

Provided by Indiana University

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