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ENVIRONMENT

The ‘cost of doing nothing’? Billions. ODU study looks at possibilities if sea level rise goes unchecked

By **Everett Eaton**

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Flooding from Hermine seen in Norfolk on Hampton Blvd. near the Larchmont Library on Saturday, Sept. 3, 2016.

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(Stephen M. Katz The Virginian- / The Virginian-Pilot)

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A study released Thursday by Old Dominion University predicts that, by 2080, Kaufman Mall, Brock Commons and parts of Hampton Boulevard bordering the campus will be under water.

Flooding also could devastate the local economy. By 2099, Hampton Roads could see about \$48 billion in direct losses and more than a \$67 billion drop in economic output. This includes infrastructure damages and the quantity of goods and services produced in a given year.

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“I think what will surprise people the most is how big the numbers are,” said George McLeod, director of the Center for Geospatial Science, Education and Analytics at ODU.

McLeod’s department teamed with Bob McNab, economics professor and department chair of the Dragas Center for Economic Analysis and Policy, to create maps predicting the economic impact of flooding in Virginia through the end of the century.

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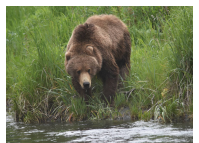
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The study doesn't include programs and plans in place to mitigate flooding and storm damage, on which ODU and other agencies are working. McLeod and McNab said it's the first forecast to look at the potential impact of unchecked flooding in today's dollars. The study is funded by the Commonwealth Center for Recurrent Flooding Resiliency and ODU.

McLeod's department created maps of sea levels in 2040, 2060 and 2080 and 2100 using data from ODU and predictions from the National Oceanic and Atmospheric Administration. Sea levels are expected to be higher by 1 1/2 feet by 2040, 3 feet in 2060 and 4 1/2 feet in 2080. Although there are differences in topography along the Virginia coast, most areas will experience some increase. Understanding the increases helps researchers predict what high tide will look like, and how much water Hampton Roads residents can expect in their living rooms.

By 2080, McLeod said river water would surround ODU's dorms, football stadium and run through the middle of campus. Floods will push the water farther.

"ODU does, kind of, have an existential problem with this," McLeod said.

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A projection map of the water levels on the ODU campus in 2080.

They took high tide forecasts and factored in storm surge with the higher sea levels: High tide during a storm surge will result in deeper water flowing through streets.

The researchers broke the projections into 20-year increments. The first stretch, through 2040, will be a baseline to compare subsequent years.

“We acknowledge that sea levels change on the micro-scale daily, but when you add up a decade or two decades, that is really when you can say, these are the changes,” McLeod said.



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The area has seen multiple one-in-100-year storms and even a one-in-500-year event in 2016. The area recovered but, according to McLeod, these storms will cost more and be more damaging — and the area isn't entirely prepared.

[[From the archives: Hampton Roads was walloped with rare 1-2-3 storm punch in 500-year event](#)]



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A passerby stands in the median and looks over the flooded underpass on Virginia Beach Blvd. near Tidewater Drive in Norfolk on Sunday, Oct. 9, 2016. (Bill Tiernan)

According to McNab, the consequences are more than just lost property and repairing damaged property. It also impacts the economic health of the entire community. Setting money aside for repairs leaves less to spend on goods and services, and creates additional hardships for businesses and residents.

McLeod believes this project can help underserved communities by giving them information they need to take action.

“I think it can help make a change,” McLeod said.

Hampton Roads, Richmond and Northern Virginia have the majority of the commonwealth's economic activity, in part, because populations are higher. But this means more people are living in areas vulnerable to flooding.

Unmitigated flooding from 2020 to 2099 will result in \$56 billion in financial damages in 2021 dollars, resulting in a \$79 billion decline in economic output in 2021 dollars.

“Flooding is a serious threat to coastal Virginia,” McLeod said. “And I see these numbers as a cost of doing nothing.”

Everett Eaton, 262-902-7896, everett.eaton@virginiamedia.com



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