Sea level along Maryland's shorelines could rise two feet by 2050, according to new report

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Downtown Annapolis, Maryland, was flooded during Hurricane Isabel in 2003. Higher sea levels will increase the extent and frequency of flooding from such storms. Credit: University of Maryland Center for Environmental Science/Don Boesch

A new report on sea level rise recommends that the State of Maryland should plan for a rise in sea level of as much as 2 feet by 2050. Led by

the University of Maryland Center for Environmental Science, the report was prepared by a panel of scientific experts in response to Governor Martin O'Malley's Executive Order on Climate Change and "Coast Smart" Construction. The projections are based on an assessment of the latest climate change science and federal guidelines.

"The State of Maryland is committed to taking the necessary actions to adapt to the rising sea and guard against the impacts of extreme storms," said Governor Martin O'Malley. "In doing so, we must stay abreast of the latest climate science to ensure that we have a sound understanding of our vulnerability and are making informed decisions about how best to protect our land, infrastructure, and most importantly, the citizens of Maryland."

The independent, scientific report recommends that is it is prudent to plan for sea level to be 2.1 feet higher in 2050 along Maryland's shorelines than it was in 2000 in order to accommodate the high end of the range of the panel's projections. Maryland has 3,100 miles of tidal shoreline and low-lying rural and urban lands that will be impacted. The experts' best estimate for the amount of sea level rise in 2050 is 1.4 feet. It is unlikely to be less than 0.9 feet or greater than 2.1 feet. Their best estimate for sea level rise by 2100 is 3.7 feet. They concluded that it is unlikely to be less than 2.1 feet or more than 5.7 feet based on current scientific understanding.

"This reassessment narrows the probable range of sea level rise based on the latest science," said Donald Boesch, president of the University of Maryland Center for Environmental Science and chair of the group of experts that assembled the report. "It provides the State with sea level rise projections based on best scientific understanding to ensure that infrastructure is sited and designed in a manner that will avoid or minimize future loss or damage."

These estimates were made based on the various contributors to sea level rise: thermal expansion of ocean volume as a result of warming, the melting of glaciers and Greenland and Antarctic ice sheets, changing ocean dynamics such as the slowing of the Gulf Stream, and vertical land movement.

"While there is little we can do now to reduce the amount of sea level rise by the middle of the century, steps taken over the next 30 years to control greenhouse gas emissions and stabilize global temperatures will largely determine how great the sea level rise challenge will be for coastal residents at the end of this century and beyond," said Dr. Boesch.

According to Joseph P. Gill, Secretary of the Maryland Department of Natural Resources, impacts associated with sea level rise are already being seen along Maryland's coast, such as the documented loss of islands within the Chesapeake Bay, as well as visible changes to wetland habitats all along Maryland's low-lying eastern shore.

"Recognizing the importance of building resilience within our natural and built environments," said Gill, "DNR's CoastSmart Communities Program is dedicated to offering on-the-ground expertise, planning guidance, training, tools, and financial assistance to help others in state plan, prepare, and adapt." For more information on CoastSmart, visit http://dnr.maryland.gov/CoastSmart/.

Governor O'Malley established the Maryland Commission on Climate Change on April 20, 2007. The Commission produced a Plan of Action that included a comprehensive climate change impact assessment, a greenhouse gas reduction strategy, and actions for reducing Maryland's vulnerability to climate change. On December 28, 2012, Governor O'Malley issued an executive order that requires State agencies to consider the risk of coastal flooding and sea level rise to capital projects.

The 21-member panel comprised of sea level rise experts from the Maryland, Virginia, Delaware, Pennsylvania, and New Jersey, reviewed projections from Maryland's 2008 Climate Action Plan and provided updated recommendations based on new scientific results that can better inform projections of sea level rise for Maryland.

The Maryland Department of the Environment (MDE), working with the Federal Emergency Management Agency (FEMA), is updating Flood Insurance Rate Maps (FIRMs) for communities in Maryland. The revised maps are the first update in the coastal areas of Maryland in 25 years and confirm both increases and decreases in the 100-year flood elevations over this period of time.

"MDE is working with seventeen Maryland coastal communities to go through the mapping process, which requires the communities to update their local floodplain management ordinances before the revised maps become effective," said Maryland Department of the Environment Secretary Robert M. Summers. "Many communities choose to better prepare themselves by adopting higher freeboard elevations or additional safety requirements for new or substantially improved structures, which could lead to reductions in flood insurance."

Provided by University of Maryland Center for Environmental Science