



Calvert County Environmental Commission

Sea Level Rise

1. Is sea level rise occurring in Calvert County?

Yes. Mean sea-level rise in the mid-Atlantic region (a “hot spot” of vulnerability that includes Chesapeake Bay) is currently almost 4 millimeters per year, more than twice the global mean increase. As a result, nuisance flooding along the mid-Atlantic coast, including Calvert County, is occurring much more often than 50 years ago. Of the top 10 areas in the United States that are experiencing nuisance flooding, Annapolis, MD, holds the record with the most days—40 [Sea Level, Climate Change, and the Chesapeake Bay | National Geographic Society](#).

Climate model projections for mean sea-level rise scenarios by the end of this century in the mid-Atlantic region vary from about 0.4 meter (1.3 feet) to 1.7 meters (5.6 feet) in Annapolis, MD, and Norfolk, VA.

For more details, go to:

[The increasing rate of global mean sea-level rise during 1993–2014 | Nature Climate Change Sea Level Trends - NOAA Tides & Currents](#)

2. What factors are contributing to the observed sea-level rise in Chesapeake Bay and will likely contribute to projected increases?

Almost all climate scientists agree on the causes of relative sea-level rise. They attribute human-induced global warming caused by the emission of greenhouse gases (e.g., carbon dioxide) to be the most important factor. Planet Earth is getting warmer. Land subsidence (sinking) associated with post-glacial rebound (also called glacial isostatic adjustment), groundwater withdrawals, and sediment compaction are smaller but still important contributors to sea-level rise in Chesapeake Bay.

As the Earth warms, sea level rises due to melting of the polar ice caps, other glaciers and ice sheets in northern latitudes and high elevations, and the thermal expansion of warmer upper layer ocean waters. Climate models suggest that more precipitation will fall on the mid-Atlantic region and further raise sea level as the climate changes. In the future, the Chesapeake Bay will widen due to sea-level rise. As a result, wave energy will increase, due to a longer wind fetch from the north east and east, and increase the frequency and extent of shoreline flooding and erosion in low-lying areas along Calvert County’s eastern shore.

For more details, go to:

[Climate Change: Global Sea Level | NOAA Climate.gov](#)

[Observation of glacial isostatic adjustment in “stable” North America with GPS - Sella - 2007 - Geophysical Research Letters - Wiley Online Library](#)

[Observation of glacial isostatic adjustment in “stable” North America with GPS - Sella - 2007 - Geophysical Research Letters - Wiley Online Library](#)

[Circular 1392: Land Subsidence and Relative Sea-Level Rise in the Southern Chesapeake Bay Region \(usgs.gov\)](#)

3. What are Calvert County agencies doing to deal with current problems associated with sea-level rise and what actions are being taken to adapt to predicted increases in 2050 and beyond?

Because sea-level rise is already causing and will continue to cause periodic flooding problems in low-lying areas of the county, property owners can consult flood hazard maps at this link: [Interactive Maps | Calvert County, MD - Official Website](#).

These maps are designed to help property owners determine their current and future risks from flooding. They can also assess the impact to their properties by recent revisions to the Federal Emergency Management Agency's (FEMA) flood hazard zones in Calvert County. The county's Department of Planning & Zoning (in concert with the Department of Public Safety's Emergency Management Division) is preparing a series of area-specific flood mitigation plans for the most vulnerable communities. Plans for Cove Point and Broomes Island were completed and adopted. A draft plan for Breezy Point and Neeld Estates is being reviewed and finalized. Plans for Solomons Island, North Beach, and Chesapeake Beach will be completed next. To date, three flood prone homes in the Critical Area have been elevated in Calvert County and one home was demolished using FEMA grant monies, with 25% of the cost paid for by the home owners. [Floodplain Management | Calvert Planning & Zoning](#)

18. What was the highest recorded storm surge along Calvert County's coastline and when did it occur?

On August 23, 1933, the Chesapeake Bay Hurricane made landfall near Virginia Beach, VA. For the next two days, it churned north and west. The eye of this storm traveled up the west side of Chesapeake Bay. Record high tides occurred along the entire western shore of the Bay. At Washington, DC, the record storm surge reached 11 feet. [Hurricane History \(weather.gov\)](#)