

TODAY'S FLOOD IS TOMORROW'S HIGH TIDE

Sea level rise will turn occasional coastal flooding into a regular event.



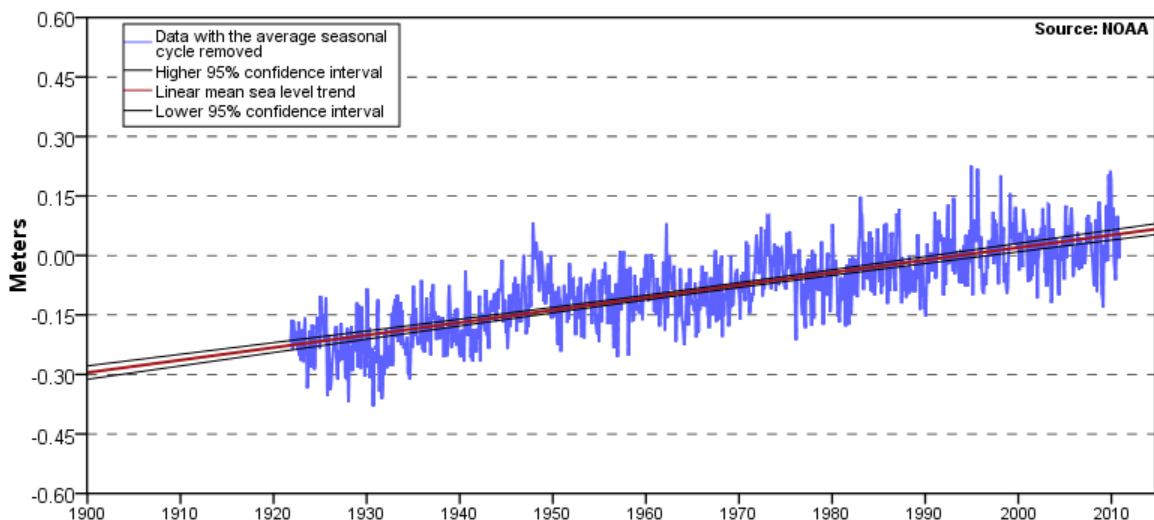
During a tidal flooding event on October 8, 2010, high tide reached 7.66 feet. Wind was from the northeast at less than 10 mph. There was no rain. Had rain accompanied the high tide, flood conditions would have been more extreme.

Tidal Flooding

Charleston, South Carolina. Lowcountry residents are all too familiar with the periodic flooding that occurs during extreme high tides. During these events, salt water backs up through storm drains and can cause hazardous road conditions. Traffic patterns are disrupted, and motorists are forced to take alternate routes. Rain and onshore winds can push the tides even further inland. When this happens, roads and businesses are sometimes forced to close. Damage to buildings from repeated saltwater intrusion is a near certainty.

Water level data measured since the early 1920s in Charleston Harbor indicate a slow increase in sea level. Five flood-producing tides (defined as seven feet or more) were predicted for 2010. These types of predictions don't take into account the increased extent of the flooding made likely when rainfall and winds are added. Data records indicate that water levels reached seven feet or higher 19 times in 2010. As sea level continues to rise, tides will be higher. Eventually today's occasional coastal floods will become regular events.

Water Level Data for Charleston, South Carolina



While some may debate why sea levels are rising, the facts are irrefutable. In Charleston, sea level has risen the equivalent of 1 foot in 100 years.

Taking steps to minimize impacts from coastal flooding is one of the best ways to prepare for sea level rise.

The Response

Many projects have been completed or are underway to relieve this flooding. Tidal flooding is no longer a problem on Colonial Street and at the intersection of Council and Tradd Streets because of the installation of backflow preventers. Additional improvements include the upgrading of the Courtenay Drive stormwater pump station, construction of the Concord Street pump station, and the raising of Hagood Avenue.

In addition, some one-way roads in downtown Charleston were modified to allow two-way traffic. While these lane reversals were not implemented to address flooding problems, the changes provide additional routes people can use to bypass flooded streets.

Additional Strategies for mitigating tidal flooding may include the following:

- Communicate issues and strategies through development of outreach materials to reach a variety of audiences, including businesses, industry, residences (permanent and temporary), and visitors
- Consider new signage that will caution people against driving through water-covered streets
- Prioritize drainage improvement projects based on benefits and affordability
- Consider ordinances that go above and beyond FEMA requirements for addressing impacts and hazards caused by more frequent flood conditions
- To supplement FEMA flood zone information, for planning and permitting purposes, develop an advisory level of flood zoning to indicate areas where frequent tidal flooding is a problem
- In redevelopment or new development projects, “do it right” by considering increases in the frequency of future flooding during the project design phase
- Account for climate change impacts, such as accelerated sea level rise and more frequent heavy rainfall, in future stormwater system upgrades