



### U.S. Army Corps of Engineers Institute for Water Resources

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#### **Integrated Tool to Estimate Potential Future Sea-Levels for Consideration in Sandy Recovery**

ALEXANDRIA, VIRGINIA. More than 8 million people live in areas at risk of coastal flooding. Along the U.S. Atlantic Coast alone, almost 60 percent of the land that is within a meter of sea level is planned for further development, with inadequate information on the potential rates and amount of sea level rise.

Hurricane Sandy is a vivid reminder that coastal communities are vulnerable to the risk of damage from storms and flooding. This risk is strongly related to the type and location of infrastructure, particularly its elevation in relation to sea level. Sea level rise increases the frequency and severity of coastal flooding in manmade and natural systems, even if storm patterns remain the same.

Using the best available science and data, the U.S. Army Corps of Engineers (USACE) and several Federal agencies through their partnership within the U.S. Global Research Program (USGCRP) have jointly developed tools to help state and local officials, community planners, and infrastructure managers understand possible future flood risks from sea level rise and use that information in planning decisions. IWR's Climate and Global Change Team has been participating in these efforts.

Global sea level rise has been a persistent trend for decades. It is expected to continue beyond the end of this century, which will cause significant impacts in the United States. Scientists have very high confidence (greater than 90% chance) that global mean sea level will rise at least 8 inches (0.2 meter) and no more than 6.6 feet (2.0 meters) by 2100. Many of the nation's assets related to military readiness, energy, commerce and ecosystems that support resource-dependent economies are already located at or near the ocean, thus exposing them to risks associated with sea level rise.

The U.S. Army Corps of Engineers has developed a [Sea-Level Change Calculator](#) to assist in developing information to support its sea-level change policy, which supports the USACE overarching climate change adaptation policy. This tool has been modified to support the interagency tool using National Oceanic and Atmospheric Administration (NOAA) and New York City Panel on Climate Change (NPCC 2013) scenarios to help people rapidly assess what the coming changes could look like.

The Federal Emergency Management Agency (FEMA) has developed Base Flood Elevations (BFEs) to provide additional flood risk information for certain communities affected by Hurricane Sandy. NOAA has produced a set of maps that present the FEMA BFEs plus the NOAA sea-level rise scenarios to the years 2050 and 2100 in all areas except New York City. The New York City Panel on Climate Change has developed sea level rise projections for the five boroughs of New York City to the year 2050 using methods from the 2013 NPCC report.

Together, these comprise the U.S. Government's [sea level rise planning tool](#), which provides information on future risk of coastal flooding in parts of New York and New Jersey impacted by Sandy. The tool does not tell communities or

individuals how to rebuild. It helps inform decisions on how to balance the cost of rebuilding stronger and safer with the amount of risk a community can tolerate over the long term.

### **More about the U.S. Global Change Research Program**

The U.S. Global Change Research Program (USGCRP) is a Federal program that coordinates and integrates global change research across 13 government agencies to ensure that it most effectively and efficiently serves the Nation and the world. USGCRP was mandated by Congress in the Global Change Research Act of 1990, and has since made the world's largest scientific investment in the areas of climate science and global change research.

### **Learn More**

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