Flooding from high tides has doubled in the US in just 30 years

Shoreline communities may be inundated in the next two years as ocean levels rise amid serious climate change concerns

By Oliver Milman in New York / Wed 6 Jun 2018 / theguardian.com

The frequency of coastal flooding from high tides has doubled in the US in just 30 years, with communities near shorelines warned that the next two years are set to be punctuated by particularly severe inundations, as ocean levels continue to rise amid serious global climate change concerns.

Last year there was an average of six flooding days per area across 98 coastal areas monitored by the National Oceanic and Atmospheric Administration (NOAA) – an all-time record. More than a quarter of these locations tied or broke their records for high tide flood days, the federal agency states in a new report.

Known as “sunny day flooding”, these events swamp streets and homes with water simply from the incoming tide, without the aid of a storm. NOAA said that in 2017 areas across the US north-east and Gulf of Mexico were worst hit, with Boston, Massachusetts, and Atlantic City, New Jersey, both experiencing 22 days of flooding, while Galveston, in Texas, was soaked on 18 different days.
NOAA warned that cyclical climatic conditions during 2018 and 2019 “may result in higher than expected flood frequencies” in around half of the coastal sites it measures.

The longer-term trend is even more certain, Noaa said, with melting glaciers, thermal expansion of sea water and altered ocean currents pushing the sea level steadily higher and causing further floods.

“Breaking of annual flood records is to be expected next year and for decades to come as sea levels rise, and likely at an accelerated rate,” the report states. “Though year-to-year and regional variability exists, the underlying trend is quite clear: due to sea level rise, the national average frequency of high tide flooding is double what it was 30 years ago.”

The NOAA report is “comprehensive” and “clearly illustrates the increasing problems along our coastlines”, said Ben Horton, a sea level rise expert at Rutgers University. “There is flooding on all our coastlines, places where people live and work. There needs to be a national response to that.”

Last year was marked by three high-profile hurricanes that pummelled the US, triggering flooding that resulted in dozens of deaths and billions of dollars in damage. Scientists have found that warming temperatures, driven by human activity, is making hurricanes stronger, but it is also exacerbating more chronic nuisance flooding events by pushing up the level of the ocean.
“There’s a clear upwards trend of this type of flooding,” said Andrea Dutton, a geologist at the University of Florida. “Extreme events like hurricanes may be the breaking point but this sort of frequent flooding is the taste of what is coming in the future on a permanent basis. We need to rethink our relationship with the coastline because it’s going to be retreating for the foreseeable future.”

Dutton said that south Florida, where weather forecasts in some places now come with tidal warnings, and fish are a regular sight on flooded roads, is particularly vulnerable. The low-lying region sits on porous limestone, which pushes up floodwater from underground, and many communities are unable to easily retreat because they back on to the Everglades wetlands.

“They used to get just one day a year of tidal flooding, now it’s two months of it in the fall,” she said. “Engineering can help delay things but ultimately the oceans will win. We are going to have to live with the water.”

Globally, the seas have risen by an average of nearly three inches since 1992. Parts of the US coastline are unusually prone, with NOAA forecasting last year that the oceans could swell by more than eight feet by 2100.

Despite the risk posed to the US by sea level rise and flooding events, there is no national plan to deal with the issue, with much of the adaption work left to states and counties. The Trump administration has rescinded previous rules to build federally
funded infrastructure with climate change in mind and has sought to reverse various measures aimed at taming global warming.

“We need to take this report as a warning to prepare ourselves, or we will just sit around and wait for disaster to happen,” Dutton said.