



**The Coastline at Risk:
2016 Update to the Estimated Insured Value of
U.S. Coastal Properties**

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The U.S. Coastline at Risk

In the aftermath of Hurricane Katrina in 2005, AIR Worldwide released *The Coastline at Risk: Estimated Insured Value of Coastal Properties*. The report stated:

“While the scientific debate over the effects of global warming on the frequency and severity of hurricanes remains inconclusive, there is no question that the significant increase in the number and value of exposed properties over the last decade has and will continue to contribute to increasing hurricane losses for insurers.”

This report was updated in 2008 and again in 2013. The first update showed insured values in coastal regions to have grown at a compound annual rate of about 7% since 2005. The second showed it to have fallen from 7% to just under 4% per annum as the United States endured a severe economic recession, followed by what was, by historical standards, an anemic recovery. The report has now been updated again to chart the continuing growth in the insured value of exposed coastal properties from 2013 to 2015.

Since the report was last updated in 2013 economic recovery in the United States has continued at a slow pace. According to the World Bank, the United States' GDP grew from 2.2 in 2013 to 2.4 in 2014 and 2015. During this same period there has been a resurgence in the housing market with sales of existing homes reaching their highest level in more than nine years, partly because of a lack of supply.

The insured value of property in coastal counties has seen a growth rate of around 4% per annum since our last update in 2013. Part of this growth in value is explained by the 1% increase in the number of homes expected for the country as a whole as the population expanded. Housing growth in industrial economies often follows a similar trend to population growth unless there is a spike in demand for second homes like that seen a decade ago. Construction costs are a contributing factor also. It is the replacement value, or the cost to rebuild, that largely determines the insured values reported here. Construction costs vary across the country but tend to be about 3–4 % higher in coastal areas.

Construction in general has yet to regain pre-recession levels but recovery is continuing. Spending on construction rose 9% in 2013, 5.6% in 2014, and 10.5% in 2015 according to the U.S. Census. Since the slowdown in 2008–2013, there has been a gradual but accelerating increase in the number and value of exposed properties along the U.S. Gulf and East coasts—and this continues to be the largest factor increasing the hurricane risk facing property insurers today.

However, this may be changing. The latest thinking about the impact of climate change on hurricanes, for example, suggests that storm intensity may increase as oceans warm, but that the frequency of hurricane formation may actually decrease. How these two opposing factors play out in terms of insured losses is as yet unclear, although sensitivity tests can be designed to test various hypotheses. However, what is now evident is that sea levels are rising, thus exacerbating the risk of catastrophe losses from storm surge, such as those we saw from Hurricane (Superstorm) Sandy.

Coastal communities generally occupy low-lying locations with direct access to the sea. Indeed much of the coastline along the East and Gulf coasts of the United States is less than 10 feet above mean sea level, and of the 4.2 million U.S. residents living at an elevation of 4 feet (1.2 m) or less, 2.4 million are in south Florida. The impact of storm surge is being magnified by rising sea levels, and in some locations also by land subsidence. As sea levels rise, average high tides will become higher. The height achieved by any given storm surge above those high tide levels and the extent of inland inundation caused by it will increase. Between them, sea level rise and severe weather events are thought likely to increase the portion of coastal areas at risk of flooding by 55% this century, according to a report commissioned by The Federal Emergency Management Agency (FEMA). The floodplain along the Pacific Coast may increase by less than 50%, but for parts of the Gulf and Atlantic coasts, it is expected to more than double.

Based on AIR's estimates of the total insured value of properties¹ as of December 31, 2015, the data compiled for this update to *The Coastline at Risk* show:

- The total insured value of properties located within the 100-year return period storm surge footprint exceeds USD 1.1 trillion.
- In the past three years, the insured value of properties in coastal *states* increased at a compound annual growth rate of 5%. Indications are that, as the economy continues to recover, the rate of growth will pick up. Values have increased in coastal states by 15% in the three years since this report was last updated .
- In the past three years, the compound annual growth rate of the total insured value of properties in coastal *counties* was 4%.² Values have increased by 13% in the three years since this report was last updated.
- Overall, 38% of the total property replacement value in Gulf and East Coast states is located in coastal counties; this exposure accounts for nearly 16% of the total value of properties in the U.S.
- The insured value of residential and commercial properties in coastal counties now exceeds USD 13 trillion. In Florida and New York, values exceed USD 3 trillion for coastal counties in each state.
- Although New York again edges Florida as the state with the highest coastal exposure, at more than USD 5 trillion, Florida has the largest proportion of its value in coastal counties at 79%.

Table 1. Estimated 2015 Insured Value of All Residential and Commercial Properties by Coastal State (USD billions).

State	State Residential	State Commercial	State Total
Alabama	530	485	1,014
Connecticut	573	452	1,025
Delaware	125	116	241
Florida	2,184	1,874	4,058
Georgia	1,180	991	2,171
Louisiana	413	483	896
Maine	185	137	321
Maryland	812	664	1,476
Massachusetts	955	810	1,765
Mississippi	263	264	527
New Hampshire	190	138	328
New Jersey	1,277	1,175	2,453
New York	2,504	3,067	5,571
North Carolina	1,117	897	2,014
Rhode Island	127	114	241
South Carolina	493	438	931
Texas	2,753	2,605	5,358
Virginia	1,171	907	2,078
All States Above	16,852	15,617	32,468

Table 1 and Table 2 show AIR’s estimates for the insured value of residential and commercial properties in coastal states, and the insured value of residential and commercial properties in the coastal counties within those states, as of December 31, 2015. Table 3 shows the estimated percentages of residential and commercial property value in coastal counties by state.

Table 2. Estimated 2015 Insured Value of Residential and Commercial Properties in Coastal Counties² by State (USD billions).

State	Coastal Residential	Coastal Commercial	Coastal Total
Alabama	65	63	128
Connecticut	385	290	675
Delaware	59	34	93
Florida	1,718	1,483	3,200
Georgia	56	53	109
Louisiana	147	182	329
Maine	111	73	184
Maryland	10	8	18
Massachusetts	511	441	953
Mississippi	35	36	71
New Hampshire	42	32	74
New Jersey	422	373	795
New York	1,272	2,093	3,365
North Carolina	109	69	178
Rhode Island	46	25	71
South Carolina	126	112	239
Texas	638	725	1,363
Virginia	106	92	198
All States Above	5,858	6,184	12,043

Table 3. Estimated 2015 Percentage of Residential and Commercial Property Value in Coastal Counties² by State (USD billions).

State	Coastal Residential	Coastal Commercial	Coastal Total	3 Year State Change	3 Year Coastal Change
Alabama	13%	12%	13%	10%	8%
Connecticut	66%	67%	64%	17%	19%
Delaware	39%	47%	29%	15%	14%
Florida	79%	79%	79%	11%	12%
Georgia	5%	5%	5%	12%	2%
Louisiana	37%	36%	38%	9%	12%
Maine	57%	60%	53%	12%	12%
Maryland	1%	1%	1%	14%	4%
Massachusetts	54%	54%	54%	13%	12%
Mississippi	13%	13%	14%	12%	17%
New Hampshire	23%	22%	23%	18%	16%
New Jersey	32%	33%	32%	15%	11%
New York	60%	51%	68%	18%	15%
North Carolina	9%	10%	8%	12%	9%
Rhode Island	29%	36%	22%	16%	22%
South Carolina	26%	26%	26%	10%	0%
Texas	25%	23%	28%	17%	16%
Virginia	10%	9%	10%	18%	9%
Coastal States Total	--	--	38%	15%	13%
All U.S. Total	--	--	16%	15%	13%

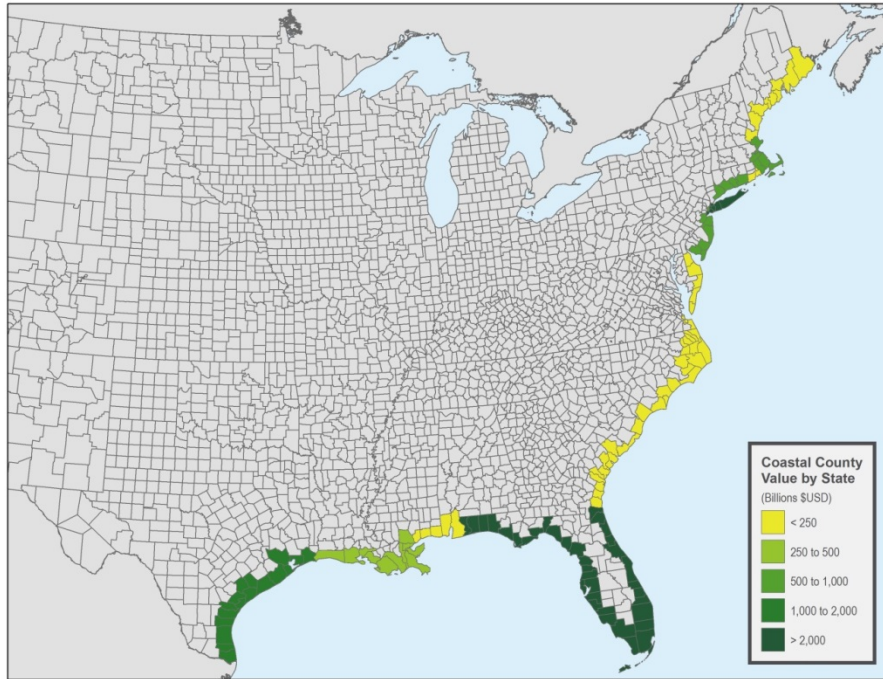


Figure 1. Map showing total insured value of commercial and residential property in coastal counties.

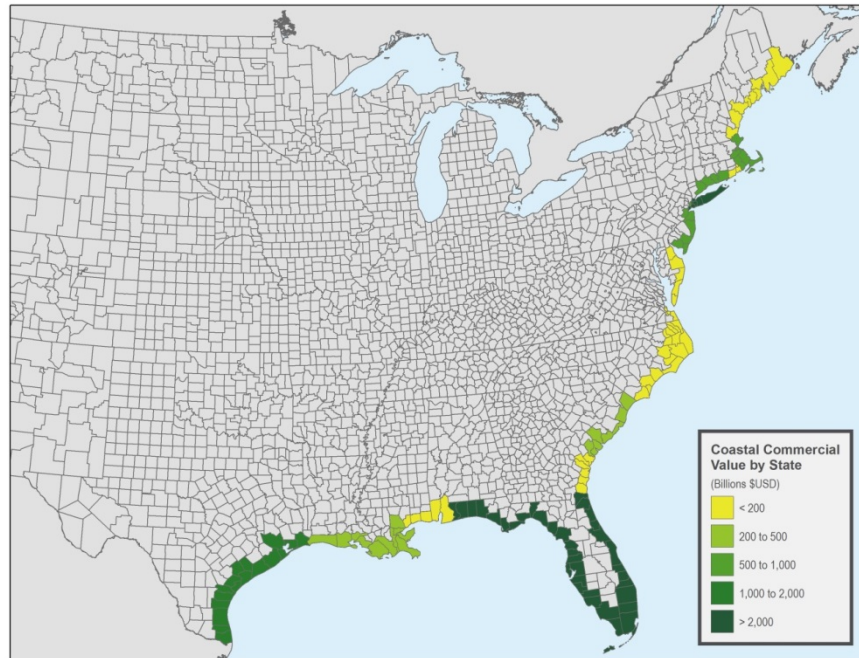


Figure 2. Map showing total insured value of commercial property in coastal counties.

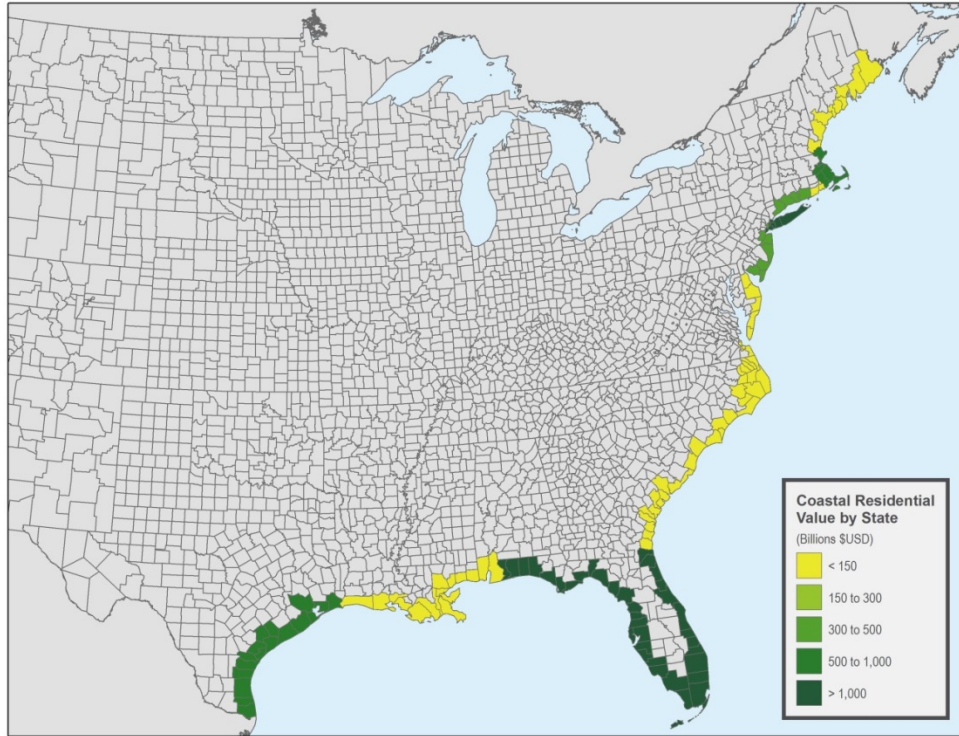


Figure 3. Map showing total insured value of residential property in coastal counties.

¹Total insured value of properties is an estimate of the cost to replace structures and their contents, including additional living expenses and business interruption coverage, for all residential and commercial property in the state that is insured or can be insured.

²Coastal counties are defined as:

Alabama: Baldwin, Mobile. **Connecticut:** Fairfield, Middlesex, New Haven, New London. **Delaware:** Kent, Sussex. **Florida:** Bay, Brevard, Broward, Charlotte, Citrus, Collier, Dixie, Duval, Escambia, Flagler, Franklin, Gulf, Hernando, Hillsborough, Indian River, Jefferson, Lee, Levy, Manatee, Martin, Miami-Dade, Monroe, Nassau, Okaloosa, Palm Beach, Pasco, Pinellas, St. Johns, St. Lucie, Santa Rosa, Sarasota, Taylor, Volusia, Wakulla, Walton. **Georgia:** Bryan, Camden, Chatham, Glynn, Liberty, McIntosh. **Louisiana:** Cameron, Iberia, Jefferson, Lafourche, Orleans, Plaquemines, St. Bernard, St. Mary, St. Tammany, Terrebonne, Vermilion. **Maine:** Cumberland, Hancock, Knox, Lincoln, Sagadahoc, Waldo, Washington, York. **Maryland:** Worcester. **Massachusetts:** Barnstable, Bristol, Dukes, Essex, Nantucket, Norfolk, Plymouth, Suffolk. **Mississippi:** Hancock, Harrison, Jackson. **New Hampshire:** Rockingham. **New Jersey:** Atlantic, Cape May, Cumberland, Hudson, Middlesex, Monmouth, Ocean. **New York:** Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk. **North Carolina:** Beaufort, Brunswick, Camden, Carteret, Chowan, Currituck, Dare, Hyde, New Hanover, Onslow, Pamlico, Pasquotank, Pender, Perquimans, Tyrrell, Washington. **Rhode Island:** Bristol, Newport, Washington. **South Carolina:** Beaufort, Charleston, Colleton, Georgetown, Horry, Jasper. **Texas:** Aransas, Brazoria, Calhoun, Cameron, Chambers, Galveston, Harris, Jackson, Jefferson, Kenedy, Kleberg, Matagorda, Nueces, Refugio, San Patricio, Victoria, Willacy. **Virginia:** Accomack, Hampton City, Norfolk City, Northampton, Poquoson City, Portsmouth City, Virginia Beach City.

About AIR Worldwide

AIR Worldwide (AIR) provides catastrophe risk modeling solutions that make individuals, businesses, and society more resilient. AIR founded the catastrophe modeling industry in 1987, and today models the risk from natural catastrophes, terrorism, and pandemics globally. Insurance, reinsurance, financial, corporate, and government clients rely on AIR's advanced science, software, and consulting services for catastrophe risk management, insurance-linked securities, site-specific engineering analyses, and agricultural risk management. AIR Worldwide, a Verisk Analytics (Nasdaq:VRSK) business, is headquartered in Boston with additional offices in North America, Europe, and Asia. For more information, please visit www.air-worldwide.com.