CoreLogic®

2014 CoreLogic® Storm Surge Report

JULY 2014

Howard Botts, Ph.D.
Wei Du, Ph.D.
Thomas Jeffery, Ph.D.
Logan Suhr

A national view of storm surge.

Source: CoreLogic 2014.

Executive Summary

The 2014 CoreLogic® storm surge analysis features estimates on both the number and reconstruction value of single-family homes exposed to hurricane-driven storm surge damage within the United States. Storm surge is a complex phenomenon that occurs when water is pushed toward the shore through the force of powerful winds associated with cyclonic storms.

This year's CoreLogic analysis features two rankings of coastal states analyzed by both total reconstruction value and total number of homes exposed to storm surge risk, with additional breakdowns of property-level risk exposure at the regional and local Core Based Statistical Area (CBSA) levels. The data used for the 2014 analysis have been expanded to include additional residential property categories under the single-family residence classification and reconstruction valuation data from Marshall & Swift/Boeckh™.

Although the 2014 hurricane season is projected to be at or below-normal for the number of Atlantic- based storms, past hurricane seasons and the early arrival of Hurricane Arthur on July 3 have demonstrated that the impact of even one storm making landfall in or near a major metropolitan area is enough to cause a major loss year.

2014 CoreLogic Storm Surge Analysis

This year's analysis shows that more than 6.5 million homes along the U.S. Atlantic and Gulf Coasts are located within storm surge risk zones, totaling nearly $1.5 trillion in total reconstruction costs (Table 1). More than $986 billion of that risk is concentrated within 15 major metro areas.

It is important to note that the reconstruction values listed in this report are based on 100 percent or total destruction of the residential structure. Depending upon the amount of surge water from a given storm, there may be less than 100-percent damage to the residence, which would result in a lower realized reconstruction cost.

Table 1 – Total Estimated Reconstruction Value (U.S. Dollars)

STORM SURGE RISK LEVEL (STORM CATEGORY)	TOTAL HOMES POTENTIALLY AFFECTED	TOTAL ESTIMATED RECONSTRUCTION COST (U.S. DOLLARS)
Extreme (Affected by a Category 1–5 storm)	1,698,510	$410,311,136,086
Very High (Category 2–5)	1,422,302	$328,864,859,770
High (Category 3–5)	1,562,755	$358,386,053,345
Moderate (Category 4–5)	1,159,506	$267,920,396,772
Low (Category 5)	669,105	$131,010,761,964
Total	**6,512,178**	**$1,496,493,207,937**

Source: CoreLogic 2014. Based on estimated reconstruction values as of June 2014.

The homes studied in this analysis are located in the Gulf and Atlantic regions, along the coastlines of 19 states plus the District of Columbia. Of those states, Florida ranks number one for the number of homes at risk, with nearly 2.5 million homes and $490 billion in total projected reconstruction cost (Table 2). At the local level, the New York metropolitan area, which encompasses northern New Jersey and Long Island as well, contains not only the highest number of homes at risk for potential storm surge damage (687,412), but also the highest total reconstruction value of residential homes exposed, at more than $251 billion.

Table 2 – Reconstruction Value of Properties at Risk by State

Rank	State	Extreme	Very High	High	Moderate	Low	Total
1	Florida	$165,897,104,806	$87,833,392,383	$100,149,415,929	$66,285,325,433	$70,238,414,826	$490,403,653,377
2	New York	$52,507,586,381	$44,946,290,850	$49,330,325,343	$35,690,092,121	N/A	$182,474,294,695
3	Louisiana	$32,093,743,120	$20,863,168,290	$60,324,715,609	$30,195,498,766	$17,585,341,597	$161,062,467,382
4	New Jersey	$35,481,183,707	$52,757,497,109	$22,040,754,156	$23,915,528,342	N/A	$134,194,963,314
5	Virginia	$21,841,973,286	$24,727,761,843	$21,125,036,730	$17,984,142,912	$6,322,567,446	$92,001,482,217
6	Texas	$7,087,911,852	$10,934,862,299	$19,093,100,616	$21,596,543,413	$17,844,003,459	$76,556,421,639
7	South Carolina	$27,753,414,114	$12,587,049,770	$13,178,862,500	$9,042,760,201	$5,714,959,963	$68,277,046,548
8	Massachusetts	$9,724,029,035	$17,005,251,525	$21,270,736,012	$14,998,153,704	N/A	$62,998,170,276
9	North Carolina	$15,240,651,298	$11,140,071,525	$10,815,898,891	$8,527,781,798	$7,845,320,710	$53,569,724,222
10	Maryland	$11,856,448,820	$9,687,832,004	$6,433,018,198	$6,846,887,233	N/A	$34,824,186,255
11	Connecticut	$8,972,737,674	$8,000,267,149	$7,249,691,647	$8,755,618,092	N/A	$32,978,314,562
12	Georgia	$10,073,078,318	$9,827,457,212	$4,910,948,595	$3,312,344,274	$1,359,659,962	$29,483,488,361
13	Mississippi	$2,909,086,132	$3,848,632,388	$5,094,422,106	$4,498,942,887	$1,793,435,179	$18,144,518,692
14	Pennsylvania	$321,556,789	$5,809,547,530	$6,184,854,639	$4,806,610,676	N/A	$17,122,569,634
15	Delaware	$3,714,154,308	$3,297,365,039	$4,157,600,924	$3,836,711,320	N/A	$15,005,831,591
16	Alabama	$1,294,626,444	$2,345,175,836	$1,824,810,598	$2,561,638,760	$2,307,058,822	$10,333,310,460
17	Rhode Island	$1,704,012,530	$1,755,100,803	$1,932,489,875	$1,997,781,668	N/A	$7,389,384,876
18	Maine	$1,404,632,358	$820,799,901	$2,195,324,309	$2,209,099,801	N/A	$6,629,856,369
19	New Hampshire	$433,205,114	$677,219,225	$972,432,591	$566,229,364	N/A	$2,649,086,294
20	District of Columbia	N/A	117,089	$101,614,077	$292,706,007	N/A	$394,437,173
	Total	**$410,311,136,086**	**$328,864,859,770**	**$358,386,053,345**	**$267,920,396,772**	**$131,010,761,964**	**$1,496,493,207,937**

The "Low" risk category is based on category 5 hurricanes, which are not likely in the northeastern Atlantic coast. States in that area have N/A for the Low category due to the extremely low probability of a category 5 storm affecting that area.
Source: CoreLogic 2014. Based on estimated reconstruction values as of June 2014.

Storm Surge Risk Along the Atlantic and Gulf Coasts

As history clearly demonstrates, there is no geographic location along either the Gulf or Atlantic Coasts that can be considered completely protected from hurricane-driven storm surge risk. Though hurricane activity typically affects states on the southern-most stretches of the U.S. coastline more frequently than in the Northeast, homes located as far north as Maine are still vulnerable to the impact of a severe storm.

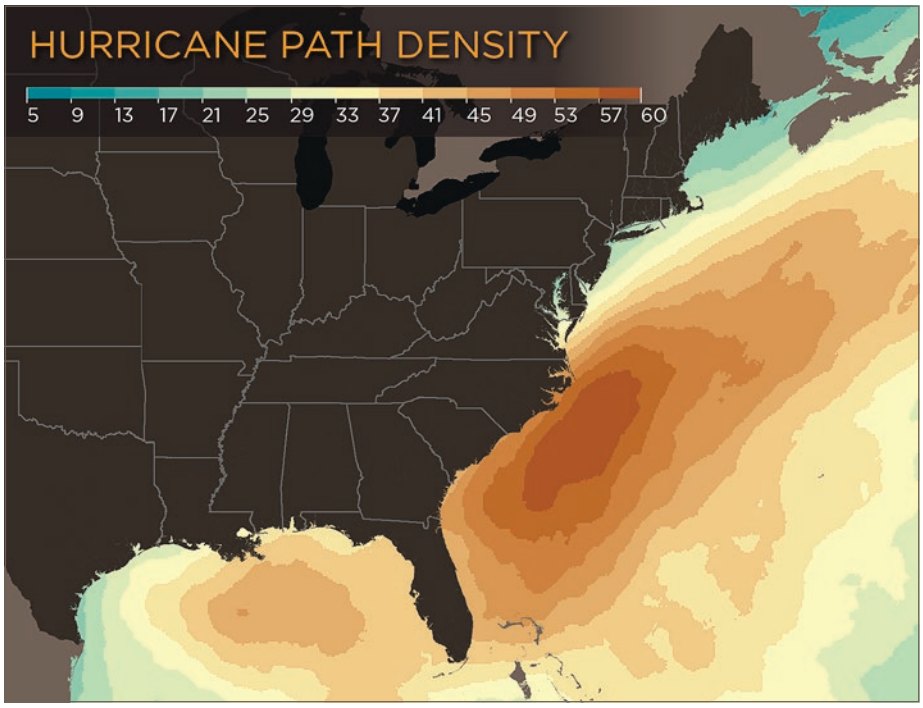
Table 3 – Residential Exposure by Coastal Region

REGION	Atlantic Coast # Homes (Potential)	Atlantic Coast Total Reconstruction Cost Estimates	Gulf Coast # Homes (Potential)	Gulf Coast Total Reconstruction Cost Estimates
EXTREME	1,005,544	$269,585,189,074	692,966	$140,725,947,012
VERY HIGH	899,461	$228,229,456,329	522,841	$100,635,403,441
HIGH	851,057	$214,135,275,085	711,698	$144,250,778,260
MODERATE	677,692	$173,729,009,413	481,814	$94,191,387,359
LOW	325,483	$65,241,738,808	343,622	$65,769,023,156
TOTAL	**3,759,237**	**$950,920,668,709**	**2,752,941**	**$545,572,539,228**

Source: CoreLogic 2014. Based on estimated reconstruction values as of June 2014.

Though 2014 data indicates that the number of homes potentially affected by hurricane-driven storm surge is lower in the Gulf Coast region (extending from Texas through western Florida) than in the Atlantic Coast region (extending from the southern tip of Florida through Maine), differences in the atmospheric and oceanic conditions of each region can cause distinct differences in the amount of damage and level of destruction caused by a hurricane (Table 3). Onshore elevation, offshore water depth and other key impact factors specific to a particular area can all influence the formation and track of a storm, surge levels and, ultimately, the impact of storm surge as the hurricane makes landfall.

Figure 1. Historic Atlantic Storm Track Concentration from 1851–2012



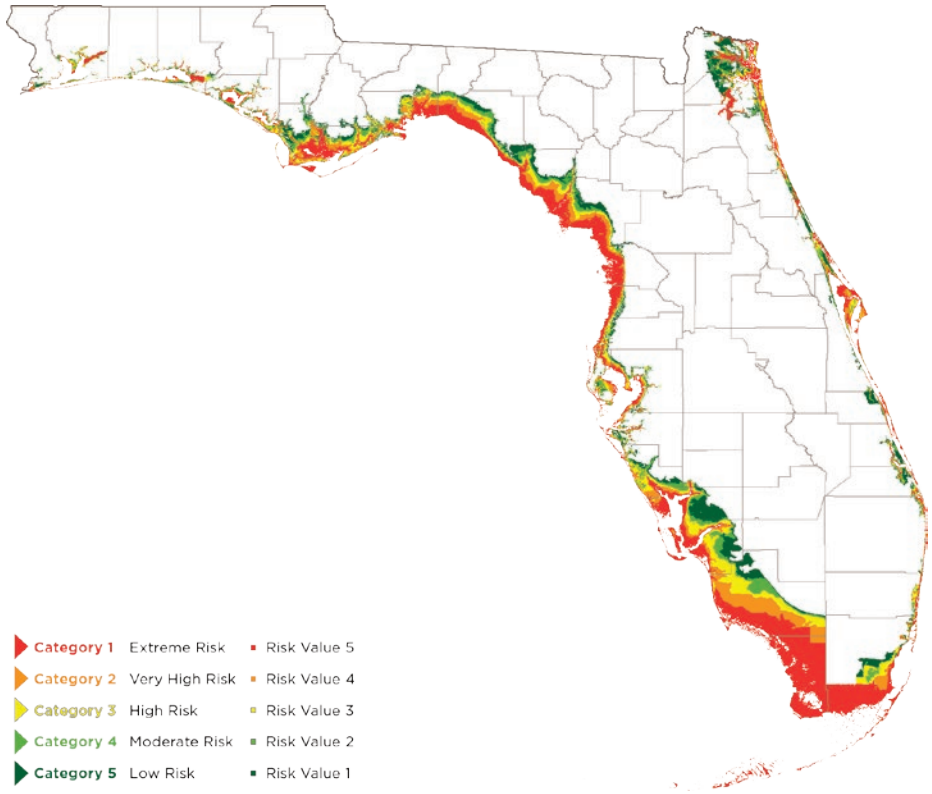
Source: NOAA 2014.

The reconstruction value associated with the homes exposed to storm-surge damage in the Gulf is also much less than the total cost of rebuilding homes exposed in the Atlantic region (as indicated in Table 3). According to the most recent information available, the total reconstruction cost of homes along the Atlantic Coast is more than $950 billion, which is nearly double the cost of at-risk homes in the Gulf region, at just over $545 billion. This discrepancy can be attributed to several factors, including the concentration of homes along each coast and the higher-than-average reconstruction values associated with the large metropolitan areas that dominate the central and northeast shorelines.

Storm Surge Risk by State

Naturally, total storm surge exposure varies significantly from state to state given differences in population, trends in residential development, geographic risk factors, length of coastline and other distinguishing factors. Florida and Texas, for example, are within the top five states for number of properties at risk, primarily because of their extensive coastlines (Table 4). Louisiana and New Jersey, on the other hand, have a smaller coastal area overall, yet are within the top five positions as a result of relatively low elevation that allows storm surge risk to extend farther inland and affect more homes.

Figure 2. Storm Surge Risk Along the Florida Coast



Source: CoreLogic 2014.

Table 4 – State Table (Ranked by Number of Properties at Risk)

Rank	State	Extreme	Very High	High	Moderate	Low	Total
1	Florida	789,090	459,090	519,409	347,860	372,828	2,488,277
2	Louisiana	160,744	102,347	262,340	134,588	78,146	738,165
6	New York	128,462	114,949	132,179	91,329	N/A	466,919
4	New Jersey	116,613	178,037	74,284	76,994	N/A	445,928
3	Texas	44,569	70,732	110,487	114,945	93,688	434,421
5	Virginia	93,969	115,232	98,190	83,768	27,353	418,512
8	South Carolina	99,884	52,358	59,113	41,490	27,349	280,194
7	North Carolina	72,597	51,016	48,588	40,074	36,889	249,164
10	Massachusetts	31,023	65,124	73,781	48,985	N/A	218,913
12	Maryland	47,825	39,807	27,740	28,719	N/A	144,091
9	Georgia	38,891	48,394	26,513	18,136	8,087	140,021
16	Pennsylvania	1,468	45,582	37,860	32,007	N/A	116,917
11	Mississippi	15,071	20,871	28,644	26,408	10,828	101,822
13	Connecticut	25,227	23,350	22,187	26,462	N/A	97,226
15	Alabama	7,365	12,765	10,182	14,080	13,937	58,329
14	Delaware	11,497	10,416	13,016	13,605	N/A	48,534
17	Rhode Island	6,635	5,972	6,731	7,220	N/A	26,558
18	Maine	5,254	2,942	7,558	7,685	N/A	23,439
19	New Hampshire	2,326	3,317	3,194	2,016	N/A	10,853
20	District of Columbia	N/A	1	759	3,135	N/A	3,895
	Total	**1,698,510**	**1,422,302**	**1,562,755**	**1,159,506**	**669,106**	**6,512,178**

Source: CoreLogic 2014.

The reconstruction values of coastal homes along the northeastern coast are comparatively higher than in other areas of the U.S.

In many cases, as illustrated in Table 4, the total homes exposed to hurricane-driven storm surge damage in a given state is closely correlated to the total number of homes in coastal areas. Florida, which is ranked first, carries the highest number of homes at potential risk, at nearly 2.5 million, along with the highest total reconstruction cost, at more than $490 billion (Table 2). For some states, however, particularly in the Northeast, there are a smaller total number of homes that represent a disproportionately high reconstruction valuation.

New York is a prime example, with only 466,919 homes located in storm surge risk zones, but more than $182.5 billion in residential property reconstruction cost. This can be explained by the nature of residential development in those areas where there are often higher home values and related construction and material cost. The reconstruction values of coastal homes along the northeastern coast are comparatively higher than in other areas of the U.S.

Storm Surge Risk in Major Metropolitan Areas

To evaluate storm surge risk at the local level, CoreLogic uses Core Based Statistical Areas, defined by the Office of Management and Budget, and often referred to as metropolitan areas, which represent an urban center and the adjacent regions that are tied to that center. The specific areas identified in this report are named by primary urban center, though each might contain additional urban areas.

The metropolitan areas examined in the 2014 storm surge analysis (Table 5) represent the 15 cities in the U.S. with the highest number of potentially affected homes. According to CoreLogic data, of the nearly $1.5 trillion in residential homes exposed to storm surge along the Gulf and Atlantic Coasts, more than $986 billion of that risk is concentrated in the 15 metro areas (Table 5). This is not surprising, as two of the top five and five of the top 20 most densely populated cities in the U.S. are located in the Gulf and Atlantic regions.

After Hurricane Sandy set several new surge records in late 2012, there has been greater attention and focus on the New York area, which contains not only the highest number of homes at risk for potential storm surge damage (687,412), but also the highest total reconstruction value of residential homes exposed, at more than $251 billion.

Of the nearly $1.5 trillion in residential homes exposed to storm surge, more than $986 billion of that risk is concentrated in 15 metro areas.

Table 5 – Storm Surge Risk for Top 15 Metro Areas

RANK	METROPOLITAN AREA	TOTAL PROPERTIES POTENTIALLY AFFECTED BY ALL CATEGORIES OF HURRICANE	TOTAL RECONSTRUCTION VALUE
1	New York, NY	687,412	$251,038,846,466
2	Miami, FL	562,410	$103,160,570,812
3	Tampa, FL	444,765	$79,149,326,645
4	Virginia Beach, VA	394,705	$87,178,838,156
5	New Orleans, LA	381,149	$85,679,653,561
6	Cape Coral, FL	299,508	$60,430,683,073
7	Bradenton, FL	227,821	$42,955,130,837
8	Houston, TX	216,880	$41,903,647,756
9	Philadelphia, PA	213,668	$42,204,432,570
10	Naples, FL	177,651	$41,259,312,520
11	Jacksonville, FL	174,180	$36,509,802,458
12	Boston, MA	169,102	$46,713,411,965
13	Charleston, SC	108,045	$27,880,315,028
14	Lafayette, LA	106,166	$21,266,042,348
15	Myrtle Beach, NC	104,707	$19,373,709,040
	Total	**4,268,169**	**$986,703,723,235**

Source: CoreLogic 2014. Based on estimated reconstruction cost as of June 2014.

Storm Surge Inundation Versus Freshwater Flooding

The Federal Emergency Management Agency (FEMA) has a long history of providing flood boundaries for parts of the U.S. with its Flood Insurance Rate Maps (FIRM) that identify 100-year and 500-year floodplains.[1] Unfortunately, many homeowners inadvertently believe that the FEMA boundaries represent the full extent of flood risk. In fact, varying levels of flood risk for both fresh water and storm surge can and do extend beyond the FEMA boundaries.

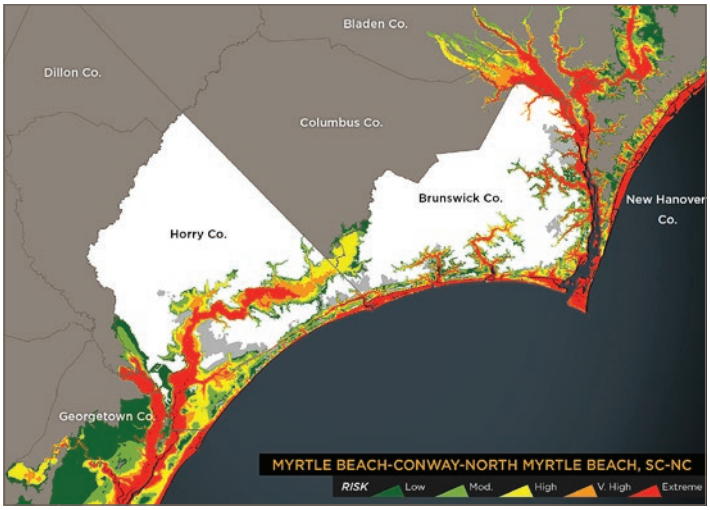
The standard FEMA flood zones are designed to identify areas at risk of both freshwater flooding as well as storm surge based on the likelihood of either a 100-year or a 500-year flood event.[1] Using these designated flood zones, properties are simply either "in" or "out."[1] While this method of risk analysis does identify some of the risk associated with surge-water flooding, it does not differentiate based on storm severity and, as a result, does not effectively define the total extent of the risk possible along coastal areas. Extensive regions along both the Gulf and Atlantic Coasts are vulnerable to storm surge, and yet many of the homeowners who live in these areas are not required to carry flood insurance because they are not located within a designated FEMA 100-year floodplain.

Extensive regions along both the Gulf and Atlantic Coasts are vulnerable to storm surge, and yet many of the homeowners who live in these areas are not required to carry flood insurance because they are not located within a designated FEMA 100-year floodplain.

To illustrate these varying degrees of flood risk exposure, the CoreLogic analysis in Table 6 compares homes that are not located within FEMA 100-year floodplains against the number of homes located in surge inundation zones, as well as those located in both surge and FEMA Special Flood Hazard Areas (SFHA) for 15 select major metro areas. Since standard homeowner's insurance excludes flood losses from either fresh or salt water, homeowners who are not located in FEMA SFHAs, but are in high-risk surge zones, often do not consider buying National Flood Insurance Program (NFIP) coverage for their properties.

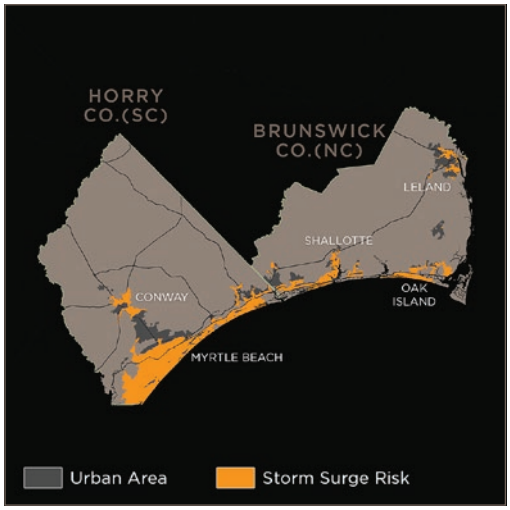
Comparing the metro areas, Table 6 illustrates the significant differences between properties found in storm surge and flood inundation areas, by comparing surge-only areas and FEMA SFHA-only areas.

Figure 3. Storm Surge Risk Along the North and South Carolina Coast



Source: CoreLogic 2014.

Figure 4. Census Designated Urban Area and Storm Surge Risk



Source: CoreLogic 2014.

Table 6 – Storm Surge Inundation vs. Fresh-Water Flooding for Select Major Metros Areas

CBSA	TOTAL PROPERTIES EXPOSED TO FLOOD OR SURGE INUNDATION	TOTAL PROPERTIES IN BOTH A SFHA AND A SURGE ZONE	% OF PROPERTIES IN BOTH A SFHA AND A SURGE ZONE	TOTAL PROPERTIES LOCATED ONLY IN A FEMA SFHA	% OF PROPERTIES LOCATED ONLY IN A FEMA SFHA	TOTAL PROPERTIES LOCATED ONLY IN A SURGE ZONE	% OF PROPERTIES LOCATED ONLY IN A SURGE ZONE
Virginia Beach-Norfolk-Newport News, VA-NC	395,584	55,115	13.9%	879	0.2%	339,590	85.8%
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	230,074	17,775	7.7%	16,406	7.1%	195,893	85.1%
Jacksonville, FL	187,861	30,653	16.3%	13,681	7.3%	143,527	76.4%
Boston-Cambridge-Newton, MA-NH	187,801	29,936	15.9%	18,699	10.0%	139,166	74.1%
Deltona-Daytona Beach-Ormond Beach, FL	113,172	19,857	17.5%	10,858	9.6%	82,457	72.9%
New York-Newark-Jersey City, NY-NJ-PA	725,020	192,202	26.5%	37,608	5.2%	495,210	68.3%
North Port-Sarasota-Bradenton, FL	230,344	83,795	36.4%	2,523	1.1%	144,026	62.5%
Washington-Arlington-Alexandria, DC-VA-MD-WV	25,462	3,788	14.9%	7,225	28.4%	14,449	56.7%
Cape Coral-Fort Myers, FL	300,988	140,736	46.8%	1,480	0.5%	158,772	52.8%
Tampa-St. Petersburg-Clearwater, FL	481,525	197,875	41.1%	36,760	7.6%	246,890	51.3%
Houston-The Woodlands-Sugar Land, TX	338,090	51,114	15.1%	121,210	35.9%	165,766	49.0%
Baton Rouge, LA	127,719	29,864	23.4%	37,228	29.1%	60,627	47.5%
New Orleans-Metairie, LA	383,991	211,871	55.2%	2,842	0.7%	169,278	44.1%
Naples-Immokalee-Marco Island, FL	180,489	104,514	57.9%	2,838	1.6%	73,137	40.5%
Miami-Fort Lauderdale-West Palm Beach, FL	1,191,134	356,400	29.9%	628,724	52.8%	206,010	17.3%

Source: CoreLogic 2014.

Storm Surge Methodology: New Categories and Valuations for Homes at Risk in 2014

The data used for the 2014 CoreLogic storm surge analysis to determine the number of homes at risk of storm surge inundation, as well as the estimated reconstruction cost of these residential structures, has been expanded. Data for 10 additional categories under the single-family residence classification has been added to include mobile homes, duplexes, cabins and manufactured homes, among others. These new categories, which were not captured in previous reports (2011–2013), allow for an improved and more complete database, and thus contribute to the increase in the number of single-family residences identified as at risk.

In addition, the estimation of property values CoreLogic uses for single-family residences is now based upon Marshall & Swift/Boeckh (MSB™) reconstruction valuation data. CoreLogic acquired MSB in late March 2014 and new valuations in this report are derived from MSB reconstruction cost estimates rather than market valuation data. Reconstruction cost estimates are a more accurate reflection of the actual cost of repairing or replacing residential buildings that could be damaged or destroyed due to hurricane-driven storm surge since they include the cost of materials and labor, and also factor in geographical pricing differences. In the event that reconstruction costs were not available for the purposes of this analysis, CoreLogic Reconstruction Cost Industry Benchmark averages were used to calculate the property-level values.

Lastly, homes that fell within the perimeter of each category of storm surge inundation were identified to create a risk polygon resulting from modeling potential surge for simulated hurricane events. A risk polygon was constructed for each hurricane category and defines the land area susceptible to the surge expected for each storm category. The Sea, Lake and Overland Surges from Hurricanes model from the National Oceanic and Atmospheric Administration (NOAA), along with NOAA Maximum of the Maximum Envelope of High Water data is one of the attributes used in the proprietary storm surge model.[2]

The updated data CoreLogic used to determine the number of homes located in storm surge risk areas and their associated reconstruction values is intended to provide a more complete and accurate interpretation of the threat of hurricane-driven flooding across the Gulf and Atlantic Coasts of the U.S. While the number of homes and values will fluctuate, this more broadly defined and comprehensive analysis accurately represents potential damage posed by storm surge.

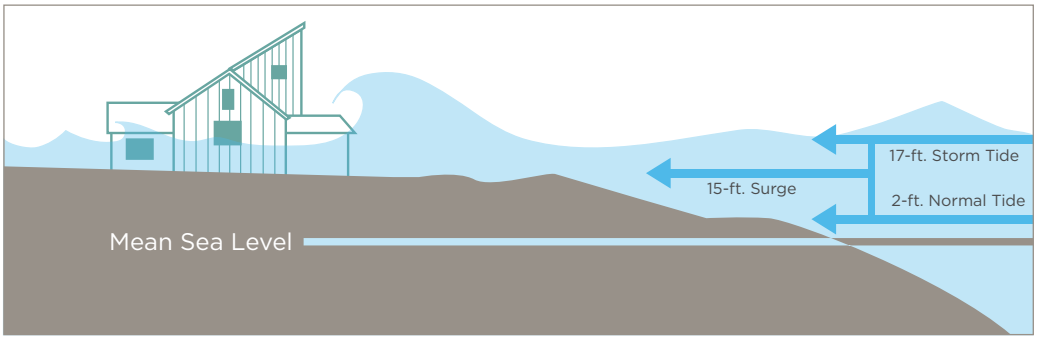
Storm Surge Overview

What Is Storm Surge?

Storm surge is a complex phenomenon that occurs when water is pushed toward the shore through the force of powerful winds associated with cyclonic storms, and is further influenced by many different factors, including water depth and ocean floor terrain. High winds and low pressure created by a storm causes water to accumulate at its center. As it moves across the ocean, the strong winds inside the hurricane act as a plow, causing water to pile up along the front of the storm, with the highest water levels accumulating along the right-front quadrant as the hurricane spins counterclockwise.

The speed at which a hurricane moves along its path can be highly variable, even for a single storm. The surge levels created by a fast moving storm are likely to be higher than for a slow storm. Conversely, for a slower moving hurricane, a larger volume of water is pushed due to the fact it will take more time for the storm to move inland and dissipate. The hydraulic impact created by these waves tends to be incredibly destructive because one cubic yard of seawater weighs approximately 1,728 pounds—nearly one ton.

Figure 5. Storm Surge



Source: NOAA 2014.

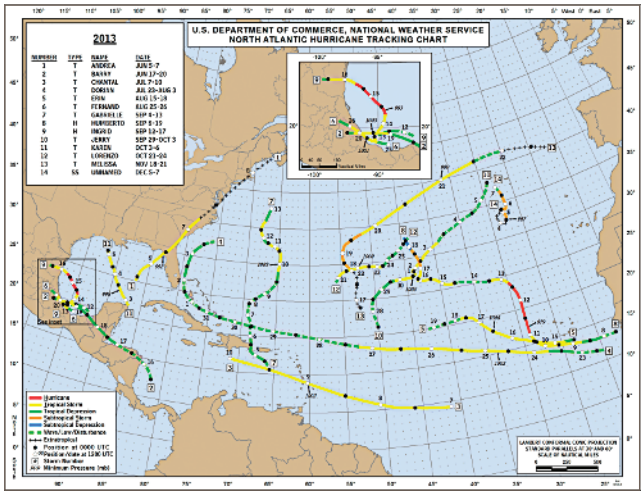
2014 Insights and Findings

A Look Back

The 2013 Atlantic hurricane season was the first Atlantic hurricane season since 1994 to end with zero major hurricanes, and the first since 1968 to feature no storms of at least category 2 intensity.[3] The season began on June 1 and ended on November 30, dates that traditionally define the period each year when most tropical cyclones form in the Atlantic Ocean.

The National Oceanic and Atmospheric Association (NOAA) coined the 2013 Atlantic hurricane season the "Ghost" because, amid much fanfare surrounding Hurricane Sandy in the fall of 2012, a busy season was predicted by nearly every forecasting organization. Fortunately for coastal residents—those most vulnerable during hurricane season—it was a dud. Figure 6 below shows the NOAA 2013 Atlantic Hurricane Season Track Map, illustrating the minimal numbers of storms, as well as their conservative distance offshore.

Figure 6. 2013 Atlantic Hurricane Season Track Map



Source: NOAA 2014.

The season kicked off with some vigor when Tropical Storm Andrea formed in early June in the central Gulf. Andrea moved predictably and eventually made landfall near Steinhatchee, Fla. on June 6. Effects of the storm reached as far away as the Miami–Fort Lauderdale metropolitan area, where residents experienced flash flooding and received nearly 15 inches of rain.[4] Minor storm surge flooding also occurred along the Florida Suncoast, and 10 small tornadoes were also spawned across the peninsula.[4] Andrea was the only tropical cyclone to make landfall in the U.S. in 2013, and after that, the season went silent.

2013 Hurricane Season by the Numbers:

13 named cyclones

11 tropical storms

2 hurricanes

0 major hurricanes

On November 22, Tropical Storm Melissa formed in the Atlantic and transitioned to a non-tropical low pressure system. By this time, there had been 13 named cyclones, but only two reached hurricane status. Both hurricanes failed to attain Category 2 strength, which requires 96 mph winds. As such, 2013 marked the first time such a low level of activity had occurred since 1994.[4] Humberto, the first named hurricane of the season, reached hurricane status on September 11, tying as the latest date for the first named hurricane in a given season.[4]

2013 Hurricane Season: A Look Back

The puzzle pieces appeared to be in place for an active 2013 Atlantic Hurricane season, but it was significantly quieter than the experts predicted. So, what happened? In addition to serendipity, NOAA suspects that a number of factors, with almost no predictability for their occurrence, played a significant part in the mild season. These include wind shear, dry air, a weak sub-Saharan jet stream, a low phase of oscillating sea surface temperatures, fluctuations in the difference of atmospheric pressure at sea level between the Icelandic low and the Azores high and non-optimal timing.[4]

2014 Hurricanes: A Pre-Season Forecast

After one of the quietest hurricane seasons in decades, The Weather Channel has predicted a below-average 2014 Atlantic Hurricane season.[5] The early outlook released March 24, 2014, called for 11 named storms, including five hurricanes, two of which are predicted to attain major hurricane status (Category 3) or stronger on the Saffir-Simpson Hurricane Wind Scale.[5] On July 3, the first hurricane of the 2014 season arrived as predicted, named Arthur, and escalated to a Category 2 storm before weakening into a post-tropical cyclone.

In comparison, the NOAA Climate Prediction Center forecasted a near-normal or below-normal season, explaining that the main driver of this year's outlook is the anticipated development of El Niño this summer.[6] El Niño causes stronger wind shear which reduces the number and intensity of tropical storms and hurricanes. NOAA's outlook predicted a 70 percent likelihood of eight to 13 named storms (winds of 39 mph or higher), of which three to six could become hurricanes (winds of 74 mph or higher), including one to two major hurricanes (Category 3, 4 or 5; winds of 111 mph. or higher).[6] The 2014 Atlantic hurricane season runs from June through November, but it's important to keep in mind that the formation of tropical cyclones is possible at any time.

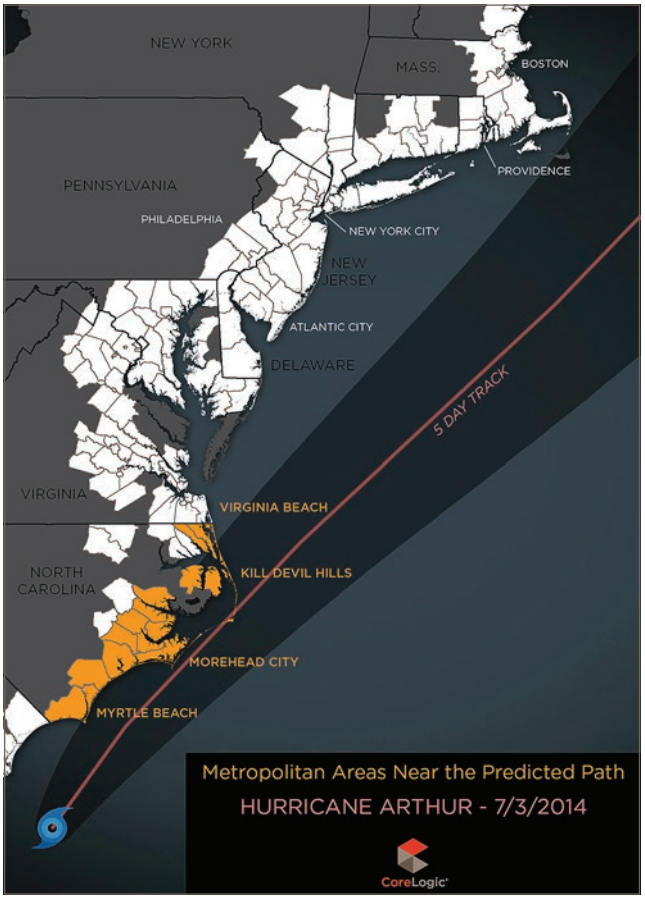
Hurricane Spotlight: Hurricane Arthur

In the early morning hours of July 3, 2014, Tropical Storm Arthur graduated to a Category 1 hurricane—the first official hurricane of the 2014 season and the first to make landfall in the continental U.S. since Isaac struck Louisiana on August 28, 2012.[7] Arthur made landfall earlier on the calendar than any other known hurricane in North Carolina history.[7]

The center of Arthur moved parallel to the coast of North Carolina and strengthened into a Category 2 storm before making landfall at 11:15 p.m. EDT on July 3 between Cape Lookout and Beaufort. After pummeling North Carolina, Arthur moved back out over the Atlantic towards Nova Scotia as a weakened post-tropical cyclone, but brought heavy rain and flash flooding to southeastern New England.[7]

As a Category 2 hurricane, Arthur could have done much more severe and significant damage along the Atlantic coastline. The parallel track that Arthur took resulted in a broad area of impact and lessened the potential surge effect overall since the storm did not make landfall perpendicular to the coast. Had Arthur taken a 90-degree angle to the coastline, it would likely have pushed much more surge water onshore.

Figure 7. Predicted Path of Hurricane Arthur



Source: CoreLogic, NOAA 2014.

Conclusion

The 2013 hurricane season was remarkable for the absence of hurricanes that made landfall in the U.S. The 2014 season is projected to be at or below normal for the number of Atlantic-based storms that occur. However, neither of these facts can predict the location or severity of any storm that may arrive during 2014 and cause damage and destruction along the U.S. coast. All that would be required to cause tens of billions in property damage is a single event occurring in or near many of the large coastal metropolitan areas identified in this report.

Past hurricane seasons have demonstrated the impact that just one storm of sufficient severity, located in exactly the wrong place, can achieve. Andrew, Katrina, and finally Sandy are still reminders that it takes no more than one hurricane roaring through a metropolitan and densely populated area to cause widespread property damage and threaten lives. The early arrival of Hurricane Arthur battering the Outer Banks of North Carolina on July 3 is the most recent reminder that hurricanes can wreak havoc despite mild season forecasts. Knowing the potential for risk and being able to plan the appropriate actions are key elements in avoiding the potential for damage or loss of life for future storms.

SOURCES:

[1] Federal Emergency Management Agency, 2014.

[2] NOAA National Weather Service, National Hurricane Center, 2014.

[3] Wikipedia.org: 2013 Atlantic Hurricane Season, 2013.

[4] NOAA: National Weather Service Weather Forecast Office, 2013 Atlantic Hurricane Season Review, 2014.

[5] The Weather Channel, 2014 Hurricane Season Outlook: Another Quiet Season Possible for Atlantic, 2014.

[6] NOAA Climate Prediction Center, 2014 Atlantic Hurricane Outlook, 2014.

[7] The Weather Channel, Hurricane Central, "Friday's Hurricane Arthur Update: Outer Banks, Southeast Virginia Take Hit From Strongest U.S. Landfall Since 2008," 2014.

ABOUT CORELOGIC

CoreLogic (NYSE: CLGX) is a leading global property information, analytics and data-enabled services provider. The company's combined data from public, contributory and proprietary sources includes over 3.3 billion records spanning more than 40 years, providing detailed coverage of property, mortgages and other encumbrances, consumer credit, tenancy, location, hazard risk and related performance information. The markets CoreLogic serves include real estate and mortgage finance, insurance, capital markets, and the public sector. CoreLogic delivers value to clients through unique data, analytics, workflow technology, advisory and managed services. Clients rely on CoreLogic to help identify and manage growth opportunities, improve performance and mitigate risk. Headquartered in Irvine, Calif., CoreLogic operates in North America, Western Europe and Asia Pacific. For more information, please visit corelogic.com

corelogic.com

17-STRMSRGE-0714-01