CLIMATE ▲ → START CONSIDERING THE HOUSING IMPLICATIONS

Waves crashing over an experimental sea wall built to protect homes during high tide in Isle of Palms, S.C., last year.
Mic Smith/Associated Press

Data Source: NY Times

FLOOD INSURANCE IS A GROWING RISK

Federal flood insurance costs taxpayers billions without reducing storm damage

Steve Ellis, Opinion contributor Published 7:00 a.m. ET June 21, 2018

The National Flood Insurance Program costs taxpayers $30 billion. Congress should incentivize people to mitigate damage and privatize flood insurance.

SOURCE: *FEMA*

National Flood Insurance Program running out of time, money

MICHELLE BRUNETTI POST Staff Writer Jul 7, 2018 (0)

Data Source: FEMA, USA Today, Insurance Journal, AC Press

FLOOD INSURANCE – A SHORT & LONG TERM RISK

Romano: You better hope I'm wrong about flood insurance

John Romano
Times Columnist
MORE ARTICLES

Published: June 22, 2018
Updated: June 22, 2018 at 05:31 PM

37 — That's how many days remain before the National Flood Insurance Program (NFIP) expires. That doesn't mean existing policies won't remain in effect, but it does mean the government will not renew or write new policies if the program is not extended. Congress has always saved the NFIP in the past, but this is the first time it is not tied to a budget extension. In other words, a program forced to borrow $36 billion in the last 13 years, must now make a case to live or die on its own.

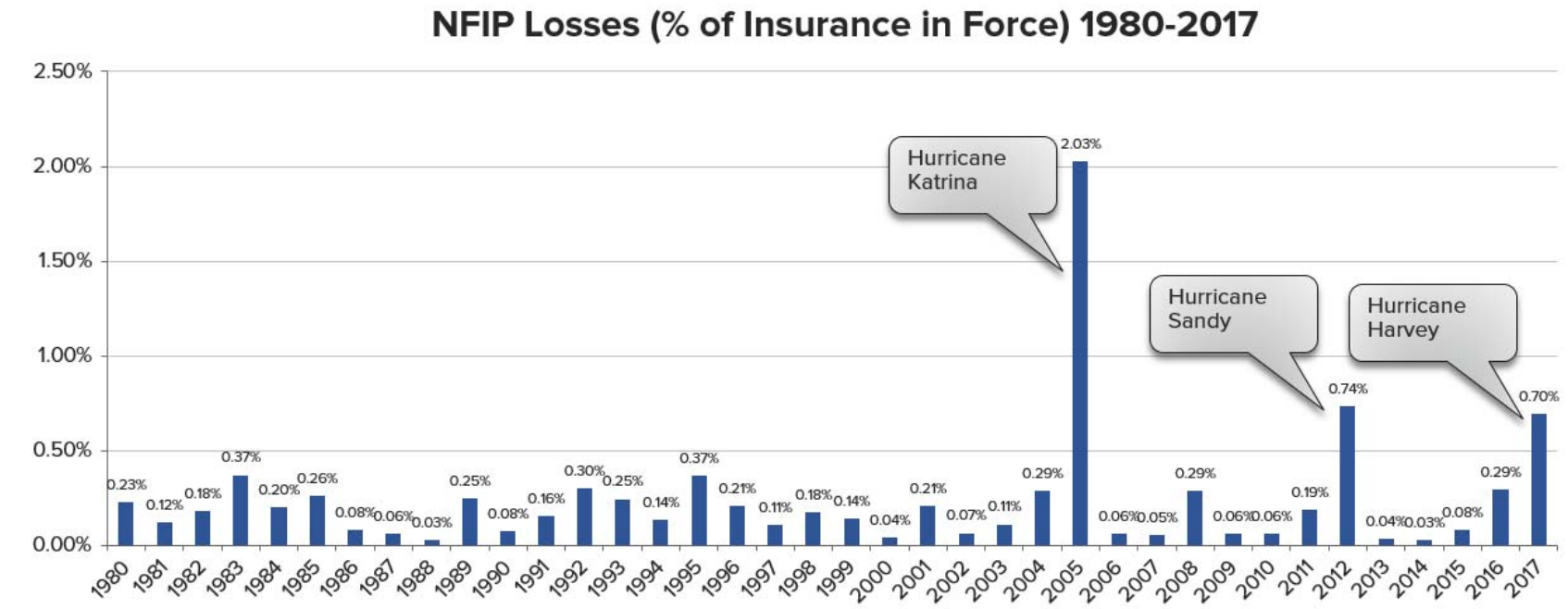
40,000 — The number of home sales that will collapse each month if the NFIP is not renewed, according to the National Association of Realtors. No NFIP usually means no mortgage in high-risk zones. If that happens, it could affect home values in the entire market.

8 — Of the 10 most destructive storms in the last 40 years, eight have occurred since 2001. That could be coincidental. Or it could be because we've allowed developers to overbuild without considering flood implications. Or maybe because, as the National Center for Environmental Information has reported, hurricanes have been stalling over one location and causing historic rainfall. Whatever the reason, you're not wrong if you have the sense that floods have been getting worse.

70 — Percentage of homes damaged by Hurricane Harvey near Houston last year that did NOT have flood insurance, according to an analysis by financial services provider CoreLogic. The percentage of uninsured homes during a devastating flood in Baton Rouge, La. the year before was even higher. Just because you're not in a zone that requires insurance doesn't mean you don't need insurance.

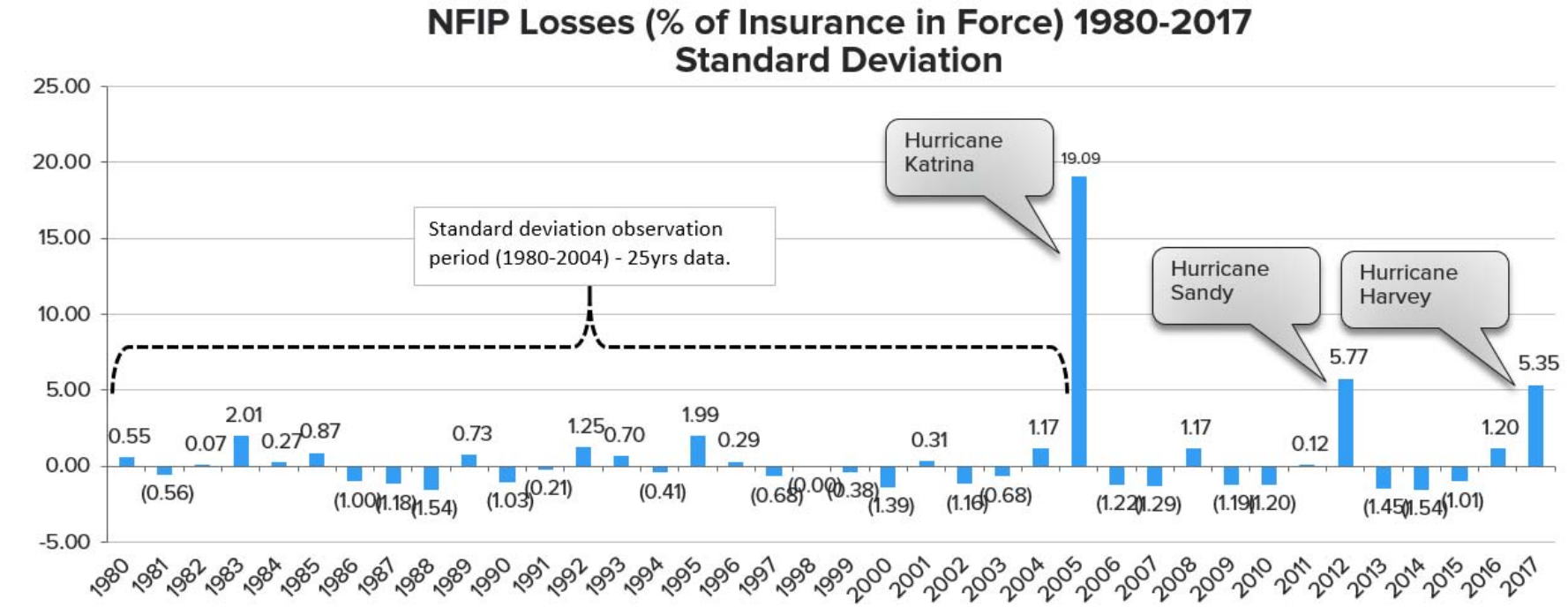
Data Source: Tampa Bay Times

NFIP LOSSES HAVE BEEN RISING



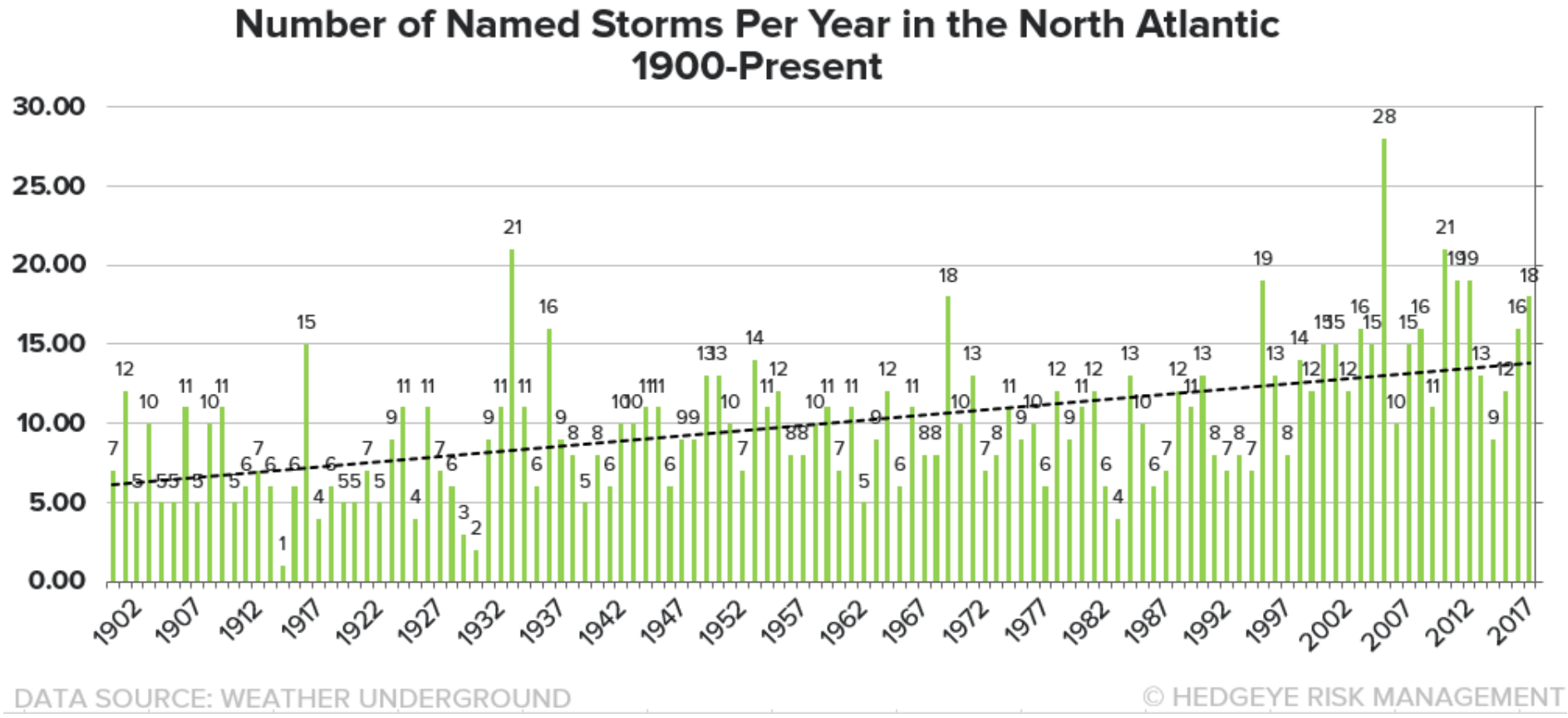
DATA SOURCE: NFIP

RIGHT TAIL EVENTS ARE BECOMING MORE COMMON

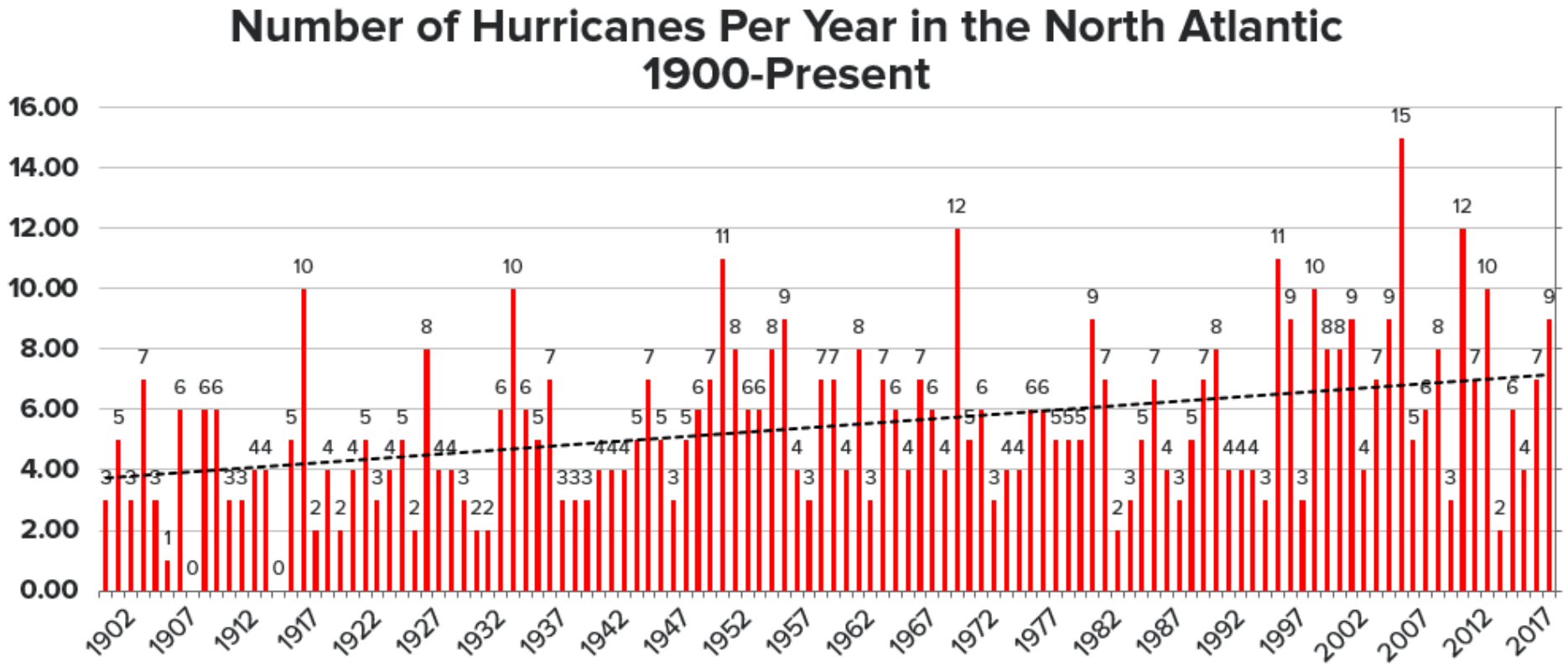


DATA SOURCE: NFIP

STORM VOLUME IS INCREASING IN THE NORTH ATLANTIC



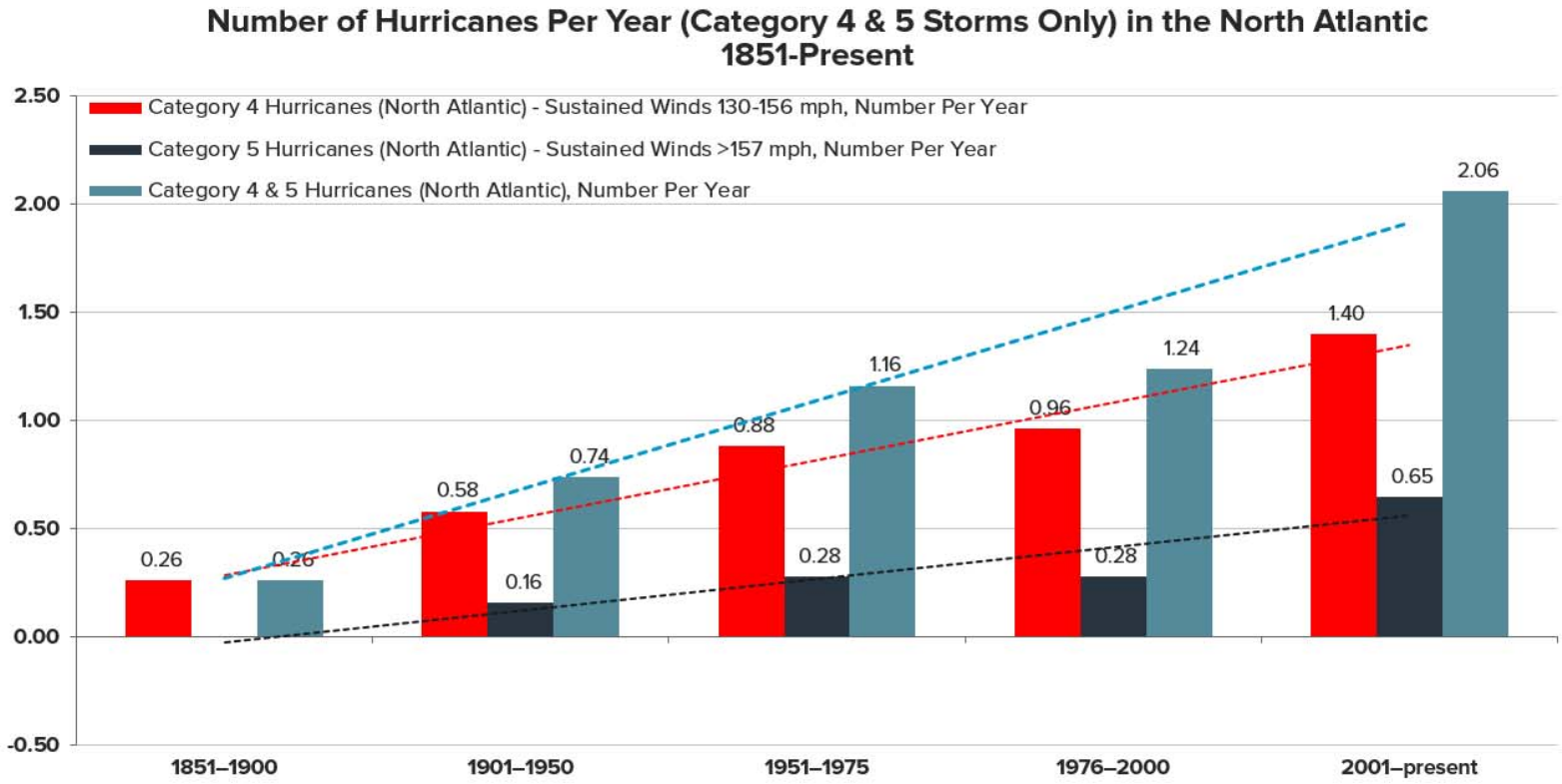
HURRICANE VOLUME IS INCREASING IN THE NORTH ATLANTIC



DATA SOURCE: WEATHER UNDERGROUND

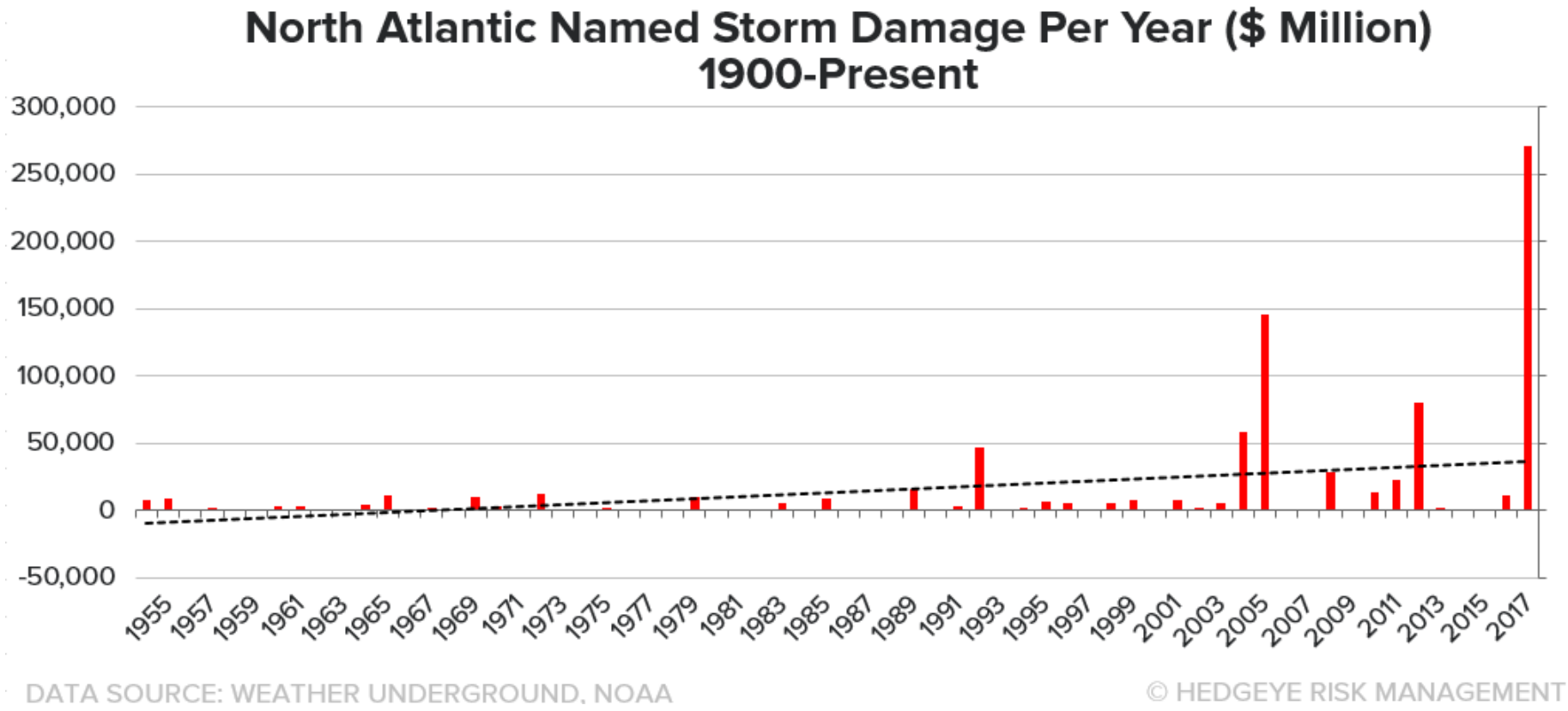
© HEDGEYE RISK MANAGEMENT

EXTREME HURRICANE VOLUME (CAT 4 & 5) IS RISING



DATA SOURCE: WEATHER UNDERGROUND

EXTREME HURRICANE VOLUME (CAT 4 & 5) IS RISING



PROPERTIES AT RISK OF STORM SURGE FLOODING

Storm Surge Risk Level	Total Homes Potentially Affected	Total Estimated RCV (U.S. Dollars)
Extreme - Category 1 - 5 storms	806,735	191,170,832,774
Very High - Category 2 - 5 storms	2,509,236	608,263,801,243
High - Category 3 - 5 storms	4,557,089	1,088,338,913,877
Moderate - Category 4 - 5 storms	6,050,936	1,442,435,751,572
Low - Category 5 storms	6,942,499	1,620,652,870,673

Source: CoreLogic 2018

Table 1 - Total Number of Homes at Risk Nationally and Estimated Reconstruction Cost Value

Data Source: CoreLogic 2018 Storm Surge Report

PROPERTIES AT RISK OF STORM SURGE FLOODING

	Atlantic Coast		Gulf Coast	
Storm Surge Risk Level	**Total Homes Affected**	**RCV (U.S. Dollars)**	**Total Homes Affected**	**RCV (U.S. Dollars)**
Extreme	456,688	122,684,450,321	350,047	68,486,382,453
Very High	1,438,100	398,084,569,726	1,071,136	210,179,231,517
High	2,506,545	672,405,046,607	2,050,544	415,933,867,270
Moderate	3,460,837	916,771,265,997	2,590,099	525,664,485,575
Low	3,924,023	1,011,558,178,641	3,018,476	609,094,692,032

Source: CoreLogic 2018

Data Source: CoreLogic 2018 Storm Surge Report

PROPERTIES AT RISK OF STORM SURGE FLOODING

Rank	State	Extreme	Very High	High	Moderate	Low*
1	Florida	351,093	1,064,674	1,752,603	2,292,791	2,774,175
2	Louisiana	72,256	207,442	624,521	747,111	817,480
3	Texas	39,109	117,558	253,947	384,944	543,847
4	New Jersey	95,659	278,539	382,065	471,353	N/A
5	New York	75,238	224,558	347,236	462,380	N/A
6	Virginia	26,960	94,378	246,824	366,478	409,129
7	South Carolina	35,934	126,997	209,026	294,239	347,030
8	North Carolina	32,282	95,286	160,831	210,233	259,718
9	Massachusetts	11,048	46,558	102,189	157,898	N/A
10	Georgia	8,887	50,409	105,735	141,518	152,559
11	Maryland	17,824	60,553	99,056	125,417	N/A
12	Mississippi	9,261	30,353	60,620	90,010	101,720
13	Pennsylvania	932	20,815	56,830	83,808	N/A
14	Connecticut	7,167	28,497	46,618	67,207	N/A
15	Alabama	6,379	17,306	32,331	44,744	57,973
16	Delaware	8,901	24,649	40,048	56,418	N/A
17	Rhode Island	1,876	8,153	17,312	26,484	N/A
18	Maine	5,645	7,960	11,851	18,150	N/A
19	New Hampshire	284	4,551	7,446	9,753	N/A

Source: CoreLogic 2018

Data Source: CoreLogic 2018 Storm Surge Report

PROPERTY VALUE AT RISK OF STORM SURGE FLOODING

Rank	State	Extreme	Very High	High	Moderate	Low*
1	Florida	$68,993,319,371	$214,615,495,959	$353,434,047,211	$458,546,265,943	$552,417,823,248
2	New York	$29,069,437,198	$92,192,934,548	$142,653,686,948	$190,523,945,573	N/A
3	Louisiana	$15,058,006,592	$44,361,573,373	$141,431,122,080	$169,398,148,734	$186,089,070,917
4	New Jersey	$27,210,934,630	$83,140,546,592	$116,378,523,825	$146,074,429,226	N/A
5	Texas	$6,544,802,706	$20,281,149,088	$46,590,193,249	$73,689,714,628	$103,257,560,067
6	Virginia	$6,889,209,422	$23,532,519,915	$57,147,551,590	$84,231,366,445	$95,057,016,309
7	South Carolina	$10,365,743,962	$33,689,536,077	$52,352,428,765	$70,363,340,488	$80,775,388,252
8	North Carolina	$6,502,998,590	$19,557,292,731	$33,348,232,464	$43,887,698,767	$54,356,018,315
9	Massachusetts	$2,980,187,240	$13,363,727,998	$29,309,257,327	$46,442,774,460	N/A
10	Georgia	$2,740,063,841	$13,213,068,236	$24,703,010,004	$31,744,968,374	$33,763,709,156
11	Maryland	$4,349,256,919	$14,483,853,619	$23,474,382,707	$29,806,926,424	N/A
12	Connecticut	$2,559,481,204	$9,608,686,921	$15,452,737,215	$22,111,853,493	N/A
13	Mississippi	$1,977,375,919	$6,157,332,097	$11,913,778,331	$17,373,187,675	$19,557,738,154
14	Pennsylvania	$216,076,484	$4,664,438,284	$13,120,822,659	$19,444,951,459	N/A
15	Delaware	$2,635,651,997	$7,021,080,076	$11,463,739,373	$16,078,182,995	N/A
16	Alabama	$1,203,825,492	$3,124,223,041	$5,789,839,450	$7,962,250,197	$10,139,735,934
17	Rhode Island	$528,745,488	2,408,462,659	$5,093,849,517	$7,809,201,093	N/A
18	Maine	$1,281,230,692	$1,914,444,383	$2,960,376,784	$4,634,377,599	N/A
19	New Hampshire	$64,485,027	$933,435,646	$1,721,334,378	$2,312,167,999	N/A

Source: CoreLogic 2018

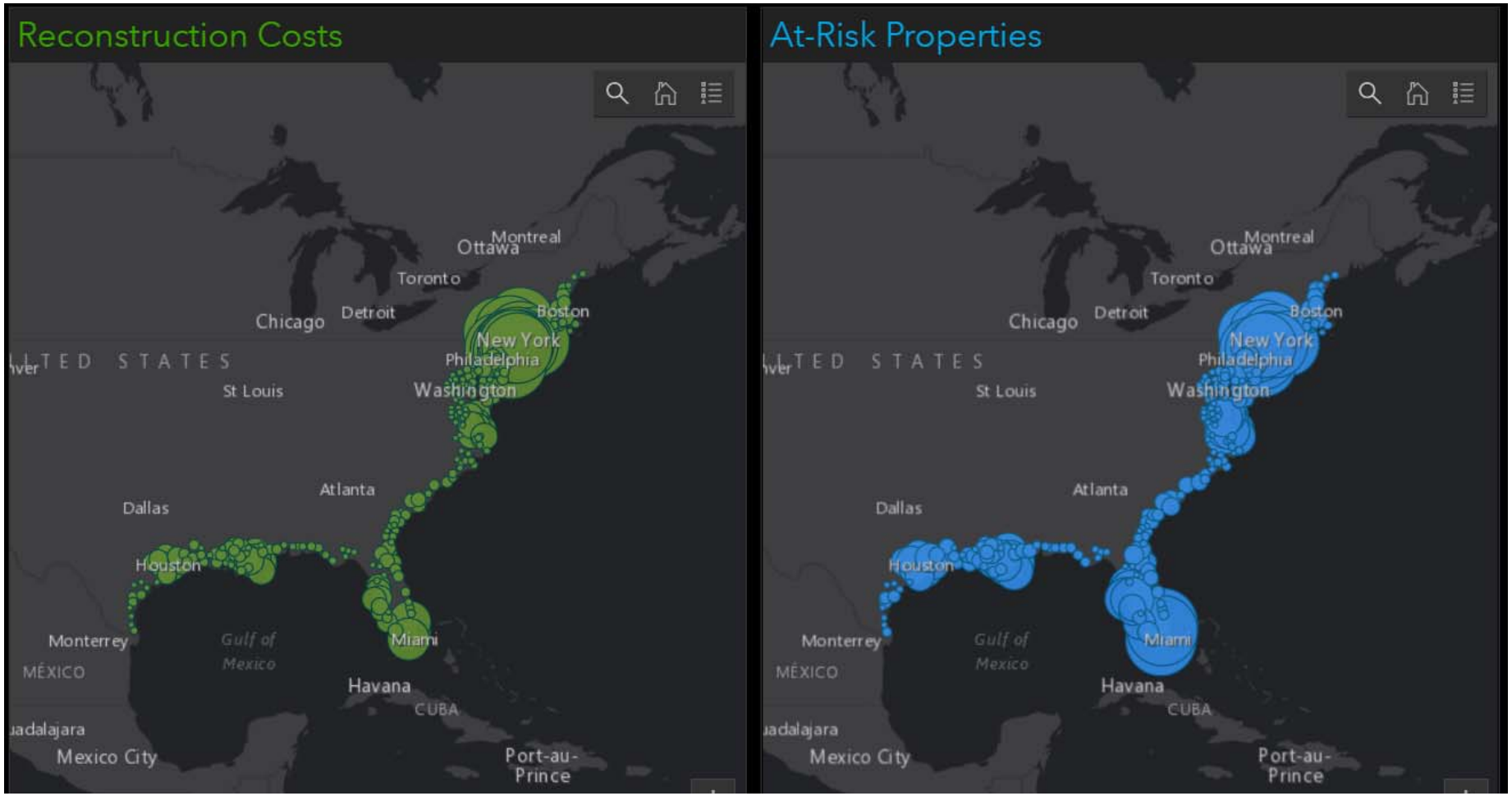
Data Source: CoreLogic 2018 Storm Surge Report

PROPERTY VALUE AT RISK OF STORM SURGE FLOODING

Rank	Metropolitan Area	Total Homes at Risk	Total Estimated RCV (U.S. Dollars)
1	Miami, FL	788,679	$156,109,638,962
2	New York, NY	726,048	$277,316,495,768
3	Tampa, FL	459,082	$79,154,913,706
4	New Orleans, LA	395,975	$95,278,109,445
5	Virginia Beach, VA	389,938	$90,904,781,082
6	Cape Coral/ Fort Myers, FL	318,950	$63,465,095,946
7	Houston, TX	284,622	$57,652,653,916
8	Bradenton, FL	254,535	$49,231,359,219
9	Naples, FL	186,100	$39,684,021,652
10	Jacksonville, FL	171,332	$38,495,385,153
11	Philadelphia, PA	165,300	$41,317,614,113
12	Charleston, SC	149,900	$37,938,251,071
13	Myrtle Beach, SC	128,155	$22,792,717,625
14	Boston, MA	126,263	$34,937,253,340
15	Beaumont, TX	121,379	$21,026,736,810
	Total	**4,666,258**	**$1,105,305,027,808**

Data Source: CoreLogic 2018 Storm Surge Report

PROPERTY VALUE AT RISK OF STORM SURGE FLOODING



Data Source: CoreLogic 2018 Storm Surge Report

STUDY FINDINGS SUMMARY

- The area of the SFHAs (Special Flood Hazard Areas) will increase by 45 percent nationally on average by the end of this century. In coastal areas, SFHAs will increase by 55 percent. Three-to-four percent of the US population will live in coastal SFHAs by 2100 and 11 percent of the US population will live in riverine (that is, inland) SFHAs. In addition, between $66 billion and $160 billion worth of real estate is expected to be below sea level by 2050. By the end of the century, the range is $238 billion to $507 billion.

- Florida sits on a substrate of porous limestone that holds Florida's supply of fresh water. As the sea level rises, it infiltrates the limestone underground and contaminates the freshwater supply. A sea wall might stop storm water surges on the surface, but it can't prevent the underground incursion of salt water.

- The economic losses and social disruption may happen gradually, but they are likely to be greater in total than those experienced in the housing crisis and Great Recession. That recent experience illustrated the difficulty of allocating losses between homeowners, lenders, servicers, insurers, investors, and taxpayers in general.

- A large share of homeowners' wealth is locked up in their equity in their homes. If those homes become uninsurable and unmarketable, the values of the homes will plummet, perhaps to zero. Unlike the recent experience, homeowners will have no expectation that the values of their homes will ever recover.

- In the housing crisis, a significant share of borrowers continued to make their mortgage payments even though the values of their homes were less than the balances of their mortgages. It is less likely that borrowers will continue to make mortgage payments if their homes are **literally underwater**. As a result, lenders, servicers and mortgage insurers are likely to suffer large losses.

- One challenge for housing economists is predicting the time path of house prices in areas likely to be impacted by climate change. Consider an expensive beachfront house that is highly likely to be submerged eventually, although "eventually" is difficult to pin down and may be a long way off. Will the value of the house decline gradually as the expected life of the house becomes shorter? Or, alternatively, will the value of the house—and all the houses around it—plunge the first time a lender refuses to make a mortgage on a nearby house or an insurer refuses to issue a homeowner's policy? Or will the trigger be one or two homeowners who decide to sell defensively?

These bullets are excerpts from a 2016 Freddie Mac report on the risks posed by climate change to shorefront and waterfront property. The author raised numerous relevant questions and points.

Data Source: Freddie Mac, AECOM, Risky Business Project