



FEMA

National Flood Insurance Program

A Discussion in Three Parts:

- The Nature of Flood Risk
- An Overview of the NFIP
- FASAB - Q&A

Presented to:

FASAB Insurance Program Education Session

December 17, 2014



Nature of Flood Risk



“FLOODS ARE AN ACT OF GOD; FLOOD DAMAGES RESULT FROM ACTS OF MEN.”

H.D. 465

Nature of Flood Risk



1920-1959

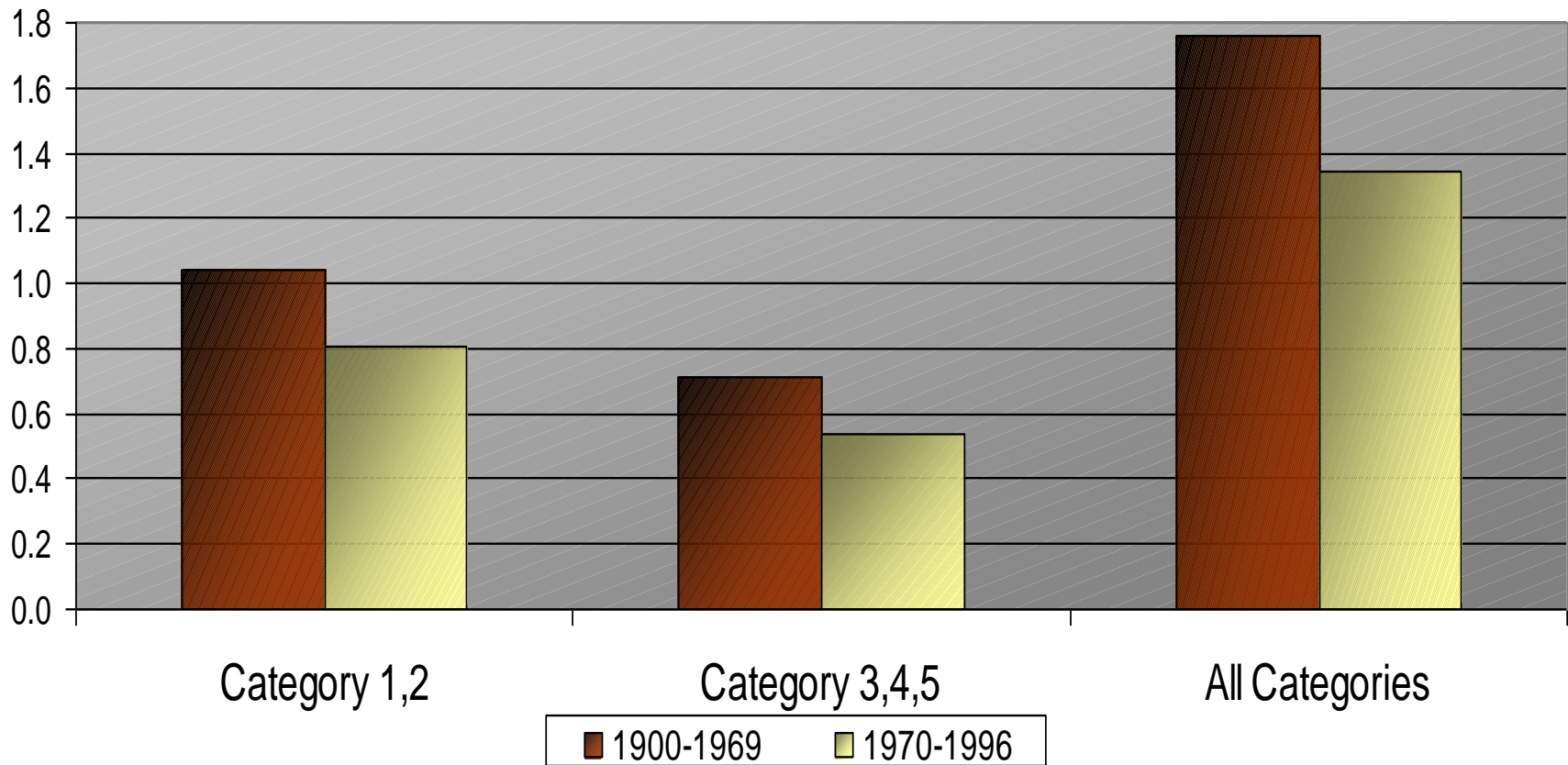
Source: <http://www.hurricane.csc.noaa.gov/hurricanes/index.htm>



1960-1999

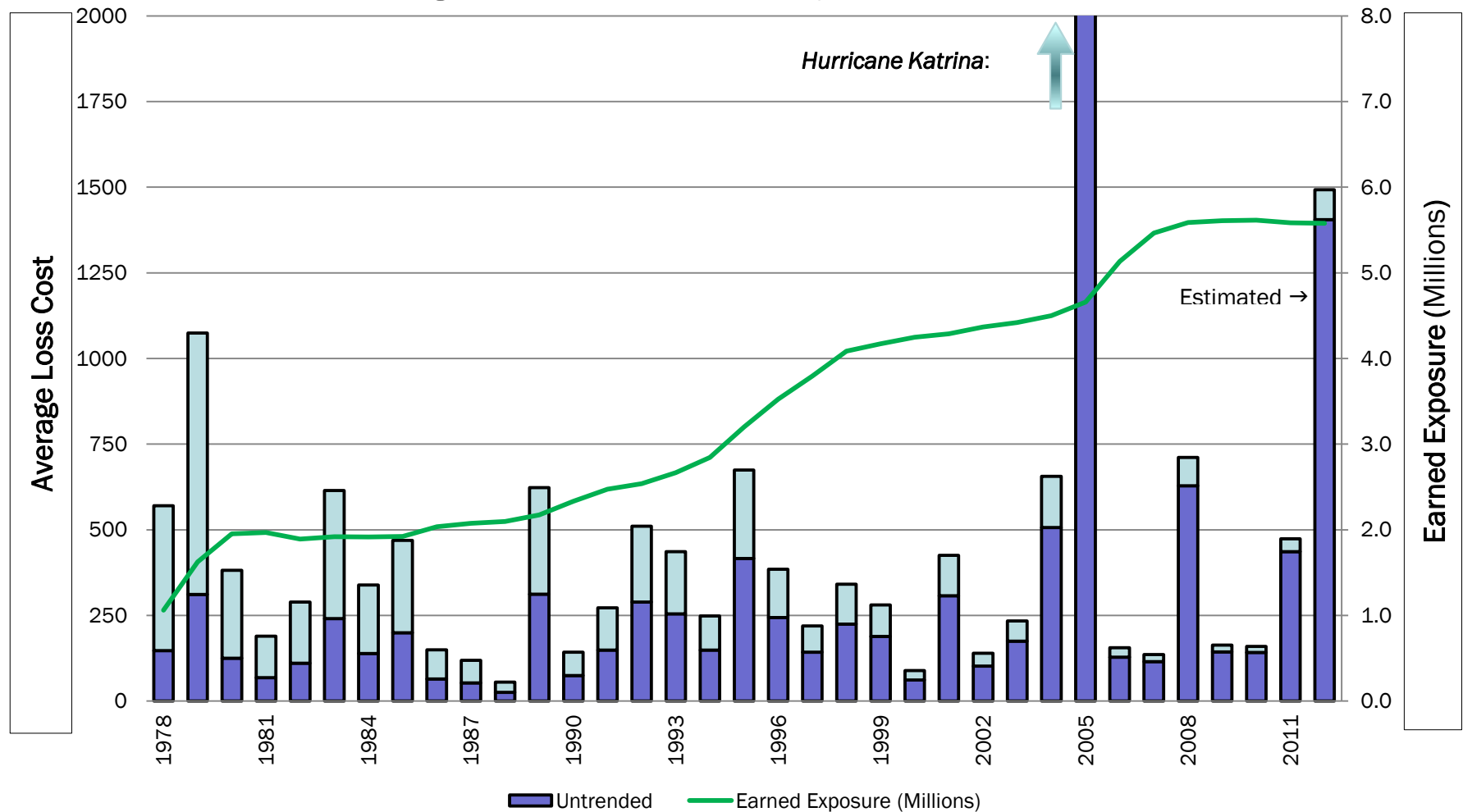
Nature of Flood Risk

US Mainland Hurricane Strikes Average per Year by Category



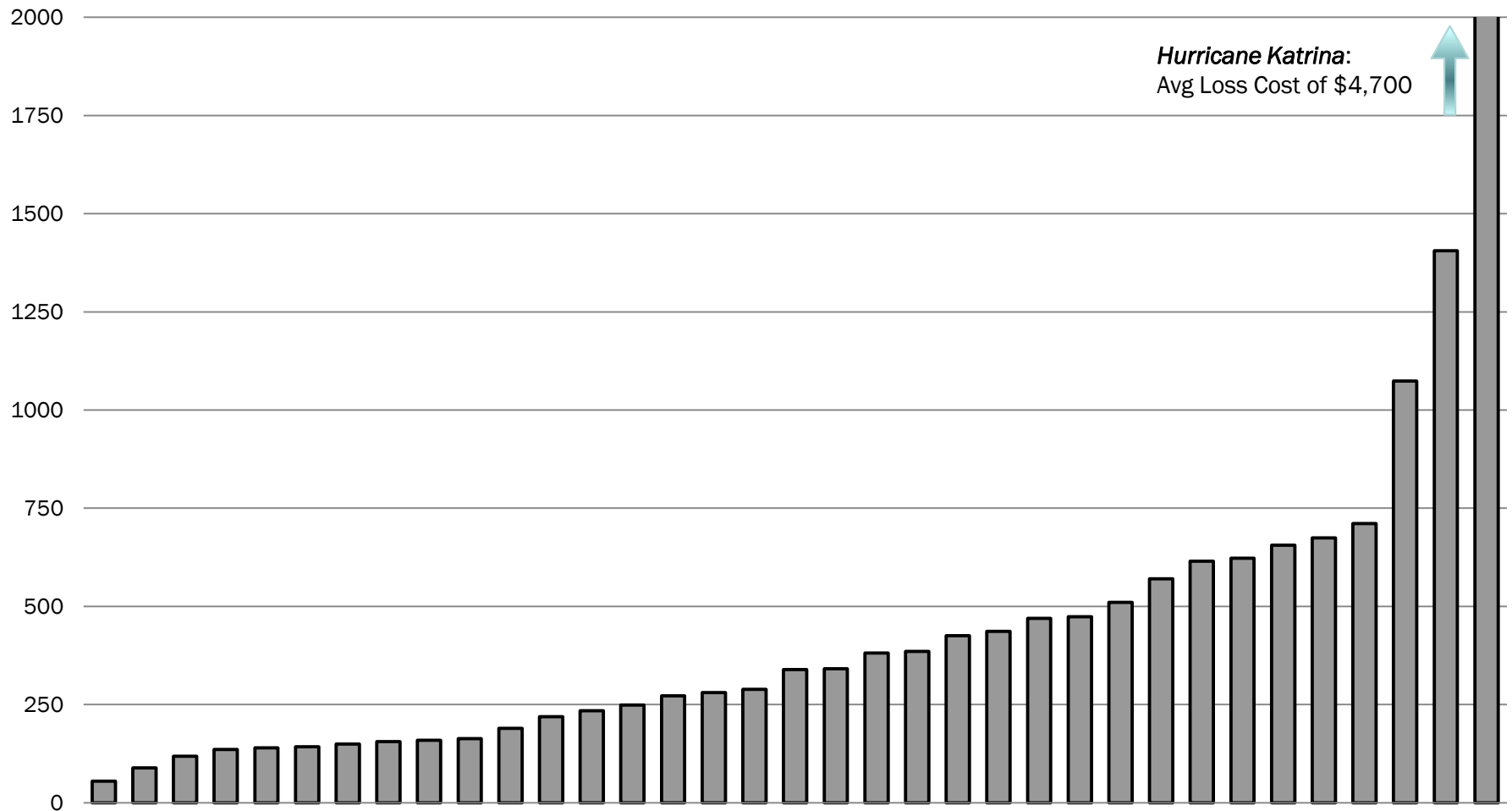
Nature of Flood Risk

Average Loss Cost* Per Policy (Trended to 2015)



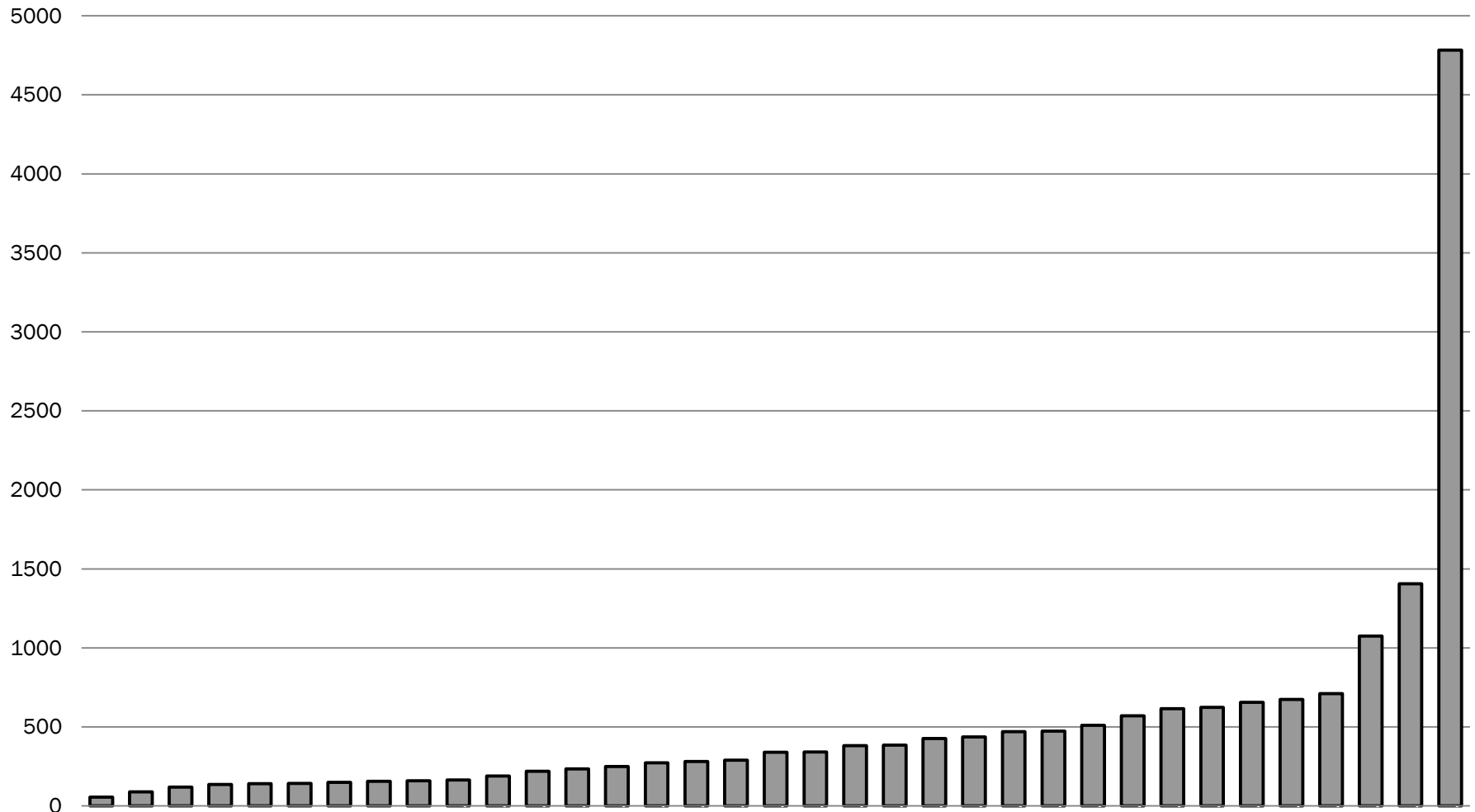
Nature of Flood Risk

Average Loss Cost* Per Policy (Trended to 2015)



Nature of Flood Risk

Average Loss Cost* Per Policy (Trended to 2015)



NFIP Overview – Rate Model

A Probabilistic Hydrologic Model

$$\text{RATE} = \left[\sum_{i=\text{Min}}^{\text{Max}} (PELV_i \times DELV_i) \right] \times \frac{LADJ \times DED \times UINS}{EXLOSS}$$

- PELV is the probability that flood waters reach a certain depth (frequency)
- DELV is the ratio of the flood damage to the value of the insurable properties (severity)
- LADJ, DED, UINS Loss adjustment expenses, underinsurance, and deductible
- EXLOSS is the loading for expenses and contingency

NFIP Overview - Severity

Expected Damages for \$250,000 of Building Coverage
on a \$295,000 Structure that is 8 Feet below BFE

Rating Example - Severity (Damage), Paid Loss, and Adjustment Expenses								
Depth in Structure (ft)			Percent Damage	Damage Amount	Less Deductible	ALAE	ULAE and SALAE	Paid Loss and LAE
12.5	and	up	78.4%	\$ 230,701.57	\$ 229,701.57	\$ 5,972.24	\$ 3,904.93	\$ 239,578.74
12.0	to	12.5	73.8%	\$ 217,073.69	\$ 216,073.69	\$ 5,617.92	\$ 3,673.25	\$ 225,364.86
11.0	to	12.0	73.1%	\$ 215,103.73	\$ 214,103.73	\$ 5,566.70	\$ 3,639.76	\$ 223,310.19
10.0	to	11.0	70.5%	\$ 207,347.61	\$ 206,347.61	\$ 5,365.04	\$ 3,507.91	\$ 215,220.56
9.0	to	10.0	68.0%	\$ 199,856.35	\$ 198,856.35	\$ 5,170.27	\$ 3,380.56	\$ 207,407.18
8.0	to	9.0	63.5%	\$ 186,841.53	\$ 185,841.53	\$ 4,831.88	\$ 3,159.31	\$ 193,832.71
7.0	to	8.0	59.6%	\$ 175,328.49	\$ 174,328.49	\$ 4,532.54	\$ 2,963.58	\$ 181,824.61
6.0	to	7.0	54.2%	\$ 159,315.80	\$ 158,315.80	\$ 4,116.21	\$ 2,691.37	\$ 165,123.38
5.0	to	6.0	48.9%	\$ 143,936.04	\$ 142,936.04	\$ 3,716.34	\$ 2,429.91	\$ 149,082.29
4.0	to	5.0	41.9%	\$ 123,200.58	\$ 122,200.58	\$ 3,400.00	\$ 2,077.41	\$ 127,677.99
3.0	to	4.0	33.2%	\$ 97,648.74	\$ 96,648.74	\$ 3,286.06	\$ 1,643.03	\$ 101,577.83
2.0	to	3.0	28.6%	\$ 83,979.90	\$ 82,979.90	\$ 2,821.32	\$ 1,410.66	\$ 87,211.87
1.0	to	2.0	23.3%	\$ 68,505.15	\$ 67,505.15	\$ 2,295.18	\$ 1,147.59	\$ 70,947.91
0.0	to	1.0	16.6%	\$ 48,966.01	\$ 47,966.01	\$ 1,640.00	\$ 815.42	\$ 50,421.43
-0.5	to	0.0	3.5%	\$ 10,294.12	\$ 9,294.12	\$ 970.00	\$ 158.00	\$ 10,422.12
-0.5	and	below	0.0%	\$ -	\$ -	\$ -	\$ -	\$ -

NFIP Overview – Frequency x Severity

Expected Paid Loss & LAE for \$250,000 of Building Coverage
on a \$295,000 Structure that is 8 Feet below BFE

Rating Example - Probability Weighted Expected Paid Loss				
Depth in Structure	Probability in range	Paid Loss and LAE	Expected NFIF Loss	with Contingency Load
12.5 and up	0.2%	\$239,578.74	\$ 477.92	\$ 573.50
12.0 to 12.5	0.1%	\$225,364.86	\$ 113.98	\$ 136.78
11.0 to 12.0	0.1%	\$223,310.19	\$ 278.57	\$ 334.29
10.0 to 11.0	0.2%	\$215,220.56	\$ 340.65	\$ 408.78
9.0 to 10.0	0.2%	\$207,407.18	\$ 403.90	\$ 484.68
8.0 to 9.0	0.3%	\$193,832.71	\$ 542.10	\$ 650.52
7.0 to 8.0	0.3%	\$181,824.61	\$ 534.85	\$ 641.81
6.0 to 7.0	0.4%	\$165,123.38	\$ 591.91	\$ 710.29
5.0 to 6.0	0.4%	\$149,082.29	\$ 660.29	\$ 792.35
4.0 to 5.0	0.7%	\$127,677.99	\$ 845.47	\$ 1,014.57
3.0 to 4.0	0.7%	\$101,577.83	\$ 750.23	\$ 900.27
2.0 to 3.0	1.0%	\$ 87,211.87	\$ 832.23	\$ 998.68
1.0 to 2.0	1.2%	\$ 70,947.91	\$ 881.15	\$ 1,057.38
0.0 to 1.0	1.9%	\$ 50,421.43	\$ 974.96	\$ 1,169.96
-0.5 to 0.0	1.0%	\$ 10,422.12	\$ 107.10	\$ 128.52
-0.5 and below	91.3%	\$ -	\$ -	\$ -
Total	100.0%		\$ 8,335.32	\$ 10,002.38

NFIP Overview – Premium Comparison

Actual Premium can significantly vary by the elevation of the structure relative to the flood risk

**PREMIUM AT 4 FEET BELOW
BASE FLOOD ELEVATION**

\$9,500/year
\$95,000/10 years



BFE

**PREMIUM AT
BASE FLOOD ELEVATION**

\$1,410/year
\$14,100/10 years



BFE

**PREMIUM AT 3 FEET ABOVE
BASE FLOOD ELEVATION**

\$427/year
\$4,270/10 years



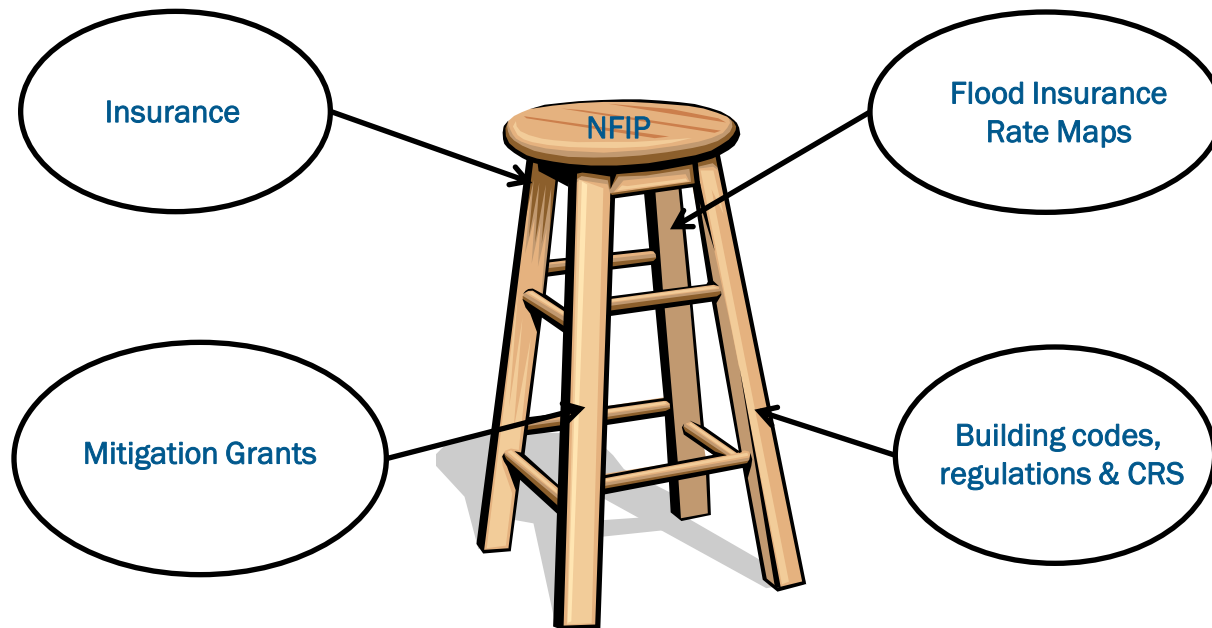
BFE

*\$250,000 building coverage only (does not include contents), AE (high to moderate risk) zone, single-family, one-story structure without a basement at: 4 feet below Base Flood Elevation (BFE); at BFE; and at 3 feet above BFE. (Rating per FEMA flood insurance manual, October 1, 2012). The illustration above is based on a standard National Flood Insurance Program (NFIP) deductible.

NFIP Overview

The NFIP – more than insurance

The NFIP is a voluntary Federal program enabling property owners in participating communities to purchase insurance against flood losses in exchange for adopting and enforcing regulations that reduce future flood damages. A participating community's floodplain management regulations, must meet or exceed the NFIP minimum requirements.



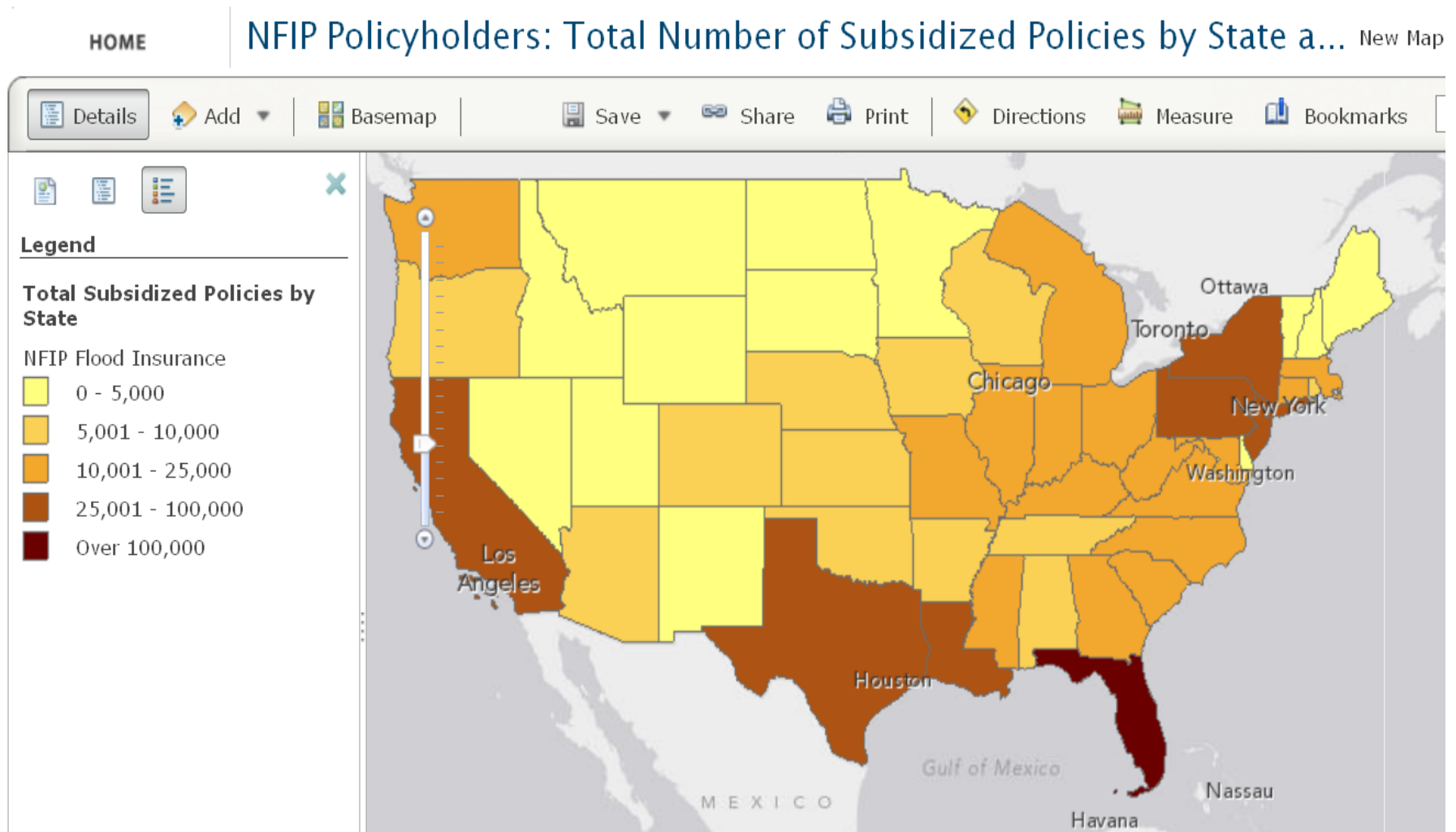
NFIP Overview

Subsidized Policies

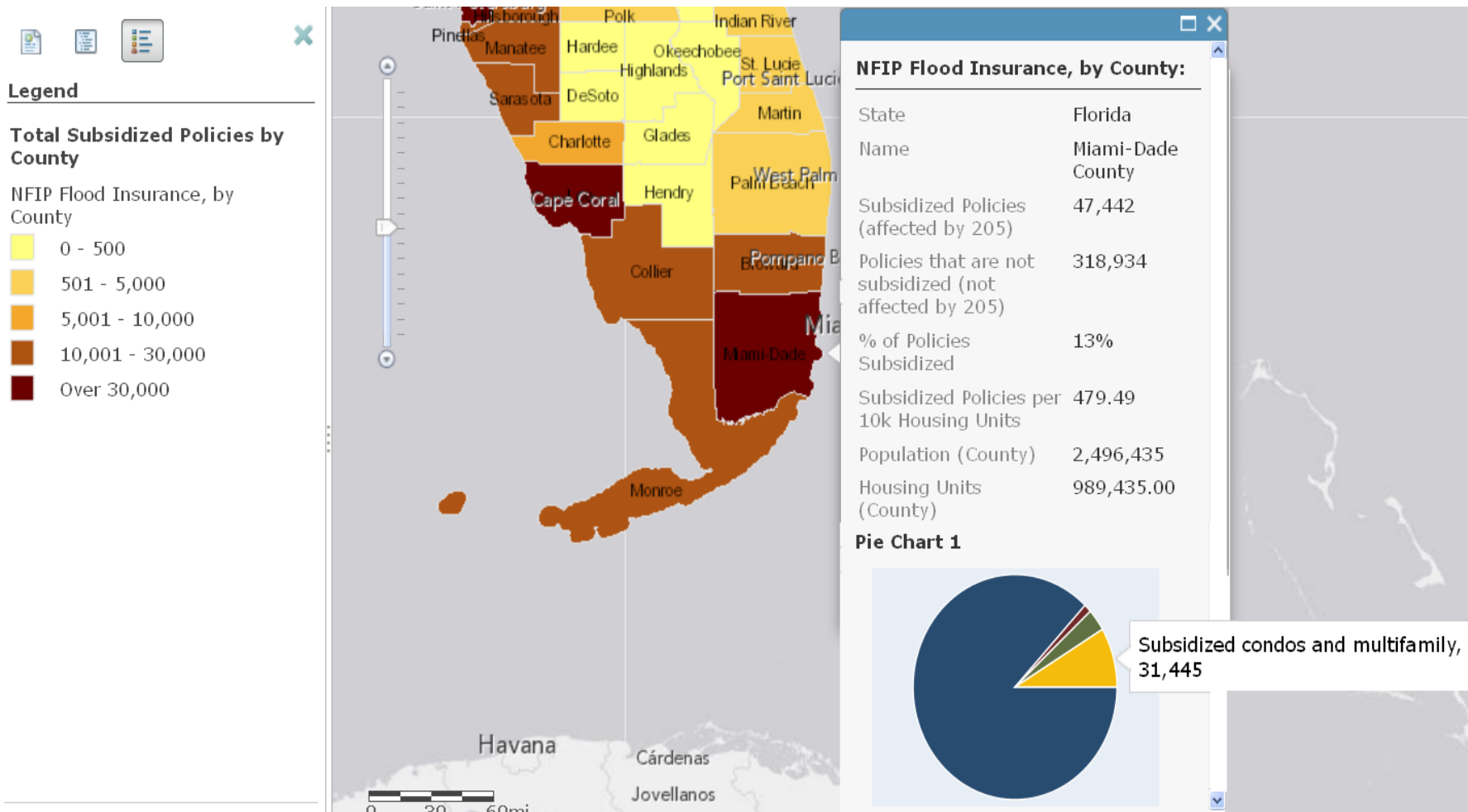
- Emergency Program – Communities newly entering the NFIP
- Pre-FIRM Subsidized – older structures built before their community's initial Flood Insurance Rate Map (FIRM) was developed.
- Levees in the course of construction (A99 Zone) or reconstruction (AR Zone)
- Pre-1981 VE Zone structures
- Group Flood Insurance Policies (GFIP) for recipients of Individual Assistance



NIFP Overview: Policyholder Subsidies



NFIP Overview: Policyholder Subsidies



FASAB's Questions about an Insurance Program's Premium & Claims

- How are the pricing policies determined for premiums?
- Who sets the pricing policy for the premiums?
- When does your program bill for premiums and recognize revenue/unearned revenue?
- Does your program estimate claims for the remaining open policy period following the end of the reporting period? If yes, how?
- What reports (other than your financial statements) are available that provide information about premium pricing, unearned revenue, future estimated losses, and projections of future fiscal year results?

FASAB's Questions about an Insurance Program's Premium & Claims

Q1: *How are the pricing policies determined for premiums?*

A: FEMA's actuaries and underwriters annually review the pricing and classification structure of the NFIP. They recommend changes for management approval. The annual review process incorporates any recent legislative changes such as the Biggert-Waters Flood Insurance Reform Act of 2012 (BW-12) and the recent Homeowner Flood Insurance Affordability Act (HFIAA) of 2014.

How are the pricing policies determined for premiums?

Who sets the pricing policy for the premiums?

When does your program bill for premiums and recognize revenue/unearned revenue?

Does your program estimate claims for the remaining open policy period following the end of the reporting period? If yes, how?

What reports (other than your financial statements) are available that provide information about premium pricing, unearned revenue, future estimated losses, and projections of future fiscal year results?

FASAB's Questions about an Insurance Program's Premium & Claims

Q2: *Who sets the pricing policy for the premiums?*

A: There are two types of premiums for NFIP policyholders – actuarial (i.e., full-risk) premiums and subsidized (i.e. less than full-risk, or “discounted”) premiums.

FEMA's actuaries, in accordance with Actuarial Standards of Practice (ASOPs) and in compliance with the National Flood Insurance Act of 1968, as amended, make recommended revisions to FEMA management.

Premium rates for actuarial premiums are made using an accepted actuarial “frequency and severity” approach as described earlier in this presentation.

How are the pricing policies determined for premiums?

Who sets the pricing policy for the premiums?

When does your program bill for premiums and recognize revenue/unearned revenue?

Does your program estimate claims for the remaining open policy period following the end of the reporting period? If yes, how?

What reports (other than your financial statements) are available that provide information about premium pricing, unearned revenue, future estimated losses, and projections of future fiscal year results?

FASAB's Questions about an Insurance Program's Premium & Claims

Q3: *When does your program bill for premiums and recognize revenue/uneared revenue?*

A: The NFIP sells policies on individual structures (i.e., buildings). The policyholder pays the entire annual premium on or, more commonly, before the effective date of the policy.

Premiums are recognized as the Program receives the premium. An unearned premium reserve is established for each individual policy and earned in a uniform basis over the life of the policy.

How are the pricing policies determined for premiums?

Who sets the pricing policy for the premiums?

When does your program bill for premiums and recognize revenue/uneared revenue?

Does your program estimate claims for the remaining open policy period following the end of the reporting period? If yes, how?

What reports (other than your financial statements) are available that provide information about premium pricing, unearned revenue, future estimated losses, and projections of future fiscal year results?

FASAB's Questions about an Insurance Program's Premium & Claims

Q4: *Does your program estimate claims for the remaining open policy period following the end of the reporting period? If yes, how?*

A: Preface: In answering this question, we assume that the question is focused on

- (i) losses from future flood events that happen after the end of the reporting period
- (ii) on policies that
 - a. were in-force on the statement date and
 - b. were still in-force when the future flooding event occurs.

Losses that occurred on or prior to the end of the reporting period but are still in the process of being reported, investigated and paid are part of the “Loss and Loss Adjustment Expense Reserve” on the Financial Statement.

How are the pricing policies determined for premiums?

Who sets the pricing policy for the premiums?

When does your program bill for premiums and recognize revenue/unearned revenue?

Does your program estimate claims for the remaining open policy period following the end of the reporting period? If yes, how?

What reports (other than your financial statements) are available that provide information about premium pricing, unearned revenue, future estimated losses, and projections of future fiscal year results?

FASAB's Questions about an Insurance Program's Premium & Claims

Q4: *Does your program estimate claims for the remaining open policy period following the end of the reporting period? If yes, how?*

A: The Balance Sheet of the NFIP does not contain a line item for estimated claims that might occur during the remaining open policy period following the end of the reporting period.

Since an unearned premium liability is carried, the Balance Sheet would need only carry the amount, if any, by which such a claims estimate exceeds the unearned premium reserve liability.

Due to the extreme variability of flooding, most years the unearned premium will be sufficient to pay such future losses. Therefore, the NFIP Financial Statement documents this future risk in a "Risk Assumed" Note.

How are the pricing policies determined for premiums?

Who sets the pricing policy for the premiums?

When does your program bill for premiums and recognize revenue/unearned revenue?

Does your program estimate claims for the remaining open policy period following the end of the reporting period? If yes, how?

What reports (other than your financial statements) are available that provide information about premium pricing, unearned revenue, future estimated losses, and projections of future fiscal year results?

FASAB's Questions about an Insurance Program's Premium & Claims

Q5: *What reports (other than your financial statements) are available that provide information about premium pricing, unearned revenue, future estimated losses, and projections of future fiscal year results?*

A: Annual Actuarial Rate Review found at:

<http://www.fema.gov/policy-claim-statistics-flood-insurance/policy-claim-statistics-flood-insurance/policy-claim-13-7> (Last updated for Oct 2012 Rate Change)

Flood Insurance Rate Manual found at:

<https://www.fema.gov/media-library/assets/documents/97901>

Statement of Actuarial Opinion (Reserve Valuation as of September 30, 2014) – copies will be provided at meeting

Risk Assumed Note – copies will be provided at meeting

How are the pricing policies determined for premiums?

Who sets the pricing policy for the premiums?

When does your program bill for premiums and recognize revenue/unearned revenue?

Does your program estimate claims for the remaining open policy period following the end of the reporting period? If yes, how?

What reports (other than your financial statements) are available that provide information about premium pricing, unearned revenue, future estimated losses, and projections of future fiscal year results?



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