FEMA

A Study of the Impact of Climate Change on the NFIP and Improving Coastal Floodplain Mapping

February 24, 2009

Study Background pt 2

- **Three issues have come up that question methods used by FEMA to administer certain aspects of the NFIP. The issues are:**

1. Use of the Primary Frontal Dune as a factor in delineating V-Zones

2. Coastal A Zone problem

3. Impact of climate change on the NFIP

Study Background pt 2

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Coastal

1. Use of the Primary Frontal Dune as a factor in delineating V-Zones
2. Coastal A Zone problem

Climate Change

3. Impact of climate change on the NFIP

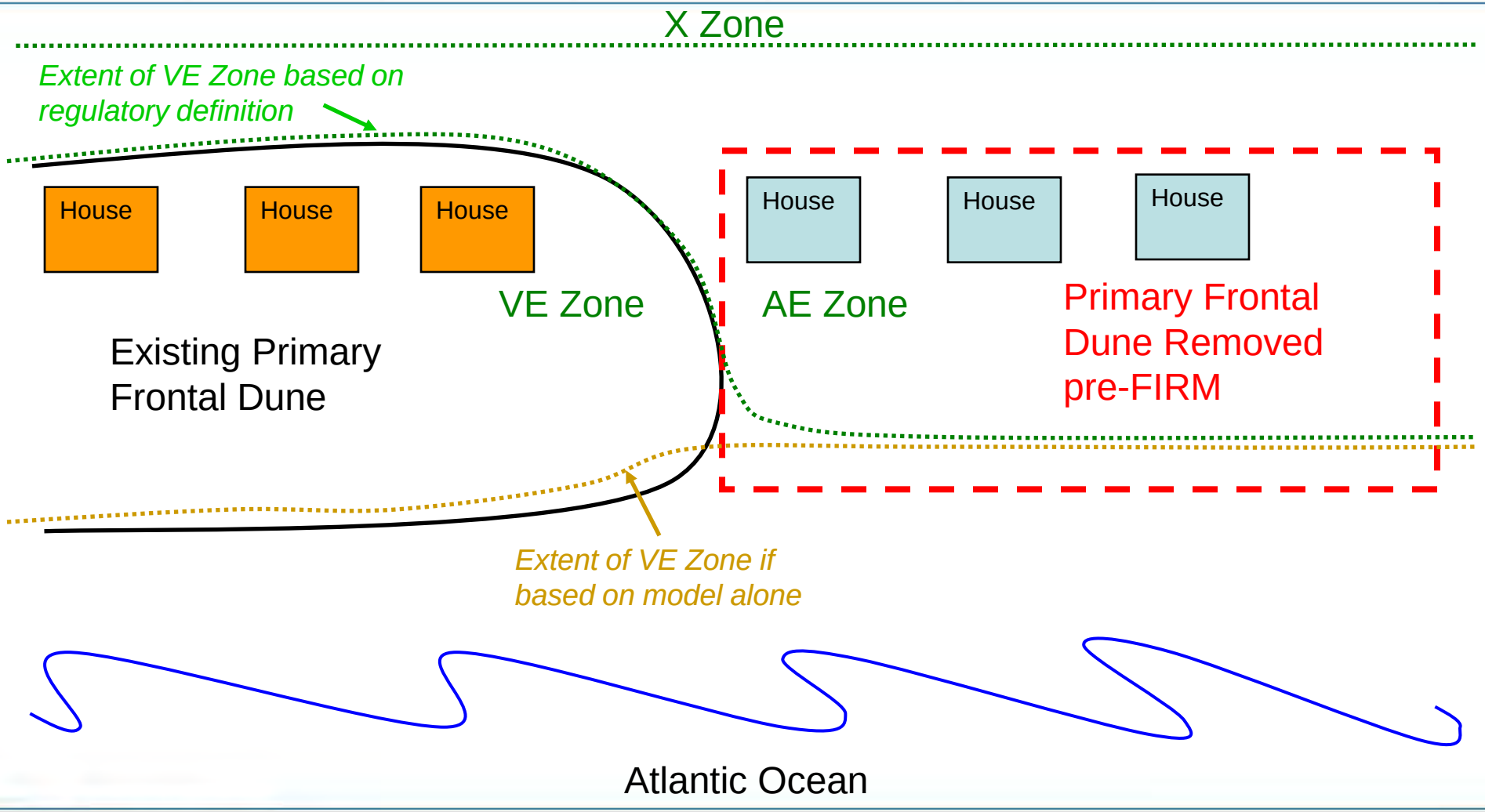
Issue #1: Primary Frontal Dune, pt 1

- **Should FEMA reconsider its use in the delineation of the landward boundary of the V-zone?**
- **Two separate inquiries regarding this issue**
  - **Letter from Senator Thomas Carper of Delaware**
  - **Letter from North Carolina State Senator Marc Basnight**

FEMA's General Practice for Mapping V Zones

- **Locate and map the most landward of these criteria:**
  - The point where a 3-foot wave height might occur
  - The point where the eroded or non-eroded ground profile is three feet below the computed wave runup, and
  - The inland limit of the primary frontal dune as defined in FEMA regulations.

Delaware Scenario



Issue #1: Primary Frontal Dune, pt 2

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Issue #1: Primary Frontal Dune, pt 3

- **Should FEMA reconsider its use in the delineation of the landward boundary of the V-zone?**
- **Two separate inquiries regarding this issue**
  - **Letter from Senator Thomas Carper of Delaware**
  - **Letter from North Carolina State Senator Marc Basnight**
- **FEMA Administrator for Mitigation (David Maurstad) promised Carper and Basnight that FEMA would conduct PFD study**

Primary Frontal Dune Study: Objectives

- **Objectives of the study will be to determine the effectiveness of using the PFD in delineating the landward boundary of the V Zone. This includes:**
  - **Evaluation of existing PFD identification and mapping procedures and**
  - **Investigation of NFIP regulations within the context of the intent coastal hazard mapping.**

Issue #2: Coastal A-Zones

- **Should FEMA create a new risk class (Coastal A-Zone) with associated mapping, management, and insurance implications, or should be expand the V-Zone rather than mapping a new Coastal A-Zone, or should we do something else?**
- **Four recommendations contained in the NFIP Evaluation Reports prepared by AIR addressed the Coastal A-Zone issue.**

Coastal A Zone Study: Objectives

- **Objectives of the study will be to evaluate various options for addressing the Coastal A Zone to include an assessment of the following options:**
  - **Expanding V Zones (perhaps to the 1.5 feet wave),**
  - **Creating and mapping a separate Coastal A Zone, or**
  - **No change,**
  - **Other options.**

Issue #3: Impact of Climate Change on the NFIP

- **Climate change has received a lot of attention over the past few years**
- **How will climate change impact FEMA?**
- **Should modifications be made to NFIP?**

2007 GAO Report

- **Government Accountability Office report titled: Climate Change—Financial Risks to Federal and Private Insurers in Coming Decades are Potentially Significant.**
- **Report recommends that FEMA analyze the potential long-term implications of climate change on the NFIP and report the findings to Congress.**

What Does "Climate Change" Mean With Respect to NFIP?

- **Changes in precipitation patterns**
- **Changes in frequency and intensity of hurricanes**
- **Rising sea levels**

Impact of Climate Change on the NFIP: Study Objectives

- **Objectives of the study will be to quantify the impacts of climate change, including changes in precipitation patterns, coastal storms, sea level rise, etc. on the:**
  - **Location and extent of the U.S. floodplains**
  - **Relationship between the elevation of insured properties and the 100-year BFEs, and**
  - **Economic structure of the NFIP.**

Impact of Climate Change on the NFIP: Requirements

- **The contractor must present findings, conclusions, policy options, and recommendations on if and how FEMA should make changes to the NFIP to accommodate potential impacts of climate change**
- **"To the maximum extent practicable, the contractor shall rely on existing data, studies, reports, and research. It is further directed that any modeling will be limited in scope & extent."**

Climate Study Approach: Riverine

- **Define Characteristic Regions**
  - **Consider Hydrologic Factors & Climate Change Homogeneity**
- **Subdivide Regions into Sample Units for Analysis**
  - **Stream Type/Order**
- **Adopt IPCC/CCSP Estimates of Climate Factor Changes**
  - **Rainfall frequency/intensity, Snow, Land Use …**
- **Perform Monte Carlo Flood Response Simulations**
  - **Consider variation in climate projections**
  - **Minimize new detailed modeling; instead**
    - Use prior FIS work to maximum extent
    - Use semi-empirical methods and regression equations
- **Determine Insurance/Financial Impact for Sample Units**
  - **Overlay flood estimates with insurance/demographic data**
  - **Extend to estimate the national impact**

Climate Study Approach: Coastal Storms

- **Define Coastal Zones by Flood Source Type**
  - Hurricanes, Extratropical Storms, Storm Waves
- **Adopt IPCC/CCSP Estimates of Climate Factor Changes**
  - Storm frequency/intensity
  - Sea level rise projections
- **Subdivide Zones into Sample Units for Analysis**
  - Zones of Uniform Sea Level Rise
  - Zones of Uniform Storm frequency/intensity change
- **Perform Monte Carlo Flood Response Simulations**
  - Consider variation in climate parameter projections
  - Relate floods to parameters through semi-empirical rules
- **Determine Insurance/Financial Impact for Sample Units**
  - Overlay flood estimates with insurance/demographic data
  - Extend to estimate national impact

Climate Study Approach: Sea Level Rise

- **Adopt IPCC/CCSP Estimates of Sea Level Rise**
  - Distinguish local subsidence (relative SLR) from global (eustatic) SLR
- **Consider Associated Beach Response**
  - Erosion/recession of the beach associated with ocean rise
- **Combine SLR with Coastal Flood Estimates**
  - Simple addition in many cases when SLR < Flood Elevation
  - More complex in cases of overtopping or flat coastal plains
- **Incorporate and investigate the Insurance/Financial Effects of SLR as it relates to the NFIP**

HR 3121, Flood Insurance Reform and Modernization Act: House Version

- **FEMA SHALL:**
  - Take into consideration and account for impacts of global climate change on flood, storm, and drought risks in the U.S.
  - Take into consideration and account for potential impact of global climate change-related weather events, such as increased hurricane activity, intensity, storm surge, SLR, and associated flooding;
  - Use the best available climate science in assessing flood and storm risks to determine flood risks and develop such maps

HR 3121, Flood Insurance Reform and Modernization Act: Senate Version

- **FEMA "shall include…any relevant information or data [from NOAA and the USGS] relating to the best available climate science and the potential for future inundation from sea level rise, increased precipitation, and increased intensity of hurricanes due to global warming."**

Study Goals

- **Findings, conclusions, policy options, and recommendations on if and how FEMA should make changes to the NFIP to accommodate potential impacts of climate change, and improvements to coastal floodplain mapping.**
- **Need to consider this with respect to:**
  - **Floodplain mapping**
  - **Floodplain management**
  - **Insurance**

Questions?

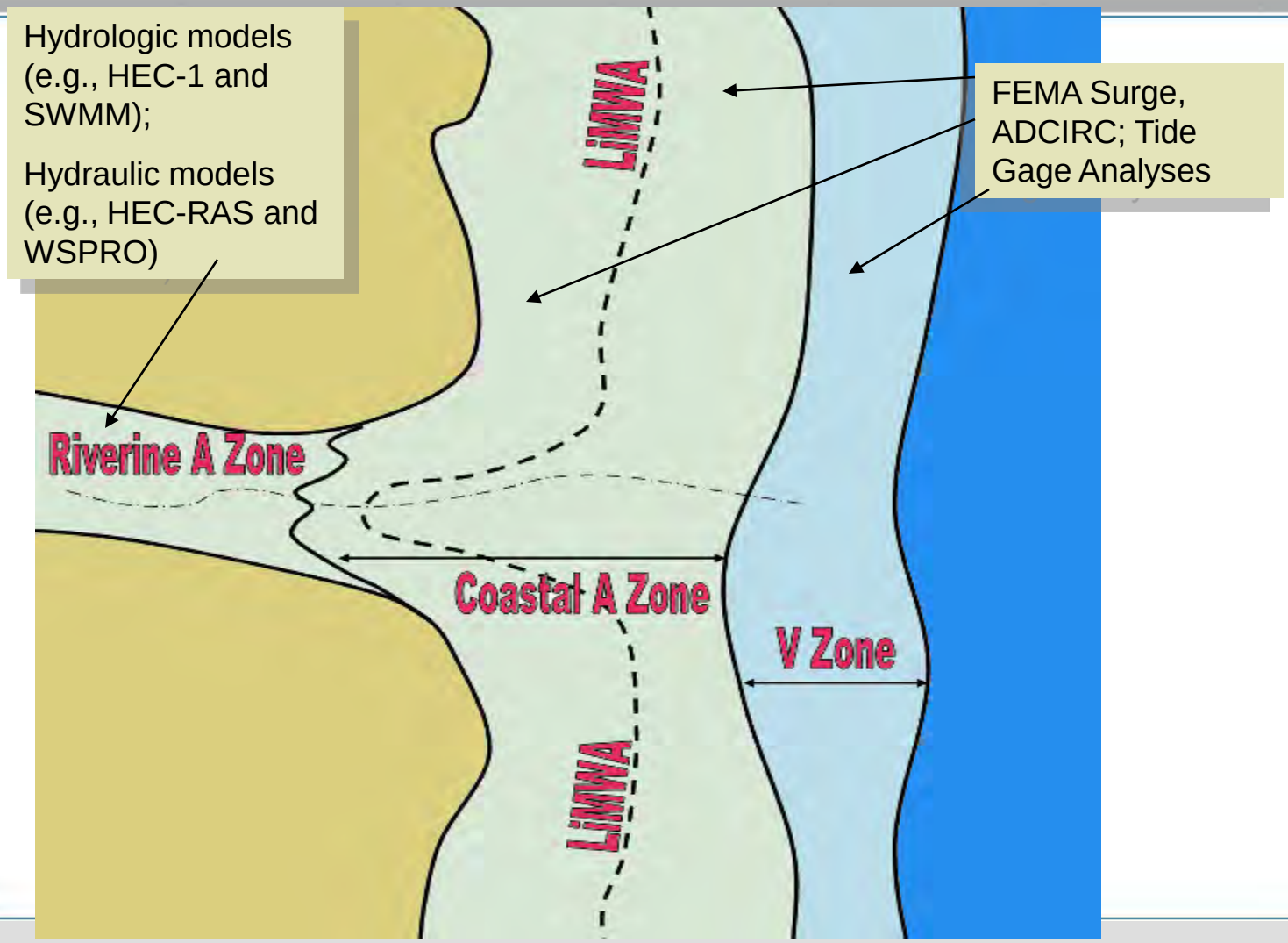
Coastal Demographics, pt 1

- **2.5 years ago I was contacted by researchers from NRC Transportation Board, and NOAA's CSC regarding coastal population data**
- **FEMA did not have coastal population data**
- **Watershed Concepts could compile population data**

Coastal Demographics Study, pt. 2

- **Initially determined coastal population data just for FEMA V Zones, but not Coastal A Zones**
- **During time that we were compiling coastal population data:**
  - **GAO report was released,**
  - **AIR recommendations released,**
  - **promise made regarding PFD issue.**
- **Expand to full-fledged demographics study, including tallies of population, housing units, NFIP policy and claims data**
- **Also need to compile “Coastal A Zone” info**

Coastal A Zone Diagram, pt 1

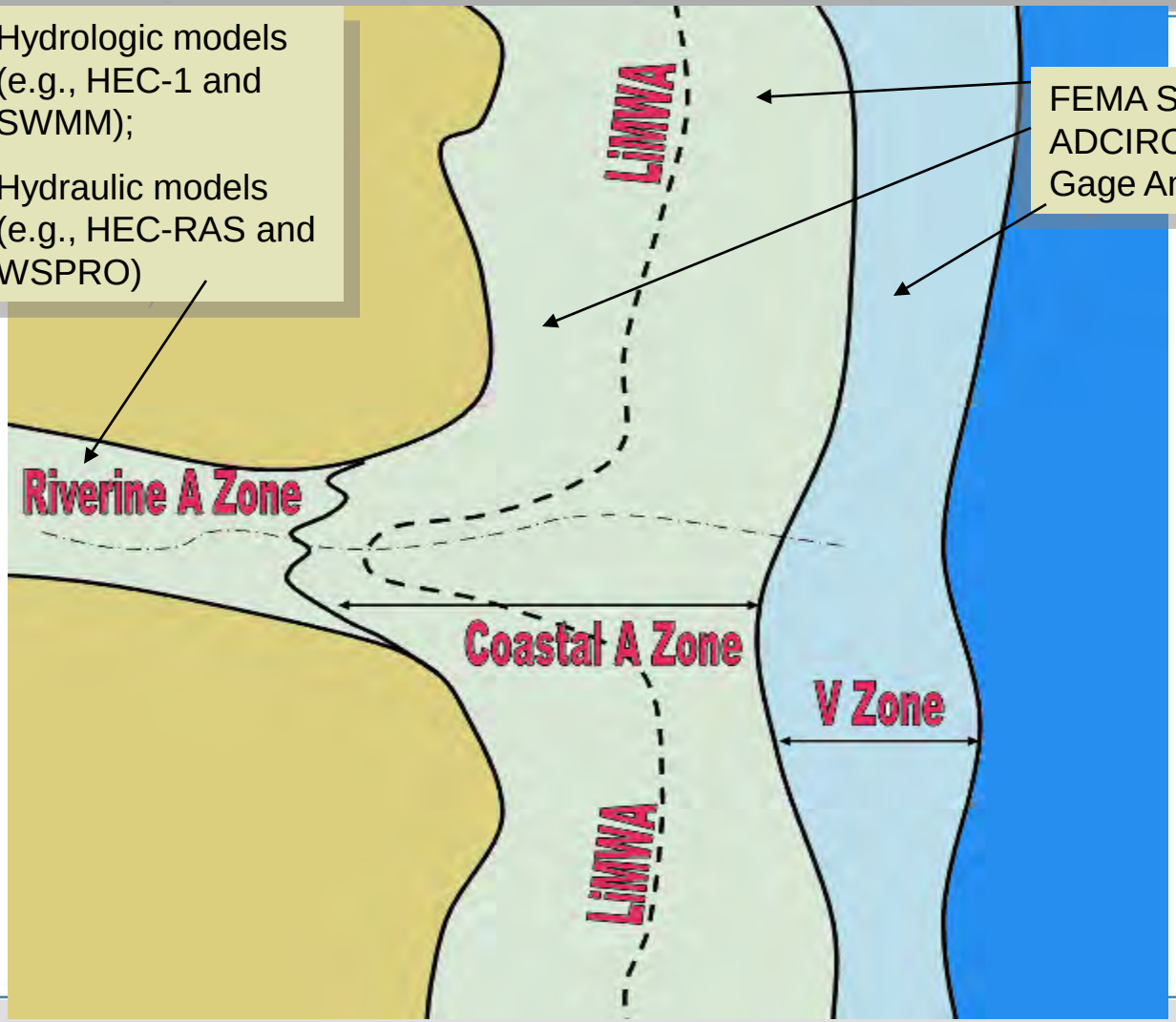


Coastal A Zone Diagram, pt 2

Hydrologic models (e.g., HEC-1 and SWMM);

Hydraulic models (e.g., HEC-RAS and WSPRO)

FEMA Surge, ADCIRC; Tide Gage Analyses



- We do not differentiate Coastal A and Riverine A Zones when we map A Zones
- Minimum floodplain management requirements are the same for Coastal A and Riverine A Zones
- Insurance rates are the same for Coastal A and Riverine A Zones

Coastal Demographics Study: Deliverable

- National datasets of a composite NFHL supplemented by Q3
- GIS database of representative inland and open coast 1.0% SWEL for each Atlantic and Gulf coast County
- National database compatible with ARC GIS that delineates the boundaries of:
  - Coastal A Zones
  - Riverine A Zones
  - V Zones
- Database of population, housing units, NFIP policy distribution, NFIP claims data at county-level and CBG-level in:
  - Coastal A zones
  - V Zones
  - Riverine A Zones
- Other data

Coastal Demographics Study, pt 3

- **Can be considered the first phase of the Climate Change/Coastal Study**
- **8,670,000 people live in Coastal AE Zones and VE Zones, or 3% of entire U.S. population lives in areas subject to the 1% annual chance (100-year) coastal flood hazard.**

Loss and Expense Experience
Loss Period 1986-2006, pt 1

- **Actuarial Policy Totals**
  - **Total operating deficit of -$11,493,606,000**

Loss and Expense Experience
Loss Period 1986-2006, pt 2

- **Actuarial Policy Totals**
  - Total operating deficit of -$11,493,606,000
- **Post-FIRM VE Zones**
  - Total operating **surplus** +$66,853,000

Loss and Expense Experience
Loss Period 1986-2006, pt 3

- **Actuarial Policy Totals**
  - Total operating deficit of -$11,493,606,000
- **Post-FIRM VE Zones**
  - Total operating surplus +$66,853,000
- **Post-FIRM AE Zones (includes Pre-FIRM Actuarial)**
  - Total operating **deficit** of -$7,462,783,000

Sea Level Rise not Directly Considered in the NFIP

- **SLR considered indirectly to the extent that**
  - **NFIP Community Rating System gives credits towards freeboard**
  - **Coastal Construction Manual**
  - **Insurance rating—premiums are lower for elevated structures**
  - **Contingency loading**
  - **Insurance rates are increasing faster in the V Zone than they should be if strictly based on our flood risk models.**

1991 Sea Level Rise Study, pt 1

- **Study titled: "Projected Impact of Relative Sea Level Rise on the National Flood Insurance Program"**
- **Mandated by Congress in 1989**
- **Managed by Mike Buckley & Howard Leikin**
- **Completed in 1991**

1991 Sea Level Rise Study, pt. 2

- **Examined 3 sea level rise scenarios over period from 1990 to 2100**
  - No change
  - One-foot rise over the next century
  - Three-foot rise over the next century

1991 Sea Level Rise Study, pt.3

- **Change in 100-yr. SWFL equal to rise in sea level**
- **A single value of SWFL was used to represent each county**
- **Additional area affected by SLR is controlled by the ratio of SLR to the SWFL**
- **A Zone and V Zone proportions do not change as sea level rises**

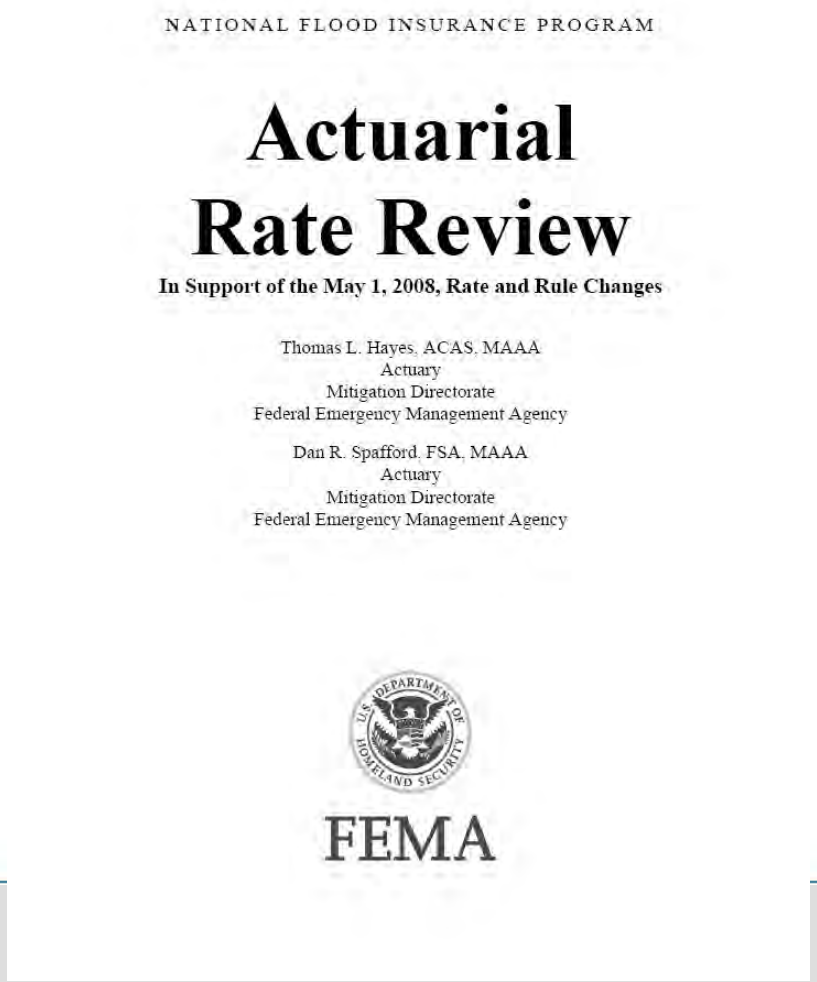
1991 Sea Level Rise Study: Results, pt 1

- **For the 1-foot projection the NFIP would not be significantly impacted for the following reasons**
  - **Aspects of flood insurance rate making already account for the possibility of risk**
  - **New construction in coastal areas often built more than one foot above BFE**
- **For the 3-foot projection the incremental increase of the first foot would not be expected until 60 years later, which would allow time for NFIP to consider alternate approaches to loss control, insurance mechanisms**

1991 Sea Level Rise Study: Results, pt 2

- **However the report noted that possibility exists for significant impacts in the long-term, therefore FEMA should:**
  - **Monitor progress in scientific community regarding SLR**
  - **Consider formulation and implementation of measures that would reduce the impact of relative SLR along the Louisiana coast**
  - **Strengthen efforts to monitor development trends and incentives of the Community Rating System that encourage measures which mitigate the impacts of SLR**

Actuarial Rate Review



NATIONAL FLOOD INSURANCE PROGRAM

Actuarial Rate Review

In Support of the May 1, 2008, Rate and Rule Changes

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FEMA

2004 Actuarial Rate Rev: Actuarial

Report: ARPCRPBA
Rundate: Mar 8, 2004

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ACTUARIAL INFORMATION SYSTEM

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LOSS AND EXPENSE EXPERIENCE
Accident Period 1986-2003

	VE,V1-V30 Post-FIRM Post 10/81	Unnumbered A Zone Post-FIRM	AE,A1-A30 Post-FIRM & Pre-FIRM Actuaria	B,C,X Standard	B,C,X PRP	AO & AH Post-FIRM	AOB & AHB	Actuarial Totals
1) Earned Exposures	322,568	1,057,265	16,104,876	10,847,883	5,455,482	305,852	3,357,126	37,451,054
2) Average Earned Premium	$864.21	$315.50	$213.44	$242.89	$213.84	$366.53	$173.88	$228.22
3) Number of Paid Losses	3,466	6,469	88,978	94,305	47,264	964	12,388	253,834
4) Average Loss Payment	$16,900.90	$15,896.10	$16,313.57	$19,621.26	$16,378.12	$19,114.79	$12,987.05	$17,400.14
5) Loss Ratio	0.21	0.30	0.42	0.69	0.66	0.16	0.27	0.52
6) Loss Frequency per 100 Policy Contracts	1.6	0.6	0.7	1.1	0.9	0.3	0.5	0.8
7) Average Loss Cost per Policy Holder	$181.60	$97.26	$90.13	$170.58	$141.89	$60.25	$47.92	$117.93
8) Other Expenses (Average per Policyholder)								
a) Servicing Facility/WYO Operating Allowance	$106.31	$63.78	$55.87	$58.15	$61.45	$67.73	$52.80	$57.82
b) Agent Commission	$129.63	$47.32	$32.02	$36.43	$32.08	$54.98	$26.08	$34.23
c) Loss Adjuster	$8.42	$4.41	$3.97	$6.27	$6.95	$2.52	$2.50	$4.98
d) Total	$244.36	$115.52	$91.86	$100.86	$100.48	$125.23	$81.38	$97.04
9) Operating Surplus/(Deficit)* per Policyholder on Paid Basis	$438.25	$102.72	$31.45	($28.54)	($28.54)	$181.04	$44.57	$13.25
10) Total Operating Surplus/(Deficit)	$141,366,701	$108,601,129	$506,537,854	($309,608,359)	($155,686,825)	$55,372,566	$149,636,574	$496,219,639

* The operating surplus is the policyholder contribution in periods of relatively better loss experience towards reserves used to fund high loss years.

2004 Actuarial Rate Rev: Subsidized

Report: ARPCRPBA
Rundate Mar 8, 2004

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LOSS AND EXPENSE EXPERIENCE
Accident Period 1986-2003

	VE,V1-V30 Pre-FIRM	Post-FIRM Pre 10/81	A Zone Pre-FIRM	AE,A1-A30 Pre-FIRM	AO & AH Pre-FIRM	Emergency Program	Subsidized Totals	Program Totals
1) Earned Exposures	827,941	175,535	3,248,816	12,355,154	1,115,005	200,584	17,923,036	57,291,795
2) Average Earned Premiu	$527.11	$396.53	$366.42	$432.32	$406.56	$207.81	$420.29	$290.20
3) Number of Paid Losses	17,000	2,242	53,784	229,914	5,303	4,064	312,307	579,482
4) Average Loss Payment	$21,373.53	$24,588.38	$16,009.23	$17,854.39	$12,926.14	$10,279.89	$17,594.28	$17,408.94
5) Loss Ratio	0.82	0.78	0.71	0.76	0.15	0.99	0.73	0.60
6) Loss Frequency per 100 Policy Contracts	2.6	2.2	1.7	2.0	0.5	2.1	1.9	1.2
7) Average Loss Cost per Policy Holder	$438.86	$314.05	$265.03	$332.25	$61.48	$208.28	$306.58	$176.08
8) Other Expenses (Average per Policyholder)								
a) Servicing Facility/WYO Operating Allowance	$80.18	$70.06	$67.73	$72.83	$70.84	$55.43	$71.90	$62.35
b) Agent Commission	$79.07	$59.48	$54.96	$64.85	$60.98	$31.17	$63.04	$43.53
c) Loss Adjuster	$15.29	$10.56	$10.67	$12.94	$3.16	$8.52	$11.96	$7.12
d) Total	$174.53	$140.10	$133.36	$150.62	$134.99	$95.13	$146.90	$112.99
9) Operating Surplus/(Deficit)* per Policyholder on Paid Basis	($86.28)	($57.62)	($31.97)	($50.55)	$210.10	($95.60)	($33.19)	$1.12
10) Total Operating Surplus/(Deficit)	($71,437,363)	($10,114,107)	($103,872,180)	($624,526,607)	$234,263,396	($19,175,065)	($594,861,926)	$64,245,014

* The operating surplus is the policyholder contribution in periods of relatively better loss experience towards reserves used to fund high loss years.

2005 Actuarial Rate Review: Actuarial

Report: ARPCRPBA
Rundate: Jun 14, 2005

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LOSS AND EXPENSE EXPERIENCE
Accident Period 1986-2004

	VE,V1-V30 Post-FIRM Post 10/81	Unnumbered A Zone Post-FIRM	AE,A1-A30 Post-FIRM & Pre-FIRM Actuarial	B,C,X Standard	B,C,X PRP	AO & AH Post-FIRM	AOB & AHB	Actuarial Totals
1) Earned Exposures	355,741	1,140,754	17,528,130	11,346,456	6,266,793	337,839	3,773,426	40,749,139
2) Average Earned Premium	$922.41	$327.16	$220.64	$249.71	$218.86	$377.78	$177.94	$234.92
3) Number of Paid Losses	4,825	7,101	102,618	100,989	53,863	1,057	13,089	283,542
4) Average Loss Payment	$26,844.82	$16,429.69	$20,537.53	$20,961.73	$17,528.52	$19,688.16	$13,796.03	$19,807.09
5) Loss Ratio	0.39	0.31	0.54	0.73	0.68	0.16	0.26	0.59
6) Loss Frequency per 100 Policy Contracts	2.0	0.6	0.8	1.1	0.9	0.3	0.4	0.8
7) Average Loss Cost per Policy Holder	$364.10	$102.27	$120.24	$186.57	$150.66	$61.60	$47.85	$137.82
8) Other Expenses (Average per Policyholder)								
a) Servicing Facility/WYO Operating Allowance	$114.84	$66.34	$57.66	$60.03	$62.77	$70.47	$54.18	$59.63
b) Agent Commission	$138.36	$49.07	$33.10	$37.46	$32.83	$56.67	$26.69	$35.24
c) Loss Adjuster	$15.51	$4.75	$5.08	$6.96	$7.45	$2.69	$2.49	$5.79
d) Total	$268.71	$120.16	$95.84	$104.45	$103.05	$129.82	$83.36	$100.66
9) Operating Surplus/(Deficit)* per Policyholder on Paid Basis	$289.59	$104.72	$4.56	($41.31)	($34.85)	$186.36	$46.73	($3.57)
10) Total Operating Surplus/(Deficit)	$103,020,039	$119,463,088	$79,942,709	($468,675,042)	($218,394,804)	$62,959,131	$176,318,783	($145,366,096)

* The operating surplus is the policyholder contribution in periods of relatively better loss experience towards reserves used to fund high loss years.

2005 Actuarial Rate Review: Subsidized

Report: ARPCRPBA
Rundate: Jun 14, 2005

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LOSS AND EXPENSE EXPERIENCE
Accident Period 1986-2004

	VE,V1-V30 Pre-FIRM	Post-FIRM Pre 10/81	A Zone Pre-FIRM	AE,A1-A30 Pre-FIRM	AO & AH Pre-FIRM	Emergency Program	Subsidized Totals	Program Totals**
1) Earned Exposures	870,035	184,229	3,406,142	13,200,892	1,174,009	202,109	19,037,416	61,790,183
2) Average Earned Premium	$551.04	$413.04	$376.76	$447.27	$420.55	$208.54	$434.89	$298.40
3) Number of Paid Losses	18,134	2,610	57,682	250,761	5,552	4,109	338,848	635,895
4) Average Loss Payment	$22,778.93	$30,403.10	$16,491.29	$18,963.42	$13,859.35	$10,398.63	$18,647.41	$19,053.77
5) Loss Ratio	0.85	1.03	0.73	0.79	0.15	1.00	0.76	0.65
6) Loss Frequency per 100 Policy Contracts	2.7	2.5	1.7	2.1	0.5	2.1	1.9	1.2
7) Average Loss Cost per Policy Holder	$474.78	$430.72	$279.28	$360.22	$65.54	$211.41	$331.91	$196.09
8) Other Expenses (Average per Policyholder)								
a) Servicing Facility/WYO Operating Allowance	$84.58	$73.34	$70.38	$76.13	$73.95	$56.68	$75.12	$64.57
b) Agent Commission	$82.66	$61.96	$56.51	$67.09	$63.08	$31.28	$65.23	$44.76
c) Loss Adjuster	$16.90	$14.39	$11.47	$14.31	$3.31	$8.66	$13.18	$8.00
d) Total	$184.14	$149.69	$138.36	$157.53	$140.34	$96.62	$153.53	$117.33
9) Operating Surplus/(Deficit)* per Policyholder on Paid Basis	($107.88)	($167.37)	($40.88)	($70.48)	$214.67	($99.49)	($50.55)	($15.02)
10) Total Operating Surplus/(Deficit)	($93,859,166)	($30,835,293)	($139,240,417)	($930,414,491)	$252,024,640	($20,107,444)	($962,432,171)	($927,817,057)

* The operating surplus is the policyholder contribution in periods of relatively better loss experience towards reserves used to fund high loss years.

** In addition to Actuarial and Subsidized, the Program Totals include zones AA and A99.

2007 Actuarial Rate Review: Actuarial

Report: ARPCRPBA

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LOSS AND EXPENSE EXPERIENCE
Accident Period 1986-2006

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1) Earned Exposures	435,300	1,318,554	20,554,413	12,340,787	8,381,752	400,919	4,647,587	48,079,312
2) Average Earned Premium	$1,061.08	$355.13	$236.22	$263.02	$230.83	$410.75	$186.34	$249.52
3) Number of Paid Losses	7,012	8,411	182,164	119,933	83,587	1,955	18,674	421,736
4) Average Loss Payment	$35,721.19	$20,025.64	$54,888.01	$29,354.18	$41,066.96	$46,150.38	$26,767.61	$42,587.81
5) Loss Ratio	0.54	0.36	2.06	1.08	1.77	0.55	0.58	1.50
6) Loss Frequency per 100 Policy Contracts	2.5	0.7	1.2	1.2	1.0	0.5	0.5	1.1
7) Average Loss Cost per Policy Holder	$575.41	$127.74	$486.45	$285.28	$409.54	$225.04	$107.55	$373.57
8) Other Expenses (Average per Policyholder)								
a) Servicing Facility/WYO Operating Allowance	$151.92	$77.19	$64.60	$67.44	$70.69	$83.08	$59.32	$67.17
b) Agent Commission	$159.16	$53.27	$35.43	$39.45	$34.62	$61.61	$27.95	$37.43
c) Loss Adjuster	$23.41	$5.64	$15.21	$9.99	$14.20	$7.31	$4.34	$12.39
d) Int. on 2005 Borrowing[1]	$6.12	$0.78	$12.14	$3.13	$8.74	$5.11	$2.03	$7.83
e) Total	$340.61	$136.88	$127.38	$120.01	$128.26	$157.11	$93.65	$124.82
9) Operating Surplus/(Deficit)[2] per Policyholder on Paid Basis	$145.06	$90.51	($377.61)	($142.27)	($306.97)	$28.59	($14.85)	($248.87)
10) Total Operating Surplus/(Deficit)	$63,144,262	$119,344,318	($7,761,558,885)	($1,755,764,265)	($2,572,950,228)	$11,464,035	($69,037,835)	($11,965,358,598)

[1] Interest on 2005 borrowings has been allocated based on the Total Operating Deficit for the year 2005 alone.

[2] The operating surplus is the policyholder contribution in periods of relatively better loss experience towards reserves used to fund high loss years

2007 Actuarial Rate Review: Subsidized

Report: ARPCRPBA

FEDERAL EMERGENCY MANAGEMENT AGENCY
NATIONAL FLOOD INSURANCE PROGRAM
ACTUARIAL INFORMATION SYSTEM

LOSS AND EXPENSE EXPERIENCE
Accident Period 1986-2006

	VE,V1-V30 Pre-FIRM	VE,V1-V30 Post-FIRM Pre 10/81	A Zone Pre-FIRM	AE,A1-A30 Pre-FIRM	AO & AH Pre-FIRM	Emergency Program	Subsidized Totals	Program Totals
1) Earned Exposures	956,460	201,186	3,719,144	14,980,899	1,305,446	205,212	21,368,347	71,570,277
2) Average Earned Premium	$601.25	$445.84	$400.22	$481.81	$451.48	$209.97	$468.16	$316.40
3) Number of Paid Losses	21,734	3,122	62,432	322,233	7,542	4,152	421,215	858,468
4) Average Loss Payment	$28,795.88	$36,375.00	$17,375.84	$29,016.25	$26,442.36	$10,301.71	$27,103.54	$34,611.54
5) Loss Ratio	1.09	1.27	0.73	1.30	0.34	0.99	1.14	1.31
6) Loss Frequency per 100 Policy Contracts	3.0	2.8	1.7	2.4	0.6	2.1	2.1	1.4
7) Average Loss Cost per Policy Holder	$654.34	$564.47	$291.68	$624.13	$152.77	$208.43	$534.27	$415.16
8) Other Expenses (Average per Policyholder)								
a) Servicing Facility/WYO Operating Allowance	$103.24	$86.79	$81.96	$90.60	$87.39	$61.83	$89.15	$73.87
b) Agent Commission	$90.19	$66.88	$60.03	$72.27	$67.72	$31.50	$70.22	$47.46
c) Loss Adjuster	$22.92	$19.18	$12.17	$22.47	$5.96	$8.57	$19.52	$14.31
d) Int. on 2005 Borrowing[1]	$6.56	$3.82	$0.53	$9.06	$2.36	$0.06	$6.92	$7.39
e) Total	$222.91	$176.66	$154.70	$194.40	$163.43	$101.95	$185.82	$143.03
9) Operating Surplus/(Deficit)[2] per Policyholder on Paid Basis	($276.00)	($295.29)	($46.16)	($336.72)	$135.28	($100.41)	($251.93)	($241.78)
10) Total Operating Surplus/(Deficit)	($263,984,882)	($59,409,019)	($171,674,357)	($5,044,343,500)	$176,603,015	($20,605,042)	($5,383,413,785)	($17,304,549,154)

[1] Interest on 2005 borrowings has been allocated based on the Total Operating Deficit for the year 2005 alone.

[2] The operating surplus is the policyholder contribution in periods of relatively better loss experience towards reserves used to fund high loss years.

FEMA