

NATIONAL FLOOD INSURANCE PROGRAM REFORM IN THE FACE OF CLIMATE CHANGE

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I.	INTRODUCTION	91
II.	SEA-LEVEL RISE	93
	<i>A. Factual Overview</i>	93
	<i>B. Rate and Projections</i>	94
III.	OVERVIEW OF THE NATIONAL FLOOD INSURANCE PROGRAM	96
	<i>A. Structure and Recent History of the Program</i>	96
IV.	ISSUES WITH SOCIALIZING THE RISKS OF PRIVATE COASTAL INFRASTRUCTURE	101
	<i>A. Reauthorization</i>	101
	<i>B. Cost and Projected Increases</i>	102
	<i>C. Methodology</i>	104
V.	EXISTING PROPOSED REFORMS	106
	<i>A. Senate Bills</i>	106
VI.	NECESSARY REFORMS TO ACCOUNT FOR CLIMATE CHANGE	108
	<i>A. Encourage Proactive Coastal Resilience Measures</i>	108
	<i>B. More Exacting Standards</i>	109
	<i>C. Remove the Premium Cap, or Increase Substantially</i>	110
	<i>D. Implement Modeling Reforms to Flood Plain Map Calculation and Promulgation to Account for Future Flood Risks and Disaster Planning</i>	111
VII.	SUMMARY AND CONCLUSION	111

I. INTRODUCTION

Global climate change has resulted in rising sea levels.¹ This inevitable rise in sea level poses ever-increasing challenges to

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1. Rebecca Lindsey, *Climate Change: Global Sea Level*, NAT'L OCEANIC AND ATMOSPHERIC ADMIN. (Aug. 1, 2018), <https://www.climate.gov/news-features/understanding-climate/climate-change-global-sea-level>. For a thorough and detailed explanation of climate change, see ULRICH CUBASCH ET AL., INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2013: THE PHYSICAL SCIENCE BASIS. CONTRIBUTION OF WORKING GROUP I TO THE FIFTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE 121–55 (2013).

land-use regulation and coastal infrastructure. Storm surges and violent weather patterns will increasingly penetrate inland and destroy property, causing greater losses.² The threat of such losses has resulted in predictable efforts to contain the damage. However, there exists no common law or statute that can bring forth the significant resources necessary to cope with the economic, environmental, and demographic changes that will be unwillingly brought forth by sea level rise.³ Therefore, one statutory reaction to this phenomenon was the National Flood Insurance Program (NFIP).

The NFIP was established by the National Flood Insurance Act of 1968.⁴ The general purpose of the NFIP is to both offer flood insurance to properties at risk of flooding, and to reduce those risks with the promulgation and adoption of floodplain management standards.⁵ The long-term goal of the program is to reduce federal expenditures on disaster assistance after floods.⁶ The NFIP has always been based on a well-tested economic maxim: market mechanisms can provide powerful incentives and public motivation to combat issues collectively.⁷ Private owners can manage their land to protect the environment, and state and local governments can promote ecological services under the public trust doctrine. Such action can often trump the slow political process that forms as a reactionary measure to an already existing problem. These examples, however, all share a common trait: they are generally incentivized by public payments, especially tax breaks.

Not only that, but there also exists the moral quandary of bankrolling beachfront property owners simply for engaging in development that is no longer economically or ecologically feasible. This paper seeks to clarify the inevitable shortcomings of the NFIP in light of increasing administrative and financial burdens caused by sea level rise, and advocate for vast reform with more stringent penalties, and the reduction of pro-development incentives. The NFIP in its current form is untenable and must

2. Lindsey, *supra* note 1; ANDRA J. REED ET. AL, INCREASED THREAT OF TROPICAL CYCLONES AND COASTAL FLOODING TO NEW YORK CITY DURING THE ANTHROPOGENIC ERA (2015), <https://doi.org/10.1073/pnas.1513127112>.

3. See Adam B. Smith, *2017 U.S. billion-dollar weather and climate disasters: a historic year in context*, NAT'L OCEANIC AND ATMOSPHERIC ADMIN.: BEYOND THE DATA (Jan. 8, 2018), <https://www.climate.gov/news-features/blogs/beyond-data/2017-us-billion-dollar-weather-and-climate-disasters-historic-year>.

4. The National Flood Insurance Act of 1968, 42 U.S.C. § 4001 (2014).

5. *Id.*

6. 42 U.S.C. § 4011.

7. See John D. Echeverria, *Regulating Versus Paying Land Owners to Protect the Environment*, 26 J. LAND RES. ENVTL. L. 1 (2005).

either be drastically remodeled or altogether defunded. This paper unequivocally accepts the strong scientific consensus pointing to anthropogenic releases of greenhouse gases as a cause of accelerated climate change.⁸ Prompt and radical reforms are necessary to mold the NFIP into a program capable of adaptation in a climate requiring large scale flood mitigation efforts. Failure to adapt will result in ever-increasing debt to a program that is already insolvent, and an increasing inability to sustain infrastructure on the coasts.

II. SEA-LEVEL RISE

A. Factual Overview

Over the past several years, the available data and modeling related to sea-level rise has significantly improved, to the point where accurate predictions can be made.⁹ The projected sea-level rise has the potential to impact infrastructure seriously and adversely, and in ways that are currently impossible to predict. Evidence supports the possibility of abrupt climate events that could drastically worsen predictions. A recent study, for example, found an increasing rate of sea-level rise in recent years: from 1950 to 1993, global mean sea level rise averaged 1.7 mm/year—by 2009, global mean sea level rise averaged 3.3 mm/year.¹⁰ This rate is only projected to increase exponentially.¹¹

The increase can be traced primarily to the expansion of water as it warms and the melting of ice sheets. As global temperatures rise, the average ocean temperature also rises, as does the volume of water.¹² In the United States, nearly forty percent of the population lives in high-density coastal areas.¹³ Nearly 3.7 million

8. The overwhelming majority of the active scientific community now attributes climate warming to anthropogenic activities. See John Cook et al., *Consensus on Consensus: A Synthesis of Consensus Estimates on Human-Caused Global Warming*, 11 ENVTL. RES. LETTERS 4, (2016).

9. See Lindsey, *supra* note 1.

10. Robert J. Nicholls & Anny Cazenave, *Sea-Level Rise and Its Impact on Coastal Zones*, 328 SCIENCE 1517 (2010).

11. R. S. NEREM ET AL., CLIMATE-CHANGE-DRIVEN ACCELERATED SEA-LEVEL RISE DETECTED IN THE ALTIMETER ERA (2018). “If sea level continues to change at this rate and acceleration, sea-level rise by 2100 (~65 cm) will be more than double the amount if the rate was constant at 3 mm/y.”

12. *Extended Reconstructed Sea Surface Temperature (ERSST) v5*, Nat’l Oceanic and Atmospheric Admin. (Mar. 2017), <https://www.ncdc.noaa.gov/data-access/marineocean-data/extended-reconstructed-sea-surface-temperature-ersst-v5>.

13. Lindsey, *supra* note 1.

people would lose their homes if sea levels rose by just one meter.¹⁴ Florida itself has substantial properties along the coast, all of which is at risk of inundation by several meters should the sea overtake it.

B. Rate and Projections

One of the most alarming aspects of climate change is that it may contribute, along with other human-caused stresses on ecological systems, to a planetary “state shift” or tipping point, which can lead to sudden and dramatic changes in natural functions. Sea-level rise has been tracked since the late 1800s by tide-level gauges, and since 1993 changes have been recorded with high precision from altimeter satellites. Consistent with the hypothesis of anthropogenic climate change, the spread of industrialization and increasing emissions of greenhouse gases correlates with an accelerating increase in sea-level rise since this metric was first recorded. Estimates of future sea-level rise depend on models projecting historic trends. One can see how this modeling method is inefficient, as assumptions predicated upon linear curves are stable and predictable, while the exponential effect of sea level rise and global warming creates a feedback loop with effects outside the scope of potential models.

Current models predict anywhere from a 0.5 to 2 m rise by the end of the 21st century.¹⁵ From 1993 to 2009, polar and glacial ice melting is estimated to contribute approximately 30 percent to sea-level rise.¹⁶ By the year 2100, this figure will be closer to sixty percent.¹⁷ While sea-level rise will be a global phenomenon, localities around the world, and particularly in the United States, are likely to experience more rise than others.¹⁸ California is projected to experience sea-level rise from 1 to 1.5 m. The Gulf Coast anywhere from 0.8 to 1.6 m. High rates of sea-level rise will likely lead to complex changes in oceanic currents, even further impacting coastlines. Circulation is predicted to decrease 25 to 30 percent in the upcoming century, resulting in reduced regulation of the temperature of the world’s oceans. This will increase the variability of temperature with latitude. Accordingly, sea levels are

14. Benjamin H. Strauss et al., *Tidally Adjusted Estimates of Topographic Vulnerability to Sea Level Rise and Flooding for the Contiguous United States*, 7 ENVTL. RES. LETTERS 1 (2012).

15. *Nerem*, *supra* note 11.

16. *Nicholls*, *supra* note 10.

17. *Id.*

18. Erin A. Thead, *Sea Level Rise: Risk and Resilience in Coastal Cities*, CLIMATE INST. (Oct. 2016), <http://climate.org/sea-level-rise-risk-and-resilience-in-coastal-cities/>.

expected to rise due to a decrease in heat transfer, only further accelerating sea-level rise.¹⁹ However, these projections only reflect changes in mean water levels, and not the impact on territorial subsidence.

Climate change will accelerate the rate of land erosion, resulting in vast swaths of land in low-lying areas submerged in repeated flood events as the tides rise higher, and higher. In Louisiana, deep navigation channels have cut off flows of sediments from river deltas, partially contributing to the loss of 1,900 square miles of Louisiana's coastal wetlands. Louisiana continues to lose twenty-five to thirty-five square miles of wetlands *each year* and is projected to continue unless substantial reform is undertaken. A report published by the National Oceanic and Atmospheric Administration has projected that the impact of sea level rise on coastal flooding will be acutely felt on the East Coast of the United States.²⁰ In the Southeast, the average number of days with high-tide floods has more than doubled since 2000, to three per year, while the number in the Northeast has increased by about seventy-five percent, to six per year.²¹

The effects and impact of flooding are best reflected along coastal cities, who are forced to adapt by building seawalls, flood gates or abandoning some low-lying spots. New York, Miami, and other coastal cities have already begun to implement some measures, such as requiring that new buildings be elevated between one and three feet above the flood level.²² With an ever-increasing risk of flooding, such measures seem dwarfed by the inevitability of sea-level rise.

19. See Zeke Hausfather, *Sea Level Rise Common Climate Misconceptions*, YALE CLIMATE CONNECTIONS (Feb. 29, 2008), <https://www.yaleclimateconnections.org/2008/02/common-climate-misconceptions-sea-level-rise/>.

20. NAT'L OCEANIC AND ATMOSPHERIC ADMIN., PATTERNS AND PROJECTIONS OF HIGH TIDE FLOODING ALONG THE U.S. COASTLINE USING A COMMON IMPACT THRESHOLD 17 (2018).

21. *Id.* "By 2100, high tide flooding will occur 'every other day' (182 days/year) or more often under the Intermediate Low Scenario within the Northeast and Southeast Atlantic, the Eastern and Western Gulf, and the Pacific Islands with tidal forcing causing all (100%) of the floods except within the Eastern Gulf (80% caused by tides)."

22. *Id.*

III. OVERVIEW OF THE NATIONAL FLOOD INSURANCE PROGRAM

A. Structure and Recent History of the Program

The NFIP is comprised of three key activities: flood insurance, floodplain management, and flood hazard mapping.²³ If a community adopts and enforces a floodplain management ordinance to reduce future flood risk to new construction in floodplains within an area known as the Special Flood Hazard Area (SFHA), FEMA will make flood insurance available within the community as a financial protection against flood losses.²⁴ These SFHAs are identified as an area with a special flood or mudflow, and/or flood related erosion hazard, as shown on a flood hazard boundary map or flood insurance rate map.²⁵ The NFIP additionally identifies and maps the nation's floodplains. FEMA disseminates maps depicting flood hazard information to create broad-based awareness of flood hazards, to provide data for rating flood insurance policies, and to apply the appropriate minimum floodplain management requirements for flood-prone areas.²⁶

In its initial iteration, the program made subsidized flood insurance available to private owners or lessees in communities that participated in the program.²⁷ To comply, a community had to adopt FEMA's proposed Flood Insurance Rate Maps, dubbed "FIRMs".²⁸ Buildings built before the adoption of the FIRMs were given subsidized rates, so long as they had not been substantially improved after the adoption of the FIRMs or December 31, 1974. As of September 2016, approximately 16.1 percent of NFIP

23. See CONG. RESEARCH SERV., INTRODUCTION TO THE NATIONAL FLOOD INSURANCE PROGRAM (NFIP) (2018).

24. See *Flood Map*, FED. EMERGENCY MGMT. ADMIN. (Mar. 26, 2018), <https://www.fema.gov/flood-map>.

25. See *Special Flood Hazard Area*, FED. EMERGENCY MGMT. ADMIN. (Sept. 14, 2018), <https://www.fema.gov/special-flood-hazard-area>.

26. *FEMA Flood Maps and Zones Explained*, FED. EMERGENCY MGMT. ADMIN. (Apr. 4, 2018), <https://www.fema.gov/disaster/updates/fema-flood-maps-and-zones-explained>.

27. The National Flood Insurance Act of 1968, 42 U.S.C. § 4001 (1997).

28. *Flood Insurance Compliance Requirements*, CONSUMER COMPLIANCE OUTLOOK (2015), <https://consumercomplianceoutlook.org/2015/third-fourth-quarter/flood-insurance-compliance-requirements/>.

policies received a pre-FIRM subsidy.²⁹ Private owners who were in SFHAs were mandated to purchase private flood insurance as a condition to received federal loans and assistance.³⁰

In 2012, Congress passed the Biggert-Waters Flood Insurance Reform Act of 2012 (BW-12), which mandated that FEMA phase out certain subsidies for specific buildings established pre-FIRM adoption.³¹ BW-12 extended the NFIP through September 30, 2017 and reformed the program standards. The Act was “designed to allow premiums to rise to reflect the true risk of living in high-flood areas.”³² The bill was an attempt to combat the fiscal insolvency of the NFIP by having the premiums reflect actual flood risks and prevented FEMA from subsidizing flood insurance for second homes and businesses, as well as those properties that had flooded multiple times.³³

A major reform of Biggert-Waters was to remove rates that had been grandfathered in.³⁴ Once built to code, businesses and homes would be mapped onto a higher risk area, to account for the fact that flooding is more likely in their area.³⁵ Pre-FIRM policyholders seeking to insure non-primary residences, businesses, or buildings that suffered from repetitive losses payed a minimum twenty-five percent annual rate increase.³⁶ These steps were necessary to move to risk-based rates when a community adopted new, revised, or updated FIRMS. As one could imagine, the resulting potential rise in premiums was substantial.³⁷ The changes were meant to occur over five years, but there was tremendous worry that the resulting increase would leave many homeowners with

29. CONG. RESEARCH SERV., NATIONAL FLOOD INSURANCE PROGRAM: SELECTED ISSUES AND LEGISLATION IN THE 115th CONGRESS (2018) [hereinafter *Selected Issues*].

30. See Flood Disaster Protection Act of 1973, § 103 (Pub. L. 93–234, 87 Stat. 975 (codified as amended at 42 U.S.C. 4001)).

31. Moving Ahead for Progress in the 21st Century Act, Pub. L. No. 112–141, 126 Stat. 405. “These pre-FIRM properties include non-primary residences, business properties, severe repetitive loss properties, substantially damaged properties, substantially improved properties, and properties for which the cumulative claims payments exceed the fair market value of the property.”

32. Thomas Ferraro, *U.S. Senate passes bill to delay hikes in flood insurance rates*, REUTERS (Jan. 30, 2014), <https://www.reuters.com/article/us-usa-insurance-flooding/u-s-senate-passes-bill-to-delay-hikes-in-flood-insurance-rates-idUSBREA0T1WK20140130>.

33. S. 1926, 113th Cong. (2014); see Greg Hanscom, *Flood pressure: Climate disasters drown FEMA’s insurance plans*, GRIST (Jan. 13 2014), <https://grist.org/cities/flood-pressure-how-climate-disasters-put-femas-flood-insurance-program-underwater/>.

34. See Biggert-Waters Flood Insurance Reform Act of 2012, 126 Stat. 916 (codified as amended at 42 U.S.C. §§ 4001–4131 (2012)).

35. See *Flood Map Revision Processes*, FED. EMERGENCY MGMT. ADMIN. (Sept. 14, 2018), <https://www.fema.gov/flood-map-revision-processes>.

36. *National Flood Insurance Repetitive Losses: Hearing before the S. Comm. On Econ. Policy*, 108th Cong. 108–861 (2014) (statement by Rep. Bereuter, State of Neb. U.S. Rep.).

37. See Ferraro, *supra* note 32.

unsustainable premiums, forcing them to abandon those areas they once called home.³⁸ This would result in significant negative impacts for the housing markets of those local communities.³⁹

These concerns led to the enactment of the Homeowner Flood Insurance Affordability Act of 2014 (“HFIAA”).⁴⁰ The HFIAA repealed or changed many of the existing provisions of the BW-12, and created additional changes not previously envisioned.⁴¹ The HFIAA was meant to be a temporary fix to buy Congress enough time to find a remedy for the shortcomings of the NFIP. The HFIAA reinstated the “grandfathered” rates for pre-FIRM properties prior to BW-12.⁴² So long as the property complied with the FIRM for the local community when it was built, the property owners could retain their old insurance rate class.⁴³ Policyholders in high risk areas or who renewed their policy after the enactment of the HFIAA and whose premiums increased more than eighteen percent were refunded the difference.⁴⁴ The annual limit increase for the premium rate was limited to an eighteen percent cap.⁴⁵ Properties newly built or re-designated as SFHAs were given a preferred risk premium for the first year and benefitted further from the eighteen percent cap afterwards.⁴⁶

Not only did the HFIAA gut most of the prospective premium increases that were part of BW-12, but even created further benefits for private owners to continue living and working in flood prone areas. Prior to the HFIAA, homes that were substantially damaged, more than thirty percent of the market value of the property, would lose pre-FIRM status, and thus no longer derive benefits from the grandfather provisions.⁴⁷ This

38. *Id.*

39. *Id.*

40. Homeowner Flood Insurance Affordability Act of 2014, Pub. L. No. 113–89, 128 Stat. 1020.

41. *Id.*

42. For a full description, see *NFIP Grandfathering Rules for Agents*, FED. EMERGENCY MGMT. ADMIN. (Mar. 2015), <https://www.fema.gov/media-library/assets/documents/16686>.

43. *Id.*

44. See Homeowner Flood Insurance Affordability Act of 2014, Pub. L. No. 113–89, 128 Stat. 1020.

45. Homeowner Flood Insurance Affordability Act of 2014, Pub. L. No. 113–89, § 6, 128 Stat. 1020.

46. *Id.*

47. *Congress Extends the National Flood Insurance Program and Amends the National Flood Insurance Act and the Flood Disaster Protection Act*, CONSUMER COMPLIANCE OUTLOOK (2012), <https://consumercomplianceoutlook.org/2012/third-quarter/compliance-spotlight/>.

limit was raised to fifty percent.⁴⁸ Communities that made “adequate progress” toward the construction of flood protection and mitigation methods would benefit from premium rates that could not exceed those of the systems that had already been completed.⁴⁹ The HFIAA also introduced several new provisions to better notify residents and business owners about changing floodplain maps. These provisions also served to give notice of potential increasing premiums prior to beginning any mapping changes or updates.⁵⁰

FEMA identifies flood hazards and risks and uses the data to guide communities in their mitigation efforts. Procedurally, flood-prone areas are identified by FEMA and subdivided into flood risk zones.⁵¹ This data is used by FEMA on a local basis to establish unique flood management requirements.⁵² The NFIP promulgates floodplain management standards with the intention of reducing flood risks. Flood risks are communicated in part through maps that show base flood elevations (BFE’s), that indicate the height floodwaters could reach should a flood occur.⁵³ This measurement is normally a measurement in feet that the lowest floor of structure in SFHA’s must be at or above.⁵⁴ To become enrolled, a local community with land use authority enters into an agreement with FEMA, whereby the community must adopt and enforce the floodplain management requirements that incorporate those minimum standards published by the NFIP.⁵⁵ These standards are incorporated into their zoning and building codes and local ordinances and must be enforced, or else risk suspension of NFIP subsidies.⁵⁶

The NFIP offers flood insurance to anyone in a community which chooses to participate in the program. Flood insurance purchase generally is voluntary, except for property owners who are in a SFHA and whose mortgage is backed by the federal

48. Homeowner Flood Insurance Affordability Act of 2014, Pub. L. No. 113–89, § 15, 128 Stat. 1020, 1026.

49. See Homeowner Flood Insurance Affordability Act of 2014, Pub. L. No. 113–89, § 19, 128 Stat. 1020, 1027–28.

50. *Homeowner Flood Insurance Affordability Act of 2014: Section by Section Summary*, NAT’L ASS’N OF INS. COMM’RS (Mar. 21, 2014), https://www.naic.org/documents/topic_nfip_overview_homeowner_flood_insurance_affordability_act_2014.pdf.

51. 42 U.S.C. § 4101(a).

52. *Id.*

53. *Building Higher in Flood Zones: Freeboard – Reduce Your Risk, Reduce Your Premium*, FED. EMERGENCY MGMT. ADMIN. (2018), https://www.fema.gov/media-library-data/1438356606317-d1d037d75640588f45e2168eb9a190ce/FPM_1-pager_Freeboard_Final_06-19-14.pdf.

54. *Id.*

55. See 44 C.F.R. § 59.2(b); see also 44 C.F.R. § 59.22(a)(3); see also 44 C.F.R. § 60.1(d).

56. 44 C.F.R. § 59.24(b)–(c).

government. Flood insurance policies through the NFIP are sold only in participating communities and are offered to both property owners and renters and to residential and nonresidential properties. NFIP policies have relatively low coverage limits, particularly for nonresidential properties, or properties in high-cost areas.

Today, an individual seeking an NFIP-backed flood insurance policy has the option of purchasing directly from the Federal Government through a direct servicing agent, or any participating private insurance company through a program.⁵⁷ The terms and conditions are set in the Standard Flood Insurance Policy, but FEMA establishes those terms, as well as the rate structures and premium costs.⁵⁸ NFIP policies also include Increased Cost of Compliance (ICC) coverage.⁵⁹ When floods cause existing structures to be “substantially damaged,” the local government may designate it as such and mandate that the private owner bring the building up to code.⁶⁰ ICC coverage provides up to \$30,000 of the cost the owner incurs during the time the owner floodproofs or demolishes the insured building.⁶¹

As of May 2018, the NFIP had over five million flood insurance policies providing over \$1.28 trillion in coverage.⁶² The program collects nearly \$3.6 billion in annual premium revenue.⁶³ According to FEMA, the program saves the nation an estimated \$1.87 billion annually in flood losses avoided because of the NFIP’s building and floodplain management regulations.⁶⁴ A major goal of FEMA is to double flood insurance by 2023.⁶⁵ This unrealistic feat cannot be obtained without drastic reform to the NFIP. It is not an intuitive leap to presume that Congress’s desire to double flood insurance will do nothing to improve the economic deficiency of the program, as payouts will inevitably overwhelm the meager budget. This idea is premised on a diversification of risk to make the issuance of policies a net positive in terms of revenue

57. See 44 C.F.R. part 61, Appendix A.

58. See 44 C.F.R. § 62.23(a).

59. *Increased Cost of Compliance Coverage*, FED. EMERGENCY MGMT. ADMIN. (2018), https://www.fema.gov/media-library-data/1424368115734-86cfbaeb456f7c1d57a05d3e8e08a4bd/FINAL_ICC_Coverage_FactSheet_29JAN15_508.pdf.

60. *Id.*

61. *Id.*

62. Diane P. Horn, *What Happens If the National Flood Insurance Program (NFIP) Lapses?*, CONG. RESEARCH SERV. (July 31, 2018), <https://fas.org/sgp/crs/homesecl/IN10835.pdf>.

63. *Id.*

64. See *Introduction*, *supra* note 23, at 1.

65. *Selected Issues*, *supra* note 29.

generated from premium payments, but in a world with ever increasing sea-level rise on the horizon, it's too little, too late.

IV. ISSUES WITH SOCIALIZING THE RISKS OF PRIVATE COASTAL INFRASTRUCTURE

A. Reauthorization

The authorizing statute for the NFIP did not create any expiration or termination provisions for the program itself, but instead layered reauthorization protocols for key provisions of the program.⁶⁶ Congress must periodically renew the NFIP's statutory authority to operate. In the unlikely event the NFIP's authorization lapses, claims would still be paid but the NFIP would stop selling and renewing policies.⁶⁷ Unless reauthorized or amended by Congress, the NFIP will lapse on November 21, 2019, and the following will occur: (1) the authority to provide new flood insurance contracts will expire and (2) the authority for NFIP to borrow funds from the Treasury will be reduced from \$30.425 billion to \$1 billion.⁶⁸ Issues that Congress may consider in the context of reauthorization include (1) NFIP solvency and debt; (2) premium rates and surcharges; (3) affordability; (4) increasing participation in the NFIP; (5) the role of private insurance and barriers to private sector involvement; (6) recurrent flooding and properties with multiple losses; (7) administrative reforms; and (8) non-insurance functions of the NFIP such as floodplain map.⁶⁹ This reauthorization period is an opportunity for Congress to take bold steps to reform the program and strengthen the NFIP's financial framework so that the program can continue to take the critical step of securing flood insurance.

This exposes one of the largest flaws of the program: short term reauthorization windows simply delay the inevitable conclusion of the program's untenability. It is a simple matter for Congress to continually reauthorize successive program funding deadlines (as the past months have shown), as the real issues of the program's finances remain standing. Authorization of the NFIP was extended

66. The National Flood Insurance Act of 1968, 42 U.S.C. § 4001 (2014).

67. *Id.*

68. National Flood Insurance Program Extension Act of 2018, H.R. 2578, 116th Cong.; see 42 U.S.C. § 4026; see also 42 U.S.C. § 4016(a).

69. See *Selected Issues*, *supra* note 29.

from September 30 until December 8, 2017,⁷⁰ extended until December 22, 2017,⁷¹ and again until January 19, 2018.⁷²

The NFIP again was granted a fourth short-term reauthorization until February 8, 2018.⁷³ The NFIP lapsed for approximately eight hours during a brief government shut-down in the early morning of February 9, 2018, and was then reauthorized until March 23, 2018.⁷⁴ The NFIP received a sixth reauthorization until July 31, 2018,⁷⁵ and a seventh reauthorization until November 30, 2018.⁷⁶ The most recent reauthorization extends funding to November 21, 2019, as mentioned previously.

Such a protracted series of reauthorizations only goes to show the “short term maintenance” mindset currently involved with NFIP funding. A long-term extension of 8-10 years is vital to provide needed certainty to homeowners and small businesses that depend on the program for flood damage protection, to protect our residential and commercial real estate markets, and to provide stability for the companies and agents that sell and administer the NFIP policies to millions of consumers across the country. Politics involves a slow, reactionary process, often resistant to change. As floods begin to increase in frequency and scale, the exponential increase in damages the NFIP must cover will be outside the reach of a process that must deal with various interests to authorize decisions. For the program to adapt, it must have a secure period within which to act, and funding with which to do so.

B. Cost and Projected Increases

Floods are the most common natural disaster in the United States.⁷⁷ The maximum coverage for single-family dwellings is \$100,000 for contents and up to \$250,000 for buildings coverage.⁷⁸ The maximum available coverage limit for other residential buildings is \$500,000 for building coverage and \$100,000

70. Continuing Appropriations Act and Supplemental Appropriations for Disaster Relief Requirements Act, H.R. 601, 115th Cong. § 130 (2018).

71. H.R. Res. 123, 115th Cong. (2018).

72. H.R. 1370, 115th Cong. (2018).

73. H.R. 195, 115th Cong. (2018).

74. Bipartisan Budget Act of 2018, H.R. 1892, 115th Cong. (2018).

75. Consolidated Appropriations Act, H.R. 1625, 115th Cong. (2018).

76. National Flood Insurance Program Extension Act of 2018, S. 1182, 115th Cong. § 2(b) (2018).

77. *Severe Weather 101: Flood Basics*, NAT'L SEVERE STORMS LAB., <https://www.nssl.noaa.gov/education/svrwx101/floods/> (last visited Sept. 28, 2019).

78. FED. EMERGENCY MGMT. ADMIN., NFIP FLOOD INSURANCE MANUAL SEC. 5 (Oct. 2017), <https://www.fema.gov/media-library-data/1503239106510->

for contents coverage, and the maximum coverage limit for non-residential business buildings is \$500,000 for building coverage and \$500,000 for contents coverage.⁷⁹ Currently, FEMA owes \$24.6 billion for flood insurance payouts, and this debt will only increase with an exponential rise in flood disasters. Premium rates do not reflect the full risk of loss because of legislative requirements.

Reform is necessary to attract more private insurers to the market, but full risk-based premiums could result in unaffordable rates for some households.⁸⁰ In order to ensure a stable, affordable, and sustainable flood insurance market, a private market for flood insurance must be allowed and encouraged to develop. Increasing private sector involvement could also benefit consumers by expanding available insurance coverage options, lowering costs, and increasing the number of at-risk properties that are insured.

Even prior to recent hurricane seasons, the outlook for the NFIP was grim.⁸¹ The current projections for the next 20 years of the program estimate that NFIP debt will increase by \$9.4 billion.⁸² Absent further Congressional action, the \$24.6 billion owed by FEMA would be nearly insurmountable, especially with the increasing scale of natural disasters. Total interest payments alone would be close to \$400 million a year.⁸³ In the aftermath of the 2005 hurricane season (particularly Hurricanes Katrina, Rita and Wilma), Congress increased the borrowing limit to \$18.5 billion in 2005.⁸⁴ This limit has been increased several times over the years following particularly devastating hurricane seasons and flooding, to today's limit of \$30.425 billion.⁸⁵ Repetitive loss properties are any insurable building for which two or more claims of more than \$1,000 were paid by the NFIP within any

79. *Id.*

80. NAT'L RESEARCH COUNCIL OF THE NAT'L ACADS., AFFORDABILITY OF NATIONAL FLOOD INSURANCE PROGRAM PREMIUMS: REPORT 1 49 (2015); *see generally* CONG. BUDGET OFFICE, *The National Flood Insurance Program: Factors Affecting Actuarial Soundness* (Nov. 2009), <https://www.cbo.gov/sites/default/files/111th-congress-2009-2010/reports/11-04-floodinsurance.pdf>.

81. GOV'T ACCOUNTABILITY OFFICE, FLOOD INSURANCE: COMPREHENSIVE REFORM COULD IMPROVE SOLVENCY AND ENHANCE RESILIENCE 17 (Apr. 2017), <https://www.gao.gov/products/GAO-17-425> [hereinafter *Flood Insurance*].

82. *Selected Issues*, *supra* note 29, at 13.

83. *Flood Insurance*, *supra* note 81, at 15; *see* FED. EMERGENCY MGMT. AGENCY, SEMI-ANNUAL NFIP DEBT REPAYMENT PROGRESS REPORT 9 (Oct. 2015).

84. National Flood Insurance Program Further Enhanced Borrowing Authority Act of 2005, P.L. 109–106, § 2, 119 Stat. 2228.

85. P.L. 113–1, § 1(a), 127 Stat. 3.

rolling ten-year period since 1978.⁸⁶ There are currently 122,000 policies under the NFIP that meet this definition, about one percent of all policyholders. This small group represents twenty-five to thirty percent of all payouts by the program.⁸⁷

The increase in projected costs can only serve to further deplete the program's budget. The NFIP's budget should either be substantially increased, which comes with its own political difficulties, or flood insurance should be overhauled. The NFIP simply does not generate enough revenue to deal with its overhead, and grants far too many subsidies and benefits to properties benefiting from pre-FIRM rates and repetitive loss properties. Premiums must accurately reflect the risk that infrastructure faces from flooding.

Between fifteen and twenty percent of NFIP policyholders still receive a discounted premium for properties under pre-FIRM status. Though under the HFIAA pre-FIRM discounts are being phased out, this trend is limited by the eighteen percent premium cap on an insurer's yearly rate increases. These savings do little to accurately reflect the risk of flooding and mask their high full-risk rates. Grandfathered properties are those that were built in compliance with the hazard map in effect at the time of construction or that have maintained continuous coverage on their property beginning before a map update. These properties are given the lower rate from the original map if a new map indicates they are now at higher risk and should thus be paying a higher premium. Both these policies raise an ongoing question of affordability of flood insurance. With sea levels rising, the cost of flood insurance will only continue to rise as flood frequency increases. It is simply going to become unaffordable.

C. Methodology

One of the key detractors from the potential adaptation of the program is the limitation of current methodology used by FEMA in its promulgation of FIRMs. FIRMs form the basis of the NFIP's risk modeling and risk communication efforts. Because the SFHA is the basis of many NFIP regulations and requirements, a large focus of mapping is on identifying the one percent annual chance flood line or SFHA boundary (this standard is known as

86. FED. EMERGENCY MGMT. AGENCY, SEVERE REPETITIVE LOSS PROPERTY LOCATIONS IN FEMA REGION IV AND VI (May 1, 2015), https://www.fema.gov/media-library-data/20130726-1709-25045-4851/2_severerepetetiveloss.pdf.

87. *Id.*

a “100-year flood” standard, or the one percent chance that a flood will occur in any given year along a recurrence interval).

Property owners in the SFHA with a loan from a federally backed or regulated lender are required to purchase flood insurance, and lenders are required to inform them if the property is in the SFHA. However, the 100-year floodplain boundary may create a false sense that properties outside the SFHA are safe from flooding. This is categorically untrue. Floods can—and routinely do—occur outside the SFHA. The boundary also masks the fact that flood risk varies throughout the SFHA. FEMA’s Technical Mapping Advisory Committee has suggested that the agency transition away from identifying the one percent annual chance floodplain to property-specific flood risk assessment to provide better risk information and better pricing based on more accurate information. A more proper standard would be a 10-year floodplain boundary to better account for the effects of sea-level rise on coastal populations as they face chronic, disruptive flooding that directly affects people’s homes, lives, and properties.

NFIP rates are not set based on a modeling of the aggregate risk of the entire portfolio. They are not set with solvency in mind. The program’s rates are set based on the market value of the average property, considering such factors as base flood elevation and floodplain map zoning. These rates do little to indicate the potential future risk for individual structures. The program has never had a financial architecture in place to be able to cover claims from severe loss years and was never capitalized by Congress. It has always had borrowing authority from the U.S. Treasury, but there was no consideration of how this would be repaid. Within the SFHA, rates vary substantially according to elevation of the home relative to the base flood elevation.

An Obama-era proposed rule was issued in 2015 mandating forward-looking climate science, using a climate-informed science approach that uses the best-available, actionable hydrologic and hydraulic data and methods that integrate current and future changes in flooding based on climate science.⁸⁸ This rule was overruled by an executive order by the current administration in 2017.⁸⁹ FIRMs based on historic trends within a 100-year flood boundary will rarely be able to fully measure the risk of coastal communities to sea level rise. Without forward-looking climate science incorporated into modern data and modeling software,

88. Exec. Order No. 13690, 80 C.F.R. § 23 (2015).

89. Exec. Order No. 13807, 3 C.F.R. 40463 (2017).

floodplain maps will be inaccurate. And without proper methods of measuring risk and reflecting those premiums onto property owners, within proper 10-year flood boundaries, the NFIP will continue to lose money.

V. EXISTING PROPOSED REFORMS

A. Senate Bills

Luckily, Congress has recognized the need for reform. Several bills have been introduced in the Senate to reauthorize expiring provisions and reform the program.⁹⁰ The GAO produced a report identifying six key areas that Congress should consider compressive reform in to reduce federal fiscal exposure: (1) outstanding debt; (2) premium rates; (3) affordability; (4) consumer participation; (5) barriers to private sector involvement; and (6) NFIP flood resilience efforts.⁹¹ The challenge itself comes from ensuring the program is fiscally solvent, while maintaining a level of affordability. The provision of subsidized premium rates has forced FEMA to borrow from the U.S. Treasury to pay NFIP claims, leading to the NFIP to a \$24 billion deficit.⁹²

HR 2874—21st Century Flood Reform Act—seeks to increase the minimum rate at which the pre-FIRM subsidies can be phased out, possibly allowing for FEMA to raise premiums more rapidly.⁹³ Section 111 of the bill would require FEMA to conduct a study to analyze best practices in order to implement the inclusion of replacement costs into the premium rates.⁹⁴ Structures with higher replacement costs would subsequently pay higher rates following the twelve-month implementation phase.⁹⁵ Perhaps the most important proposal would be the requirement that FEMA calculate premium rates based not just on the FIRMs but by other risk assessment data and tools.⁹⁶

The bill does, however, reauthorize the program until 2022, make some tentative steps toward the development of a private

90. See, e.g., Private Flood Insurance Market Development Act of 2017, H.R. 1422, 115th Cong. (2017); Repeatedly Flooded Communities Preparation Act, H.R. 1558, 115th Cong. (2017); Taxpayer Exposure Mitigation Act of 2017, H.R. 2246, 115th Cong. (2017); H.R. 2565, 115th Cong.; National Flood Insurance Program Policyholder Protection Act of 2017, H.R. 2868, 115th Cong. (2017); Rebuild America's Schools Act of 2017, H.R. 2475, 115th Cong. (2017); 21st Century Flood Reform Act, H.R. 2874, 115th Cong. (2017).

91. *Flood Insurance*, *supra* note 81, at 1–2.

92. *Id.* at 1.

93. 21st Century Flood Reform Act, H.R. 2874, 115th Cong. § 102 (2017).

94. 21st Century Flood Reform Act, H.R. 2874, 115th Cong. § 111 (2017).

95. *Id.*

96. 21st Century Flood Reform Act, H.R. 2874, 115th Cong. § 301 (2017).

market focused on consumer choice, and requires applicable flood insurance rate maps and other appropriate risk assessment models, data, and tools to be utilized in establishing floodplain maps. HR 2874 falls far short, however, of what is necessary to adapt the NFIP to the rigors presented by climate change and sea-level rise. The bill seeks to ease the transition from pre-FIRM to post-FIRM rates for insured properties but does little to tackle both the insolvency of the program and enacting a path to risk-based rates and getting rid of permanent discounts.

HR 1558—the Repeatedly Flooded Communities Preparation Act—amends the NFIP to require communities that contain repetitive loss properties to “assess risks” to those areas and develop specific plans for mitigating the continuing flood risks. FEMA, upon request, can provide data to assist in formation of the plan. FEMA may consider the extent to which a community has complied and is working to mitigate flood risks when awarding grants to help with the mitigation efforts. Communities enrolled in the NFIP who fail to do so may be met with sanctions. While the bill certainly does address the major issue of repetitive loss structures, it does little in the way of modernizing the bulk of the program. Grants to communities will only further deplete the budget of the program for structures that will only continue to flood with rising sea-levels.

HR 2246—the Taxpayer Exposure Mitigation Act of 2017—contains equal parts good and bad. The bill seeks to do away with the insurance purchasing mandate under the NFIP and limit it only to residential properties in certain circumstances. In addition, FEMA must transfer a portion of the risk from the NFIP to private capital markets. Additionally, the bill amends the BW-12 FIRM requirements by forcing FEMA to consider recommendations made by the Technical Mapping Advisory Council, and to develop alternative FIRMs by local and state governments. The logic behind this seems to be that state and local governments will be acutely more aware of the impacts of flooding upon their communities, and thus have more specific or effective FIRMs. Limiting coverage to residential properties neither addresses the issue of affordability for lower income families nor does it amend premium rates to better account for risk.

Mandating a forced transition to private markets is counterintuitive: the NFIP was created as a response to private insurers leaving the flood insurance market due to insolvency. With ever-increasing flood risks due to sea-level rise, it will become even more untenable for private insurers to offset risk without resulting to high premiums on their insurers, driving

away the market.⁹⁷ As private insurers continue to leave, FEMA will have fewer and fewer contractors to transfer the risk to. This attempt to promote private flood insurance at the expense of weakening the NFIP is the wrong path to take. Ensuring a private market that works alongside the NFIP to increase the number of people with robust insurance coverage can both help stem flood risk and spread risk across a larger insurance pool.

HR 2565 would require the use of replacement cost value in determining the premium rates for flood insurance coverage. Properties with higher replacement costs, including repetitive loss properties, would see their premiums potentially increase. While this is a step in the right direction, it presents the same issues as the other bills: it does little to modernize and adapt the program to the needs of coastal communities that will only increase greater flooding.

All these bills demonstrate one thing: Congress is aware that the NFIP requires changes. The myriad of bills are all currently in committee, with none progressing beyond a second reading. The frequency of proposed bills only shows that the program in its current form is untenable. Positive steps have been outlined, but the slow, reactive measures of the political machine are insufficient to craft a program that can emphasize the resilience, withdrawal, and financial mechanisms needed to combat sea-level rise.

VI. NECESSARY REFORMS TO ACCOUNT FOR CLIMATE CHANGE

A. Encourage Proactive Coastal Resilience Measures

The NFIP, as it stands currently, is untenable. The program is bloated and cannot sustain its own insolvency. What initially began as an effort to socialize and increase the affordability of flood insurance has instead been warped into a vehicle for coastal property owners to refinance their rebuilding, flood after flood. In an era of increasing flood damage and storms from climate change, these properties must have their rates increase to indicate the increasing risk they face. The goal should not be to increase the affordability of insurance but to utilize insurance rates to incentivize the collective resilience and inland movement

97. U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-16-1611, FLOOD INSURANCE: POTENTIAL BARRIERS CITED TO INCREASED USE OF PRIVATE INSURANCE (2016).

of communities. The effects of sea-level rise will be felt within a few decades, and much of what exists on the coast will be underwater by the end of the century.

More drastic steps should be taken to encourage local communities to enact more coastal resilience measures above what is currently required. Along the spirit of HR 1558, the NFIP should mandate that communities continually assess risk at an individual level, and create local comprehensive plans that emphasize as much. Tying program grants and funding to proof of mitigation efforts in the form of seawalls and the like can help stem the tide of sea-level rise and give local communities more time to draft real efforts and solutions.

B. More Exacting Standards

Such resilience measures must be tied with the mandate for enrollment and expanded beyond the SFHA boundary. Current subsidies are awarded for “adequate completion” of coastal measures, encouraging faulty and incomplete measures to drag on and delay the process. Upon full completion of mitigating measures, a lesser subsidy must be commissioned. Part of this process would involve the levying of sanctions mentioned in HR 1558. The sanctions in the bill would be tied to individual property risk. As mentioned previously, this is a confusing designation in terms of premium rates, as properties within the SFHA are forced to pay higher premium rates though neighboring properties frequently experience slightly less if not just as frequent flooding. The construction of flood resilience measures should thus be a general mandate. Failure to do so would result in sanctions being levied upon local communities and insured properties alongside FEMA recommendations to come into compliance.

Affordability considerations for low- and moderate-income households can be addressed through targeted vouchers, rebates, and loans in order to help build flood mitigation measures. Tying risk to individual structures can help establish criteria on a per-home basis for mitigation measures needed. FEMA must expand funding for voluntary home buyout programs, especially in high risk areas. This all would require a vast budgetary increase.

Premium rates themselves should not be based on boundary designations, but should better reflect individual risk of property flooding. This would remove some of the predictability

and efficiency of the administration of the program, but better position the program to adapt to flooding that is only going to increase in the future.

Coverage for repetitive loss properties must be reconsidered. The costs of the rebuilding process for these properties serve as a substantial drain on the resources of the NFIP. A slow phase-out of coverage over a period of five to ten years would ease the burden on consumers of being without coverage, while simultaneously removing a costly risk that the program would no longer need to manage. This would result in a net decrease in aggregate premium rates due to a significant amount of payable-policies no longer being enrolled. Supplying FEMA grants to help transition to a private insurer or to migrate inland could further increase the viability of this measure, but that would also run the risk of takings liability.

*C. Remove the Premium
Cap, or Increase Substantially*

For the NFIP to modernize and adapt, it cannot be subject to continual reauthorization periods by a Congress unwilling or unable to begin to address sea-level rise. To begin, the provision of HR 2874 authorizing the NFIP to continue until 2022 is a good step. Funding for the program should be a given a greater percentage of Congress's budget. The stability could only further help the program's solvency. Costs on the insured must increase to show the greater risk of flooding that climate change brings to bear on the market. The program cannot function without this sort of stability.

Drastic measures must be taken to tackle both the program's insolvency, and its unintended effect of bankrolling coastal landowners. The premium cap enacted in the HFIAA in 2014 must be either removed or substantially increased. An increase from eighteen to thirty percent would still limit the rapid inflation of premiums should the program decide to reflect actual risk. Both along the coasts and inland floodplains, continued development in flood-prone areas is exacerbating flood losses, and putting more individuals in harms way. The NFIP cannot continue as a program that helps incentivize dangerous development in floodplains, and transitioning to risk-based premiums will put a price tag on that development, creating greater market pressure to halt or diminish such development patterns.

Phasing in risk-based insurance premiums and expanding the number of people carrying insurance would increase coverage for

the growing number of homes exposed to flooding and help move the NFIP ever closer to an actuarially sound foundation.

*D. Implement Modeling Reforms to
Flood Plain Map Calculation and Promulgation to
Account for Future Flood Risks and Disaster Planning*

A baseline issue necessary to make the program more effective, equitable, and science-based is the modeling and data used by the program when generating its FIRMs. The NFIP is using outdated maps based on historic trends when sea-level rise and climate change are increasing the risk of flood hazards exponentially. Greater modeling accuracy is needed to create more manageable flood plain standards. The NFIP must embrace forward-looking scientific measures, using the best hydrologic and hydraulic data, and methods that integrate current and future changes in flooding based on climate science. In the long run, this will save money in disaster planning, and lead to greater solvency.

Greater predictability of flood risks in flood prone areas will save infrastructure and money, as more effective mitigation measures can be implemented. No longer should the program use blunted incentives to reduce those risks, but must promulgate accurate and effective flood plain management standards to address sea-level rise. Ensuring that a well-regulated private sector flood insurance market complements the NFIP without undermining it, including mandating that private insurers contribute to flood mapping fees and provide coverage at least as broad as NFIP policies, can help sustain the overhead of modernizing the program's data.

VII. SUMMARY AND CONCLUSION

The NFIP is more than just an insurance program. The hurricane seasons of 2017 and 2018 have brought unprecedented flooding to Texas, Florida, and Puerto Rico. The Midwest and California have begun to feel the effects of increased flood risk. The NFIP is critical to giving people the stability and administrative framework from which to recover from these types of disasters. Now, it is up to Congress to pass reforms to the program to ensure that it both works to limit these types of harms, and helps prepare coastal communities for the inevitable difficulties sea-level rise and climate change will bring.

Adopting current structures to improve the financial soundness of the program should be a priority, as well as correcting incentives

to rebuild in flood-prone areas. The program in its current form cannot continue to exist, and must be transformed by Congress into an insurance vehicle to prepare, and help coastal and inland communities adapt to flooding in an era of climate change. Key to these goals will be more funding, greater authorization periods, a restructuring of incentives, greater data and modeling accuracy, and mandated mitigation efforts. If reforms are not created, Congress will continue to appropriate money, increasing amounts each year and forgiving debt of an insolvent program, and targeting specific relief packages to disaster wrought areas. This will only delay the inevitable. The sea is rising, and only the efforts of federal, state, and local governments and agencies can help prepare communities properly.