



CENTRAL VALLEY FLOOD PROTECTION BOARD

EXECUTIVE OFFICER'S REPORT

January 27, 2017

Board Administration

Ongoing Operations

- Thirteen Delta Subvention Program Agreements have been signed by EO Gallagher in January, 2017, including work at Walnut Grove, Upper Andrus Island, New Hope Tract, Upper Roberts Island, Lower Jones Tract, Sargent Barnhart Tract, Victoria Island, Bishop Tract, Dead Horse Island, Fabian Tract, Wright-Elmwood Tract, Palm Orwood Tract, and Sherman Island.
- One new O&M agreement was signed for a Flood System Repair Project (FSRP) consisting of levee patrol road repair in Reclamation District 1500.
- EO Gallagher, Counsel Dua and Acting Chief Engineer Emami continue to meet weekly with DFM Acting Division Chief Koch and the office chiefs. The goal is better communication and collaboration between the Division of Flood Management and the Board.
- The Board and DWR planning staff are working cooperatively to encourage the Sacramento District of the USACE to include the disputed portions of the lower San Joaquin levee system in the feasibility study area in order to determine federal interest in those levees. Pursuant to the 2015 MOU between DWR and USACE, planning staff from each (subject to federal appropriations) will provide updates on the progress of this effort to the Board in the coming months.
- Board staff and Board Members Villines and Countryman continue to meet with the Delta Stewardship Council to provide input on their Delta Levee Investment Strategy (DLIS). The Department of Water Resources has recently joined in those meetings as well in order to coordinate efforts between all three agencies.
- CVFPP Investment Strategy Meeting was held on January 19, 2017. EO Gallagher as well as President Edgar and Board member Macdonald attended on behalf of the Board. We were advised that DWR will have the CVFPP Investment Strategy (Strategy) document in hand by late February. The Strategy is intended to augment Chapter 4 in the CVFPP 2017 Update, and will include attachments listing projects and costs identified by the Regional Flood Management Planning groups.

- Delta Levee Subvention quarterly meeting with program staff was held on January 24, 2017. Sandi Maxwell notified Board staff that the program would be approaching the Board for this year's budget earlier than in previous years as they revamp their process in accordance with local requests. Board can expect a budget presentation in May or June instead of September.
- Coordinating Committee Meeting was held on January 25, 2017. DWR unveiled their Environmental Program for Operations and Maintenance (EPOM) environmental document and presented on the program to the group. A copy of the presentation is attached. The group also received a presentation from UC Davis researchers on the National Flood Insurance Program (NFIP) and California's contributions versus claims for the past 21 years. The research, initially paid for by a grant from the NRDC, seeks to evaluate whether withdrawing from the NFIP and establishing a California-based program would result in a net gain for the state that could ultimately be used to improve and maintain the existing flood protection system. A copy of their presentation and handouts is attached.
- The National Coalition of Flood Projects Partners was held on January 26, 2017. The discussion included a WRDA 2017 Update, USACE Issues, including Section 408, 221, FEMA Issues and other announcements regarding ASFPM, FMA, and NAFSMA.
- The Executive Committee met on January 26, 2017. Committee members received draft documents outlining the public hearing process for the Plan Update adoption, an update on the Title 23 project, and an update on the Board's permitting program.

Recent Developments

- Board and DWR were invited to the Delta Protection Commission Meeting on January 19, 2016 to discuss the update to the flood plan. EO Gallagher opened the presentation with a summary of the recent flood events, and video footage of the opening of the Sacramento weir. Michael Mierzwa delivered a summary of the draft plan and Andrea Buckley discussed the public hearing schedule and timeline for adoption. The presentation was well received and there were a lot of questions from Commission members, particularly on the subject of financing flood related activities.
- The Board has one Budget Change Proposal (BCP) included in the Governor's 2017 budget. The BCP seeks both funding and positions to support and augment the Board's core functions of encroachment removal and land management activities. A copy of the Board's BCP is also attached.

Board News

- The Sr. Environmental Scientist position left vacant by Andrea Buckley when she was hired for the Environmental Services and Property Management Branch Chief has been filled. Itzia Rivera, formerly of DWR's Division of Flood Management and Integrated Regional Water Management's Financial Assistance Branch, started work with the Board on January 9. She will be introduced to the Board at the January 2017 meeting.
- Supervising Engineer Eric Butler has moved to the Division of Flood Management's Flood Projects Office, working under Office Chief Jeremy Arrich. The Board is currently advertising for a Supervising Engineer to assume the duties of the Plan Implementation and Compliance Branch Chief. The job announcement final filing date is January 30.
- Senior Engineer Monica Reis is leaving to return to her former employment with DWR's Division of Integrated Water Management. Her last day at the Board will be Thursday, January 26. The Board is currently advertising for a Senior Engineer to backfill in the Plan Implementation and Compliance Branch.
- Plan Update news and related content is currently up and active on the Board's website.

Environmental Permitting for Operation and Maintenance (EPOM)

Department of Water Resources Flood Maintenance Office

Scott Kranhold and Scott Deal

Meeting of the Central Valley Flood
Protection Board Coordinating Committee

January 25, 2017



DWR's Flood Maintenance Responsibility

- Sacramento River Flood Control Project (SRFCP)
 - U.S. Army Corps of Engineers (USACE) (federal project)
- California Water Code
 - §8361: Specific levees, channels, and structures of the SRFCP that DWR is responsible for maintaining
 - §12878: Maintenance Areas of the SRFCP
- USACE Operations and Maintenance (O&M) Manuals (33 CFR 208.10)

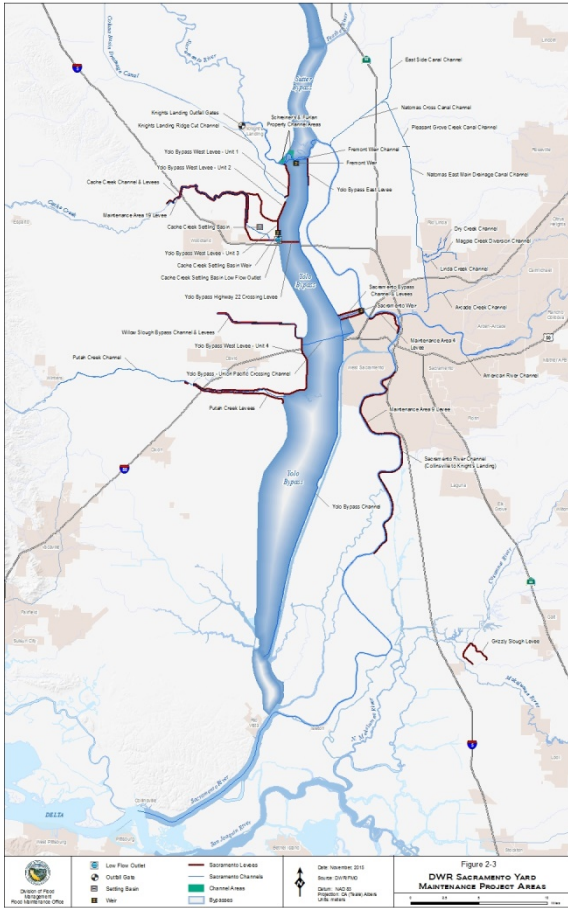


Project Area

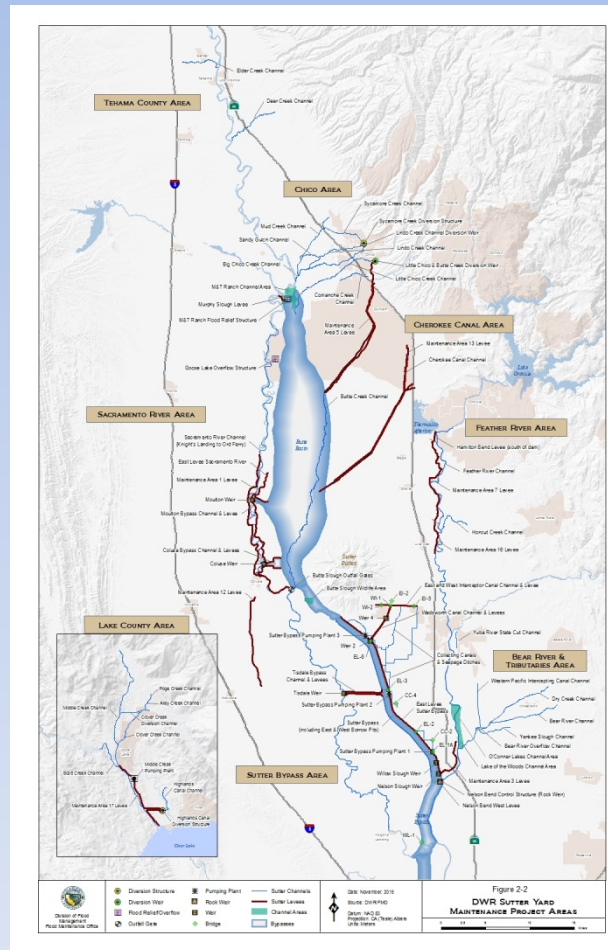
- DWR's Flood Maintenance Office (FMO)
- Sacramento and Sutter Maintenance Yards
 - 174,541 acre (272.7 square miles) footprint
 - Extends from Red Bluff to the Delta and Middle Creek in Lake County.
 - Sacramento Maintenance Yard: Knights Landing to Collinsville
 - Sutter Maintenance Yard: Knights Landing to Red Bluff and Middle Creek Project in Lake County



(Sacramento Maintenance Yard)



EPOM Project Area (Sutter Maintenance Yard)



Status of DWR Flood Maintenance Permit

- Current California Department of Fish and Wildlife (CDFW) Streambed Alteration Agreement is a Routine Maintenance Agreement (RMA) with CEQA Notice of Exemption (NOE)
- Executed in January 2011 and was due to expire January 2016
- FMO requested a time extension in December 2015
- CDFW responded to request in December 2016
- Extension of RMA was granted until January 6, 2018



Limitations of Current RMA

- Unable to conduct certain maintenance activities due to potential impacts to State and Federally listed species. (e.g. not able to grout 120 miles of levee for rodent damage repair)
- Activities not covered under the current RMA would require separate CEQA and permits
- Cannot add new locations to the current RMA (e.g. Western Pacific Interceptor Canal)



Status of EPOM

- Why an EIR?
 - Project activities have the potential to significantly impact State and federal listed species/habitat, cultural resources, air quality, hydrology, and noise sensitive receptors
 - EIR is more flexible/defensible, and can be supplemented with additional analysis in the future as necessary



Status of EPOM (con't)

- Notice of Preparation of a draft EIR submitted to State Clearinghouse in May 2015
- Public Draft EIR released for public comment on January 18th
- Draft EIR Public comment period January 18th to March 3rd 2017 (45 Days)



Components of EPOM EIR

- Project Objectives
- Project Description
- Environmental Setting
- Impact Analysis
- Proposed Mitigation Measures
- Cumulative Impact Analysis
- Alternatives Analysis



Project Objectives

- Conduct maintenance activities in accordance with federal requirements, established in the USACE O&M manuals.
- Enable DWR to conduct land and facilities management in ways that ensure the following is maintained:
 - Channel design flow capacity, levee integrity, and proper functioning of flood management and control structures.
 - Visibility and accessibility of facilities for inspections, maintenance, and flood-fighting operations.



Project Objectives (con't)

- EIR provide sufficient analysis to support the issuance of State permits and authorizations for maintenance
- Consistency with other State and DWR plans and policies:
 - Central Valley Flood Protection Plan (CVFPP), Environmental Stewardship and Sustainability Policies, Climate Action Plan, Governor's California Water Action Plan, and Tribal Engagement Policy



How is EPOM Consistent with CVFPP?

- CVFPP High Level-Umbrella
 - CVFPP CEQA Programmatic EIR Level
 - EPOM CEQA Project EIR Level
- Tracking with the CVFPP and conservation strategy and permitting



How is EPOM Consistent with CVFPP?

- Multi-Benefit Examples:
 - Public Safety, reduce flood risk
 - Promote Ecological and Agricultural values
 - Wildlife Area/Refuge Vegetation Management (CDFW and USFWS)
 - Beaver dam removal
 - Promote the stability of native species populations
 - Vegetation Management Strategy
 - Invasive plant species removal
 - Minimize flood maintenance requirements:
 - Regional and streamlined permitting approach



Project Description

- Provides a detailed description of maintenance activities conducted by the FMO's Maintenance Yards
- Descriptions are broken out into levee, channel, and structure maintenance
- Summary of maintenance activities, including the timing, frequency and estimate of annual acreage of work for each activity



Maintenance Activities

TABLE 2-4
TIMING AND FREQUENCY OF MAINTENANCE ACTIVITIES

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Activity			Timing	Frequency
Levee Maintenance				
Rodent Abatement and Damage Repair	Rodent abatement	Baiting (pesticide)	April–October – Conducted during rodents active season: may be done year-round when conditions require maintenance	Annually
		Fumigating		
		Depredating		
	Rodent damage repair	Grouting	April–December – Once a year, after herbaceous vegetation has been mowed	Annually
		Excavating and backfilling		
Levee Vegetation Management	Physical/mechanical treatments	Cutting/limbing	Year-round	Annually
		Mowing	Typically March–October, may extend through November due to various circumstances	
		Dragging	Typically June–October, may extend through November due to various circumstances	
	Applying herbicide (pesticide)		Year-round	Annually
	Controlled burning		June–October	
	Grazing		April–November	
Erosion Repair	Controlling and repairing erosion-sites		April–November	As needed based on inspections
Levee, Levee Crown and Access Road Maintenance	Levee slope grading		Once in the spring and once in the fall	2 times per year
	Road grading and minor repairs		Once in the spring and once in the fall	2 times per year
	Levee crown gravel replenishing		July–November	As needed every several years
Encroachment Removal	Removal of unauthorized construction, landscaping, or materials that may impact SRFCP facilities		Year-round	As needed
Stability Berm Construction	Stability berm constructing		Dry season – Typically, May 1 to October 1	As needed



TABLE 2-4
TIMING AND FREQUENCY OF MAINTENANCE ACTIVITIES

Activity		Timing	Frequency
Channel Maintenance			
Sediment Removal	Sediment removal around structures	April–November	Varies based on facility, rate of accumulation, and magnitude of sediment accumulation effects on conveyance and facility function
	Sediment removal from collecting canals	Generally, May–October and extending into January based on canal conditions	Up to 20 miles per year
	Large sediment removal projects (dry sediment removal)	May–October and extending into November when conditions allow	Based on specific facility considered, the rate of sediment accumulation at the site, and the magnitude of sediment accumulations effect on conveyance capacity and functioning of specific facilities
Debris/Obstruction Removal	Removal of all trash and debris collected in the channel (including burning and/or chipping/scattering of organic debris). Debris consists of trash, beaver dams, flood-deposited woody and herbaceous vegetation, downed trees and branches, and any other man-made debris	Year-round	As needed based on results of inspections
Channel Vegetation Management	Aquatic vegetation removal	Mechanical removal with excavator	Annually or every other year/several years based on size and density of the vegetation cover
		Applying herbicide (pesticide)	
	Woody vegetation removal	Trimming/limbing/cutting using hand tools	Woody vegetation removal typically occurs every several years but is done on an as-needed basis
		Masticating	
		Bulldozing	
		Applying herbicide (pesticide)	
	Mowing	May–December	Annually
	Strip disking	May–December	Annually
	Burning	Year-round	Annually
	Grazing	April–October	Annually
	Vegetation management in large channels ³	May–December	Herbaceous vegetation mowed annually
		May–August – Woody vegetation treatment with equipment	Woody vegetation averages every several years but is done as needed
		Year-round using hand tools	
Channel Scour Repairs	Repair dry portions of the channel by scraping, disking, filling, leveling, and regrading the ground surface	April–November	As needed



**TABLE 2-4
TIMING AND FREQUENCY OF MAINTENANCE ACTIVITIES**

Activity			Timing	Frequency
Flood Control Structure Maintenance and Repair				
Pumping Plant Maintenance and Repair	Debris and sediment/silt removal		May–November – Prior to high-water season, and as needed to ensure proper pumping plant function	Pumping plant – annually
	Repairing things like wing walls, bulkheads, splash aprons, and the superstructure		Year-round	As needed
Weir Maintenance and Repair	Removing/leveling of silt deposits, debris, and undesirable vegetation between the river and the structure		Year-round – Debris removal May–November – Sediment removal	Annually
	Removing the obstructions within the spillway and concrete bulkhead to maintain function of the weir and control gates		Year-round	
	Repair erosion around the structure that can be caused by increase of volume and velocity of water when gates of weir are opened		June–October	
	Painting the metal structures of the weir		Year-round	
Outfall Gates Maintenance and Repair	Removing debris near gates		Year-round	Annually
	Removing/treating undesirable vegetation on the revetment on structure to maintain unobstructed passageway		May–October – Aquatic vegetation management	
	Inspecting concrete superstructure and patching cracks and spalls		Year-round	
	Straightening or welding damaged metal portions of the outfall gates		Year-round	
	Inspecting, testing, and repairing the electrical or hydraulic system		Year-round	As needed
Pipe/Culvert Repair, Replacement, and Abandonment	Inspections		Year-round	Annually
	Pipe/culvert repair		April–November Year-round for minor repair work	All pipes and culverts in levees will be inspected and maintained in the first 2-3 years and then in subsequent years as needed, based on results of inspections; all other pipes and culverts will be maintained as needed.
	Pipe/culvert replacement		April–November	
	Pipe abandonment		April–November	
Bridge Maintenance, Repair, and Replacement	Bridge maintenance	Removal of woody debris within 50 ft of bridge	Year-round	As needed
		Spraying, mowing, or burning vegetation near bridge abutments and foundation supports	Year-round – Spraying March–October - Mowing	
			June–October – Burning	



Uncertainty: Factors Influencing Timing, Magnitude and Frequency of Maintenance Activities

- Resource availability (equipment, staff and funding)
- Weather, water levels and soil conditions
- Adjacent land uses (i.e. agriculture, wildlife areas, urban, etc.)
- Floods and high water events
- Droughts
- Species or habitat presence
- Timing of activity



Potentially Significant Impacts to Environmental Resources

- Biological Resources
 - 30+ Species/Habitats—including giant garter snake, Swainson's hawk, riparian vegetation, valley elderberry longhorn beetle, tricolor blackbird, and nesting birds
- Cultural, Air Quality, Hydrology, and Noise
- Draft EIR conclusion, less than significant impact with mitigation measures applied



Alternative Analysis

- No Project Alternative
 - DWR would not pursue a comprehensive approach to obtaining State and federal permits to conduct ongoing maintenance activities and would instead seek individual permits.
- Conduct Maintenance Activities that do not require permits
 - DWR would conduct only maintenance activities that would not require obtaining State or federal permits. Maintenance would be conducted on an emergency basis.



How Proposed Mitigation Will Change Business Practices

- Provides more flexibility and opens up work windows
- More avoidance/minimization measures than past
 - More environmental support for surveys/monitoring
- Compensatory Mitigation as required by permits
 - Additional O&M costs
- Planning, tracking, and reporting of work annually



Anticipated Permits/Authorizations

- CDFW Streambed Alteration Agreement
- CDFW California Endangered Species Act (CESA) Incidental Take Permit
 - Giant garter snake, fish species, and western yellow billed cuckoo
- 10 to 20 year permit coverage



Anticipated Permits/Authorizations continued

- Regional Water Quality Control Board
 - Clean Water Act section 401 Certification
 - Subject to activities that require a Clean Water Act section 404 permit from the U.S. Army Corps of Engineers
- Other State permits as needed



Agency Meetings/Coordination

- Three meetings have occurred with the CDFW, U.S. Fish and Wildlife Service, and National Marine Fisheries Service to discuss the development of the EIR
- A February 2017 agency meeting will be held to discuss comments to CEQA document during the public comment period
- Additional agency meetings will be held to discuss permitting



Timeline

- EPOM EIR public draft review
 - January 18th through March 3rd, 2017.
 - Draft EIR available on DWR website:
<http://water.ca.gov/floodmgmt/fmo/msb/env-permit.cfm>
 - Public comment meeting, February 22, 2017
 - At JOC, Sacramento, 2-4pm.
- EPOM Final EIR
 - DWR is expected to certify in April 2017
- New Streambed Alteration Agreement By June 2017
- CESA Incident Take Permit - TBD



Federal Permitting Efforts

- System-Wide Improvement Framework plans (SWIF) and 404/408 activities
 - Valley elderberry longhorn beetle, western yellow-billed cuckoo, and giant garter snake
- Feather River Regional Permitting Program
 - Habitat Conservation Plan



Next Steps

- Agency Meetings
 - CEQA comments
 - Permitting
- Permit Applications to CDFW
 - Streambed Alteration Agreement
 - California Endangered Species Act Incidental take



Thank you
Questions?



California, Flood Risk, and National Flood Insurance Program

Nicholas Pinter, Rui Hui, Kathleen Schaefer
UC Davis

Jan. 25, 2017

Sacramento Weir, Jan. 11, 2017



Flood Risk in California

California has massive flood-risk exposure.

- Roughly 7 million people and \$580 billion in buildings, public infrastructure, and crops are at risk from flooding (DWR, 2013).
- Of 81 Major Disaster Declarations in CA since 1954, 45 have involved flooding.

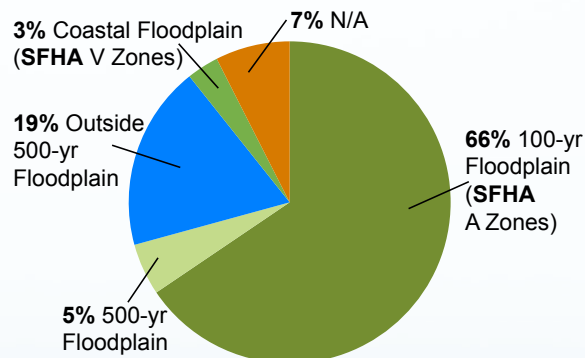
The Central Valley is the most flood-prone area of the State, a threat addressed during the past 100+ years by construction of levees, bypass channels, and upstream dams.

NFIP Overview

- The National Flood Insurance Program (NFIP) was established in 1968 to curtail development on US floodplains and along our coasts.
- Today, NFIP underwrites over 5 million policies, providing over \$1.25 trillion in coverage, taking in over \$3.5 billion/year in premiums.
- NFIP has limited, but not halted floodplain development.
- Flood losses have continued to climb, and NFIP is now **>\$20 billion in debt**
 - going into Congressional reauthorization scheduled for 2017

- Nationwide databases provided by FEMA:
 - NFIP flood-damage claims back to 1972
 - NFIP policies in force back to 1994
 - FEMA "severe repetitive loss" properties.
- Wide range of **attributes** accompany each database
- FEMA community designator combined with latitude and longitude to **improve geographical resolution**
- Combined with **other GIS information**, e.g.: census income data, social vulnerability indices, etc.
- **Focus on California, but with an eye to national context**

Results: Historical Flood Claims in SFHA



**Number of NFIP paid claims
in each Flood Zone**

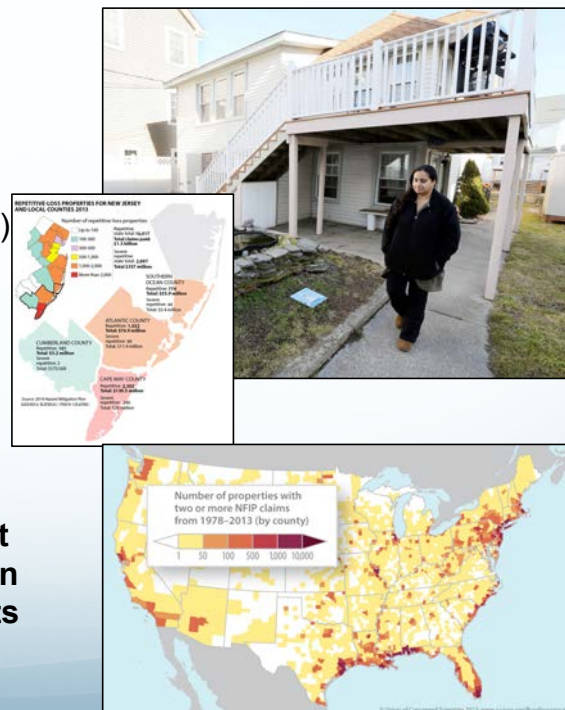
Flood Claims, Policies, and Gross National Payout Rates

(Data: 1994-2014)	Paid Claims	Policies-in-force	Ratio of Claims/ Policies
Total	1,109,378	97,595,087	1.14%
SFHA	812,946	64,479,094	1.26%
100-yr Floodplain (SFHA A Zone)	781,240	62,707,980	1.25%
Coastal Floodplain (SFHA V Zone)	31,706	1,771,114	1.79%
500-yr Floodplain	56,552	4,486,201	1.26%
Non-SFHA	285,118	32,649,618	0.87%
Pre-firm	809,140	49,477,162	1.64%
Post-firm	290,519	47,632,007	0.61%

Persistent Repetitive Flood Losses

Severe Repetitive-Loss Properties:

- Definition: ≥ 4 claims of $\geq \$5k$; or 2 claims \geq structure value
- Just **0.58%** of NFIP policies (~30,000)
- But responsible for **10.6%** of all payments (\$5.5 billion)
- Up to 40 claims per single structure (and counting)
- One property in Alabama, valued at \$153,000 has **received \$2.25 million** in taxpayer-funded NFIP flood payments



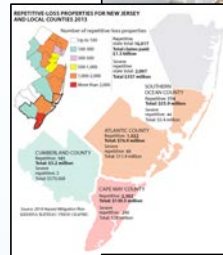
Persistent Repetitive Flood Losses

- Natural Resources Defense Council (NRDC) has drafted legislative language to remove repetitive-loss properties from NFIP insurance roles:

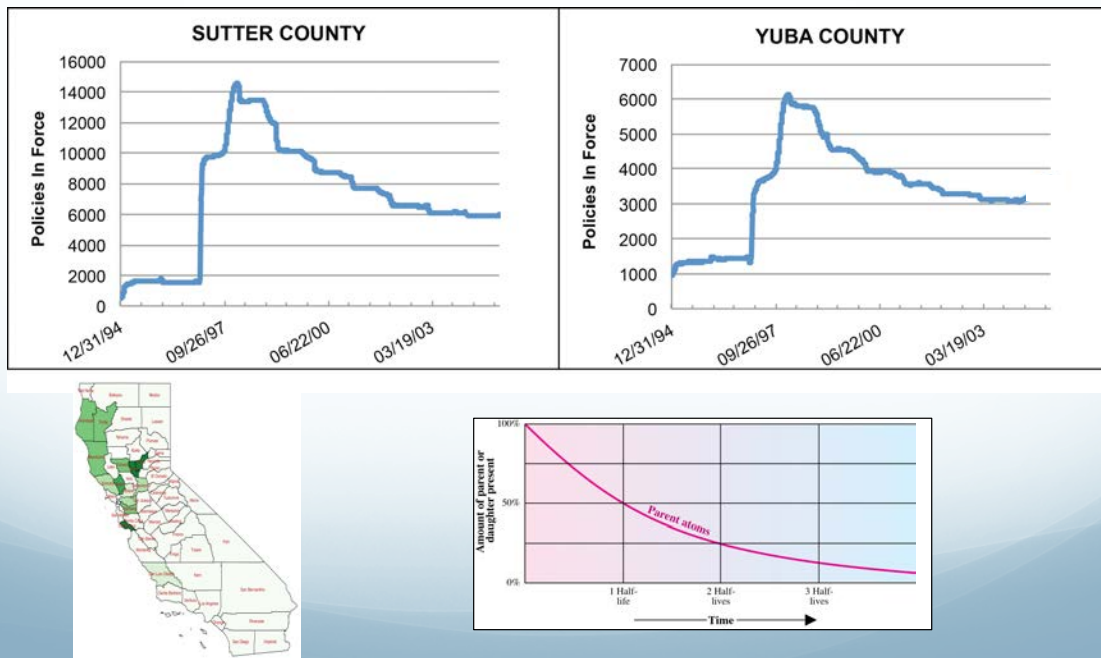
"property owners should agree in advance not to rebuild following floods that cause substantial damage and, instead, to accept a government buyout of their property and relocate. In exchange, they would receive a discount on their federal flood insurance coverage...."



(Hayat and Moore, 2015)



Insurance Penetration Issues: “Flood memory half-life”



Conclusions

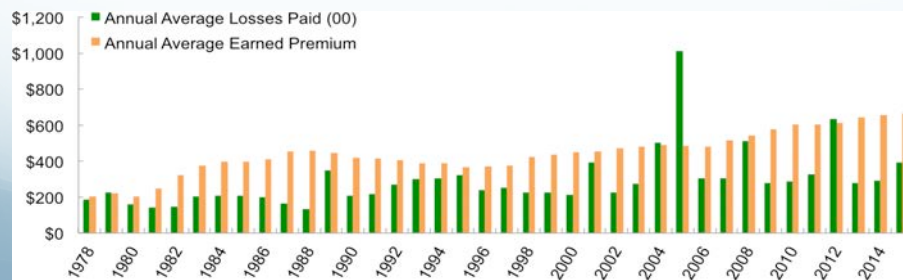
- ① The **NFIP** is a “thin line in the sand” -- imperfect, but the best framework we currently have for managing US flood losses

Conclusions

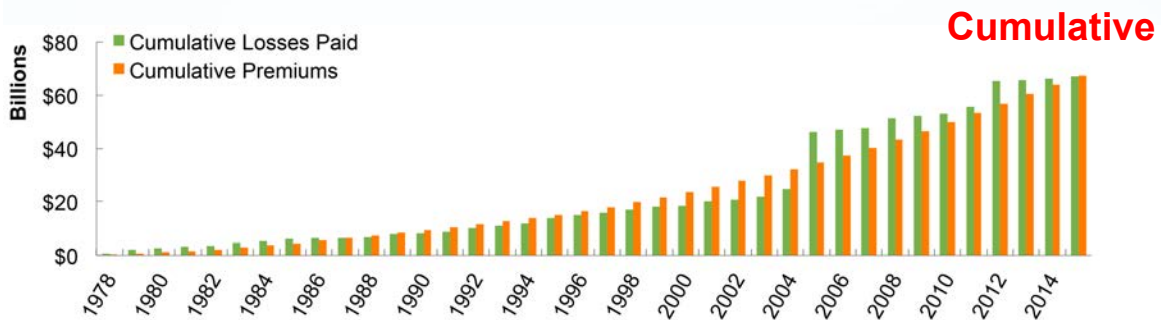
- ① The **NFIP** is a “thin line in the sand” -- **imperfect**, but the best framework we currently have for managing US flood losses

→ not least because the Program is a huge drain on Federal finances

NFIP is currently >\$20 Billion in debt to the US Treasury



NFIP Deficit: Not that simple

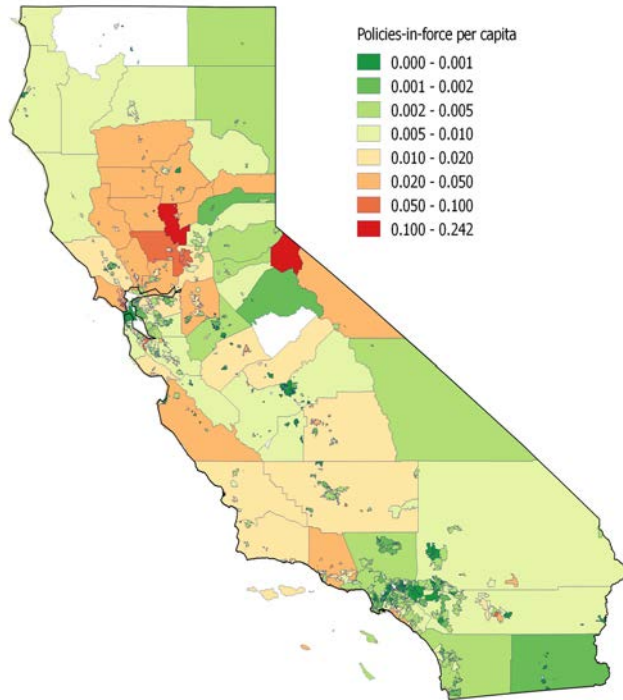


- NOT simply the case that claims >> premiums
- In fact, total NFIP premiums > claims
- But ... 34% of privately administered (WYO) premiums taken as fees

NFIP and California

California currently has:

- 290,000 NFIP policies
(5.4% of US total)
- covering \$82.6 billion in assets
(6.1% of US total)
- \$212.8 million in annual premiums
(5.8% of US total)



NFIP and California

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	Number of NFIP policies in-force	Policies in-force, total \$coverage	Policy Premium In-force
SACRAMENTO CO.	55,044	\$17,550,548,600	\$26,246,881
LOS ANGELES CO.	33,653	\$9,802,768,000	\$24,410,506
ORANGE CO.	23,842	\$6,595,794,400	\$21,226,598
SANTA CLARA CO.	17,763	\$4,658,578,500	\$16,853,176
SAN DIEGO CO.	13,153	\$3,522,603,100	\$9,894,154
RIVERSIDE CO.	9,945	\$2,737,890,000	\$5,896,997
MARIN CO.	9,072	\$2,575,923,800	\$10,342,427
SAN JOAQUIN CO.	8,849	\$2,667,708,600	\$5,171,246
TULARE CO.	8,640	\$2,192,216,400	\$5,587,788
VENTURA CO.	8,119	\$2,284,323,200	\$4,857,563

	Policies per 1000 residents	Coverage per 1000 residents	Premiums per 1000 residents
SUTTER CO.	61.72	\$19,675,505	\$30,319
YUBA CO.	42.33	\$12,857,283	\$20,514
SACRAMENTO CO.	36.66	\$11,689,962	\$17,482
MARIN CO.	34.73	\$9,861,090	\$39,593
COLUSA CO.	28.77	\$7,732,776	\$19,840
YOLO CO.	24.25	\$7,325,538	\$14,816
LAKE CO.	31.51	\$6,973,927	\$25,383
SIERRA CO.	27.64	\$5,790,529	\$34,218
TEHAMA CO.	21.15	\$4,853,568	\$18,388
GLENN CO.	23.13	\$4,808,106	\$17,261

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BUT ... this is only the tip of California's flood exposure:

- 7 million people
- \$580 billion in buildings, public infrastructure, and crops (DWR, 2013)

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California and NFIP Payout Rates

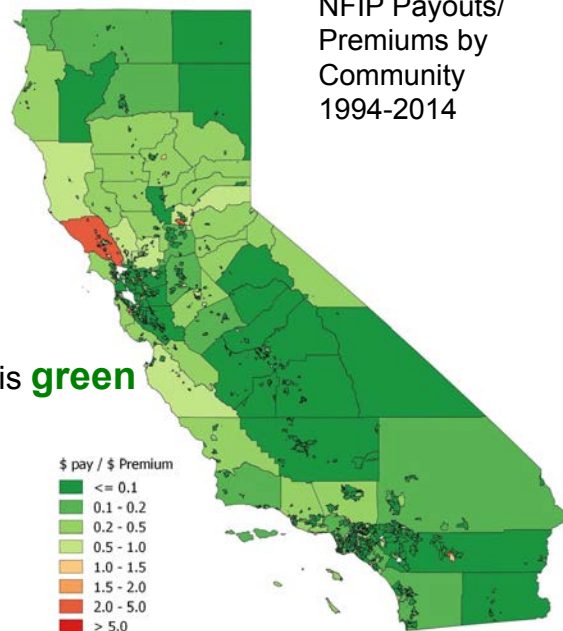
Payout Rates:

(cumulative \$claims/\$premiums)

- vary widely across California
- from <10%
(even zero; to be discussed)
- to >500% (see map)

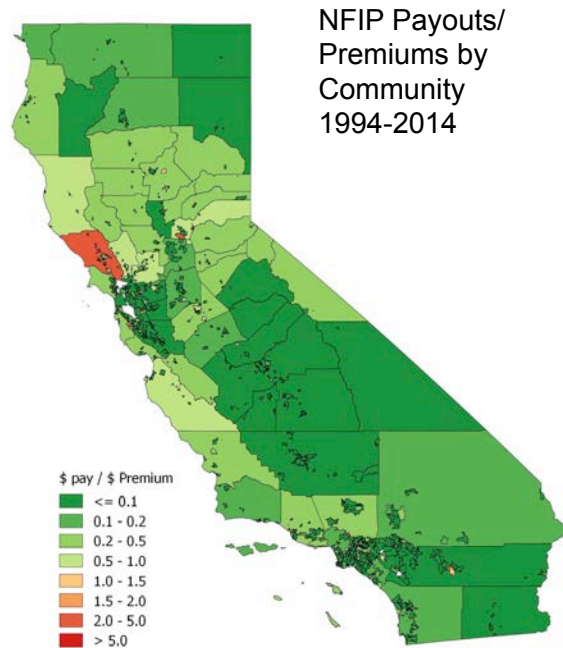
BUT ... large majority of the CA map is **green**

NFIP Payouts/
Premiums by
Community
1994-2014



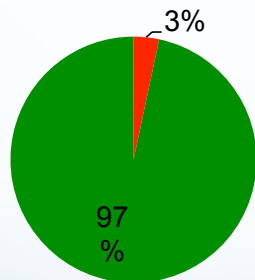
California and NFIP Payout Rates

- Since 1994, NFIP damage payouts in California total just 14% of premiums collected
- This imbalance exceeds \$3 billion (2015 dollars) over 21 years.
- In the Central Valley, payouts have been just 9% of cumulative premiums.

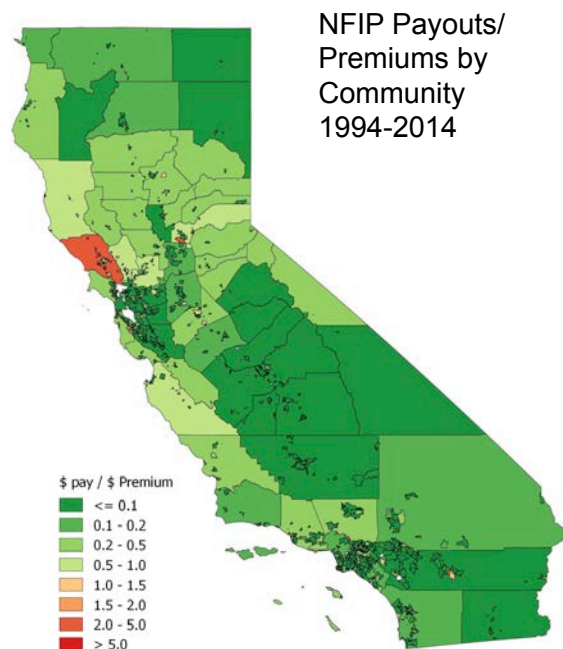


California and NFIP Payout Rates

- 97% of CA jurisdictions paid in cumulative premiums > claim payouts



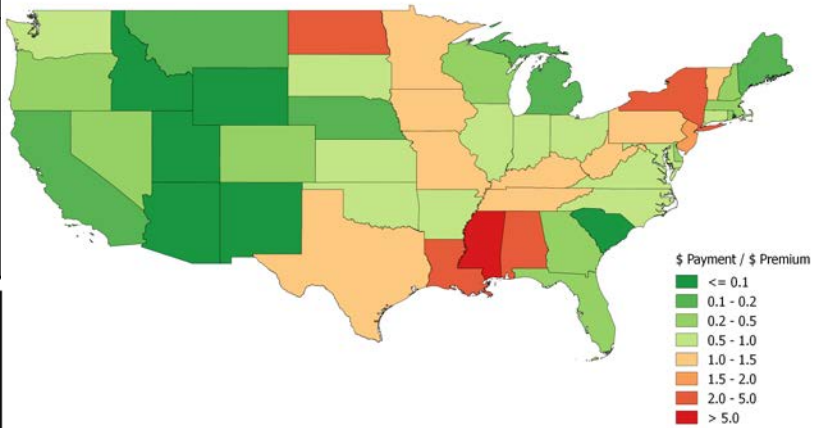
- And 22% of CA jurisdictions had **zero** payouts in 21 years



Nationwide Pattern

Largest net recipients (1994-2014)	payments/ premiums (%)
Mississippi	560%
Louisiana	382%
North Dakota	308%
New York	229%
Alabama	210%
New Jersey	173%
Iowa	144%
Tennessee	132%
Pennsylvania	127%
Minnesota	123%

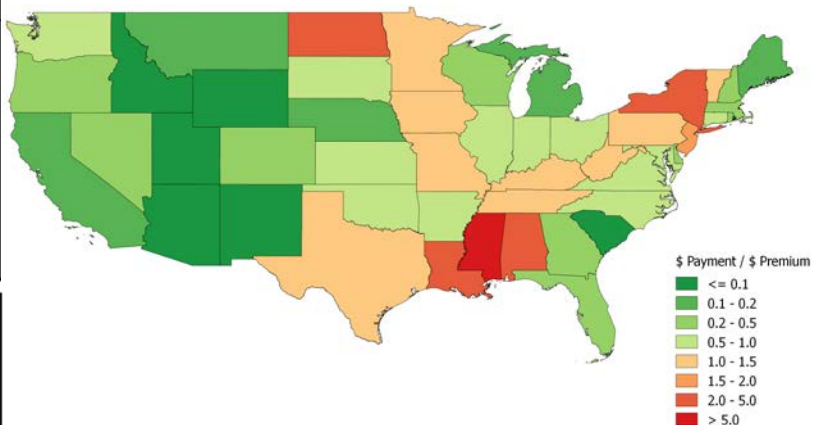
Largest net payers (1994-2014)	payments/ premiums (%)
Wyoming	3%
Utah	4%
South Carolina	5%
Arizona	8%
Hawaii	8%
New Mexico	9%
Idaho	10%
Michigan	13%
California	14%
Nebraska	15%



**BUT ... this begs the
BIG QUESTION**

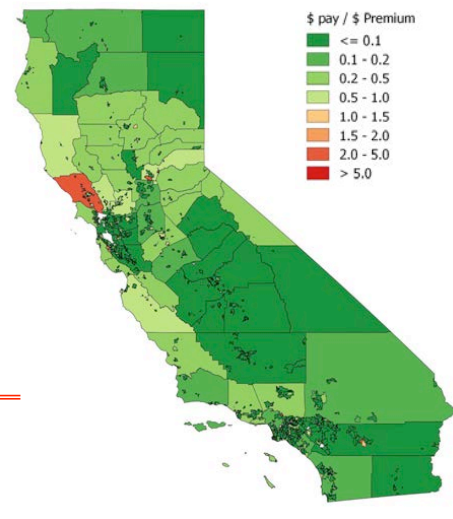
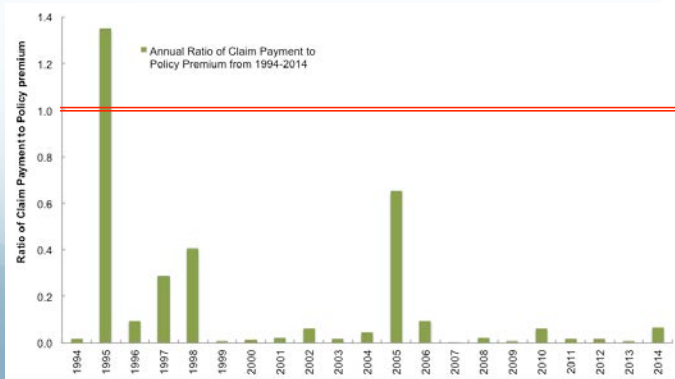
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Hawaii	8%
New Mexico	9%
Idaho	10%
Michigan	13%
California	14%
Nebraska	15%



In the case of California

- The study period (1994-2015) included the three most damaging flood years in CA NFIP history
- In only one year (1995) did CA payouts > premiums
- And then only slightly (~135% of prem.)



Nationwide, with largest loss year removed from analysis

Largest net recipients (1994-2014)	payments/premiums (%)	Rank with largest claims year removed (of 51)
Mississippi	560%	7
Louisiana	382%	12
North Dakota	308%	1
New York	229%	16
Alabama	210%	2
New Jersey	173%	15
Iowa	144%	14
Tennessee	132%	19
Pennsylvania	127%	3
Minnesota	123%	10

Largest net recipients (1994-2014; w/ largest claim year removed)	payments/ premiums (%)
North Dakota	188.82%
Alabama	136.26%
Pennsylvania	98.09%
West Virginia	77.16%
Missouri	72.76%
Texas	69.18%
Mississippi	66.88%
North Carolina	66.43%
Kentucky	65.63%
Minnesota	59.57%

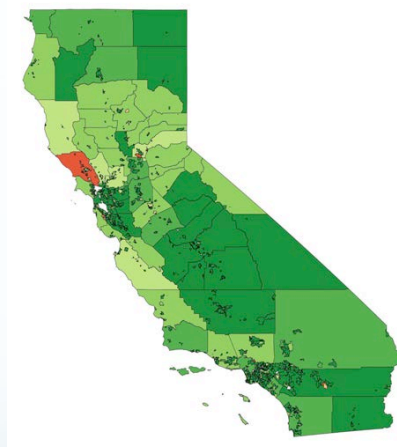
Nationwide, with largest loss year removed from analysis

List and rankings of net NFIP payers changes little:

Largest net payers (1994-2014)	payments/ premiums (%)	Rank with largest claims year removed	Largest net payers (1994-2014)	payments — premiums (\$)	Rank with largest claims year removed
Wyoming	3%	51 (1st)	Florida	-\$12,949,498,753	51 (1st)
Utah	4%	49 (3rd)	California	-\$3,302,518,547	50 (2nd)
South Carolina	5%	50 (2nd)	South Carolina	-\$1,776,464,934	48 (4th)
Arizona	8%	45 (7th)	Massachusetts	-\$736,112,961	44 (8th)
Hawaii	8%	46 (6th)	Georgia	-\$591,866,481	43 (9th)
New Mexico	9%	47 (5th)	Hawaii	-\$450,332,271	39 (13th)
Idaho	10%	44 (8th)	Virginia	-\$406,301,054	42 (10th)
Michigan	13%	41 (11th)	Arizona	-\$352,418,445	36 (16th)
California	14%	43 (9th)	Michigan	-\$312,918,908	35 (17th)
Nebraska	15%	42 (10th)	Maryland	-\$284,213,633	41 (11th)

If not just lucky ... WHY is California a persistent net payer into NFIP

Largest net payers (1994-2014)	payments — premiums (\$)	Rank with largest claims year removed
Florida	-\$12,949,498,753	51 (1st)
California	-\$3,302,518,547	50 (2nd)
South Carolina	-\$1,776,464,934	48 (4th)
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Michigan	-\$312,918,908	35 (17th)
Maryland	-\$284,213,633	41 (11th)



Has CA flood risk been:

- Overestimated?
- More successfully managed and mitigated?
- Other reasons? – *more analysis and research needed*

Recommendations

- The **NFIP is a “thin line in the sand”** -- imperfect, but the best framework we currently have for managing US flood losses


“Headline” challenges:

- Repetitive losses
- Insurance penetration
- Levees risk reduction
- Levees & residual risk
- Out-of-date and inaccurate mapping and risk estimation
- Spread of risk vs. transfer of risk
- Efficiency – e.g., excessive private fees
- Equity – affordability and social justice
- etc.

Recommendations

- The **NFIP is a “thin line in the sand”** -- imperfect, but the best framework we currently have for managing US flood losses
- Heading into 2017 Congressional NFIP reauthorization -- we endorse the ASFPM agenda, particularly its goal to “subsidize **mitigation**, not insurance”
- **Repetitive losses** are a persistent drain on the NFIP. We endorse the NRDC initiative to wind-down repetitive losses, linking insurance affordability to binding mitigation
- We recommend that **California research and pursue a State Flood Insurance Program**, with savings invested in long-term risk reduction.

Recommendations

- The **NFIP** is a “**thin line in the sand**” -- imperfect, but the best framework we currently have for managing US flood losses
 - Repetitive losses
 - Insurance penetration
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 - Levees & residual risk
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 - Efficiency – e.g., excessive private fees
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 - We recommend that **California** research and pursue a **State Flood Insurance Program**, with savings invested in long-term risk reduction.
- 

Key Considerations for a State Flood Insurance Program

Dr. Howard Kunreuther has provided guidance on implementing any insurance program

Insurance and Behavioral Economics

by

Howard C. Kunreuther, Mark V. Pauly, Sacey McMorro

Guidance from
Insurance and Behavioral Economics
by

Howard C. Kunreuther, Mark V. Pauly, Sacey McMorrow

- Any insurance scheme would need to address the issues of *efficiency* and *equity*.
- Efficiency - maximize the total net benefit. (benefits minus costs)
- Equity - ensure that goods and resources are distributed fairly.
 - Ensure those who benefit pay and those who do not benefit do not pay.
 - *Insurance stamps* might be issued to low-income families to help pay premiums.

Guidance from
Insurance and Behavioral Economics
by

Howard C. Kunreuther, Mark V. Pauly, Sacey McMorrow

“If insurance is to play a central role in implementing risk management strategies for the public sector, an ideal arrangement would be one in which everyone subject to losses is personally responsible for the financial consequences of the disasters and so bears the costs and benefits of any risk-reducing measures or activities.”

Information Design Principles

- Make Accurate Risk Assessments Available to Everyone
- Identify and Address Interdependencies
- Detect and Adjust Strategies for Behavioral Biases and Heuristics

Contract Design Principle

- Premiums Should Reflect Risk
- Define Equity across Buyers and Sellers and Apply it Consistently.

Regulatory Principles

- Avoid Premium Averaging
- Do Not Mandate Insurance Benefits Not Worth Their Cost
- Examine Impacts of Crowding-out Effects on Behavior

Next Steps

- CA should partner with private insurers and reinsurers, but move expeditiously, with an eye to **looming changes in federal policy** and **rapid shifts in private flood-insurance market development**
- **Important analytical questions** need to be answered, with input from
 - CA flood stakeholders
 - State water and flood and insurance agencies (e.g., DWR, CalOES, CA Dept. of Insurance)
 - Flood-risk researchers and modelers
 - Private insurance industry and finance community

(We think UC Davis is in a position to organize such a study)

http://www.theadvocate.com/louisiana_flood_2016/article_bcb80c44-d36a-11e6-8c86-eb11cc7f79de.htm

Looking for alternative to National Flood Insurance Program? Here's a new trend...

BY TED GRIGGS | TGRIGGS@THEADVOCATE.COM

PUBLISHED JAN 19, 2017 AT 12:00 AM | UPDATED JAN 19, 2017 AT 12:40 PM



ADVOCATE STAFF PHOTO BY TRAVIS SPRADLING

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Debris pile in median on Monticello Blvd. in the Monticello subdivision off Greenwell Springs Road, Friday, Dec. 30, 2016, over four months after the

Ted Griggs

What if you could buy flood coverage from a private insurance company, pay less money and the same or better benefits as a policy sold through the National Flood Insurance Program?

You might. That's what Louis G. Fey Jr. did. Fey is vice president of risk management for Wri Percy Insurance in Baton Rouge. He's one of a small but growing number of homeowners in flood-prone areas who have made the move to private flood coverage.

But the obvious allure of private flood insurance, which isn't available to people living in high-risk zones, underscores what experts say could be a much larger downside. Private insurers cherry-picking properties in the least risky areas eventually could doom the already underfunded, government-sponsored National Flood Insurance Program, Fey and others sai



"It gives me the same limits of coverage for about \$200 less a year," Fey said of his private po "but I also get additional living expenses and replacement cost coverage, which I can't get through the National Flood Insurance Program."

Under NFIP, a homeowner can purchase up to \$250,000 in coverage for structural damage a \$100,000 for contents. But contents coverage is limited to "actual cash value," or the replace cost minus depreciation. That means the gap between what the policy will pay for a 5-year- sofa and the cost for a new one can be considerable.

Fey's private flood policy includes replacement cost, the actual amount he would need to bu

new sofa or a television. In addition, and unlike NFIP policies, his new policy includes additional living expenses, money that covers costs such as a hotel room if flooding renders his house uninhabitable.

"What's happening is these private insurers are gobbling up all these prime properties that are not in flood-prone areas," Fey said. "And they're able to do that and reduce premium and give better coverage for those risks because (those properties) probably are not going to flood."

RELATED



Louisiana Spotlight: Without more federal aid, thousands of flood victims will be left on their own

If the same people buy coverage through NFIP, they pay more because they're helping subsidize premiums for more flood-prone homes, Fey said. By cost shifting, NFIP makes coverage more affordable for high-risk properties.

Fey bought his policy from Western World, a surplus lines company, whose officials were not available for comment over the past two weeks.

Surplus lines companies' rates are regulated in the state where their headquarters are located. If they do business in Louisiana, they must register and meet eligibility and financial requirements, such as \$15 million in capital and surplus, although the insurance commissioner can approve totals as low as \$4.5 million. If the companies fail, their claims won't be paid by the state's guaranty fund. Surplus lines companies have been selling flood insurance for years, but those typically are supplemental policies that cover any damage above the NFIP limits or provide additional benefits.

In Louisiana, surplus lines companies don't sell much in the way of flood insurance.

The 20 largest surplus lines brokers in Louisiana had just \$1.1 million in annual premiums for the same kind of coverage offered by NFIP, state Insurance Commissioner Jim Donelon said. The Insurance Department does not know how many properties are covered, but Donelon believes lower premiums drove the purchases.

The most recent figures show NFIP covers 480,000 residential and commercial properties in Louisiana, representing \$355 million in annual premiums.

RELATED



Political Horizons: Disaster cash shuffle gets political during Ben Carson's confirmation hearing featuring U.S. Sen. John Kennedy

Neither Donelon nor the National Association of Surplus Lines Offices expect surplus lines companies will take away much of the flood business from NFIP — for now. That's because the main driver for flood insurance is lenders requiring homebuyers in high-risk zones to carry the coverage, and that the coverage is from NFIP, Donelon said.

Brady Kelley, executive director of the National Association of Surplus Lines Offices, said surplus lines companies excel at underwriting very specific risks, but those risks tend to be more complex. This more granular approach, while effective, tends to limit the volume of property surplus lines companies insure against flooding.

Kelley expects the real competition for NFIP will come from standard carriers, companies like Chubb and AIG, which are state-regulated.

Standard carriers have steered clear of offering their own flood policies for half a century. The NFIP was established in 1968 because property owners couldn't buy flood insurance on the private market.

But Congress opened the door to private flood insurance in the 2012 bill reauthorizing the NFIP. So far only a few standard carriers have stepped in, but could find that door opening wider when Congress renews the program, which expires Sept. 30.

At present, several dozen standard companies, which represent a very large share of the private insurance market, write and service NFIP policies, Kelley said. But under federal law, the companies that sell NFIP policies can't offer their own competing products.

Private flood coverage also has been limited by the 2012 bill's wording, which led to some uncertainty about whether private flood policies meet mortgage lenders' requirements, Kelley said.

said. The U.S. House of Representatives attempted to clarify the law in 2016 but the rewrite didn't make it out of the Senate.

Donelon said he expects Congress will tackle the issue again.

RELATED**Stephanie Grace: Where's the urgency on climate change?**

There's a much greater push from reinsurers and standard companies anxious to get into the private flood insurance market, Donelon said. Reinsurers, which insure insurance companies flush with cash from investors and looking for other opportunities to profit. For the moment their focus is on private flood policies.

"Insurers always feel they can price that risk. That's what they do. That's their profession," Donelon said.

The appetite for the private flood business varies from state to state, although the trend is new that national figures aren't yet available. The National Association of Insurance Commissioners began gathering data in 2016 and expects to issue a report around March.

The move to basic private flood coverage began just a couple of years ago, said Aaron Brandenburg, statistical information manager for the NAIC.

"There wasn't much written. Even now most of it's written on a surplus-lines basis," Brander said.

A number of "Lloyds companies" — insurance syndicates where members assume part of every risk — have been active in the South's private flood market.

Don Griffin, vice president of personal lines for the Property Casualty Insurers Association of America, said Florida has the most progressive stance on private flood coverage.

Three years ago, the state passed a law to make it easier for insurers to move into the business, Griffin said. Still, there are probably fewer than 10,000 private flood policies in Florida, which

about 1.8 million NFIP policies.

In Louisiana, none of the standard companies offer basic flood coverage for homeowners, Donelon said, and only a few surplus lines companies do.

It's different in Pennsylvania, where the state Insurance Department set up a flood insurance web page that includes contact information for 17 standard companies and 40 surplus lines brokers. The department launched the page in February to help consumers find cheaper alternatives to NFIP, spokesman Ron Ruman said.

When the Federal Emergency Management Agency, which oversees NFIP, redrew flood map many homeowners found themselves in high-risk flood zones for the first time. Flood insurance rates soared.

By encouraging private flood coverage, Pennsylvania has saved some serious cash for consumers whose homes may have been redrawn into flood plains, or whose property is only partially in flood plain. One homeowner who was paying \$2,000 for an NFIP policy found private coverage for \$400, according to the department. Another cut flood insurance premiums by \$2,000 a year.

Pennsylvania Insurance Commissioner Teresa Miller has warned the private market probably won't insure homes in the highest-risk areas.

But Griffin, with the Property Casualty Insurers Association of America, expects insurers to move on higher-risk properties.

"It will happen. It will happen. If they think they can make money, they will underwrite the risk," he said.

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ASFP Detailed Priorities for NFIP Reauthorization and Reform

June 17, 2016

- **Reauthorize, fund and enhance the National Flood Mapping Program**
 - Support the Congressional group's request to provide authorization up to \$1.5 billion annually to expedite the completion of flood mapping for every community in the United States
 - Reiterate support for mapping future conditions as called for in BW 2012
 - Create new flood zones to better reflect risk (such as those for residual risk areas)
 - Prioritize high quality topography to accurately depict flood hazard areas
 - Prohibit/eliminate the LOMR-F and associated floodway creep
 - Require all A-Zones to be model based
 - Prohibit digital conversion of flood maps unless new engineering is done
- **Ensure parity between private sector flood insurance and the NFIP**
 - Require equivalency fee (equal to federal policy fee) on all first dollar private flood insurance policies to help pay for flood mapping and floodplain management
 - Allow lenders, not require them, to accept private policies
 - Ensure that consumers know limits and other differences between private flood insurance policies and NFIP policies
 - Require that private, first dollar flood policies have comparable coverages, including a provision to pay for mitigation such as ICC
 - Ensure federal lenders and GSEs have flexibility to make their own risk management determinations, and are not forced to accept any policy approved by state insurance regulations
 - Ensure that the NFIP does not become only the insurance program of last resort / residual program so it only has the highest risk policies in its portfolio.
 - Provided that private flood policies have comparable coverages, provide for seamless portability between NFIP and private policies to satisfy requirements of continuous coverage
- **Address affordability**
 - Implement a comprehensive affordability framework
 - Eliminate policy surcharge imposed by the HFIAA 2014 legislation
 - Subsidize mitigation, not insurance, to promote safety and affordability
 - Explore providing low cost mitigation loans under the umbrella of the Flood Mitigation Assistance program. The loans could be paid for by FMA. The property owner would repay the loan upon sale of the property

ASFPM Detailed Priorities for NFIP Reauthorization and Reform (cont'd)

- **Support and enhance Increased Cost of Compliance**
 - If policy surcharge remains, use the proceeds of the surcharges imposed by the HFIAA 2014 legislation to support Increased Cost of Compliance (ICC) to boost mitigation and reduce losses to the Fund
 - Require FEMA to fully implement all aspects of existing ICC statutes within 1 year of 2017 NFIP reform
 - Increase ICC limit to at least \$60,000. This could be done in the context of requiring a co-pay percentage for ICC funds over \$30,000
 - Allow for ICC claims to be in addition to the maximum claim limit under the standard flood insurance policy
 - Allow ICC to be triggered by non-flood related damage events
 - Expand eligible items to be paid under ICC to be substantially similar to eligible items under the FEMA HMA grants
- **Support pre-disaster mitigation of at-risk structures**
 - Explore requiring annual FMA funding requests to support mitigating 5% of the repetitive loss properties each year
 - Ensure that FMA is also available for high at-risk properties that may not yet have suffered a loss
 - Require FEMA to develop and execute a comprehensive repetitive loss strategy including a requirement to go to full actuarial rates unless mitigation occurs after a certain number of claims
- **Other**
 - Forgive the current debt by recognizing it as emergency disaster expenditures and create an automatic, long-term mechanism within the NFIP that ensures, after a certain threshold of catastrophic events, the debt will be paid by the US Treasury after consideration of the balance of the reserve fund, utilization of reinsurance, and ability of the policy base at that time to repay
 - Improve insurance agent training to include mandatory training and continuing education
 - Consider some limitation on the maximum number of insurance claims per property. This will help limit taxpayer exposure but the limitations should be tied to mandatory mitigation assistance or otherwise face full actuarial rates
 - Consider the requirement that all property owners obtain and maintain flood insurance

BCP Fiscal Detail Sheet

BCP Title: Central Valley Flood Protection Board Permitting and Enforcement

BR Name: 3860-012-BCP-2017-GB

Budget Request Summary

	FY17					
	CY	BY	BY+1	BY+2	BY+3	BY+4
Personal Services						
Positions - Permanent	0.0	9.0	9.0	9.0	0.0	0.0
Total Positions	0.0	9.0	9.0	9.0	0.0	0.0
Salaries and Wages						
Earnings - Permanent	0	725	725	725	0	0
Overtime/Other	0	10	10	10	0	0
Total Salaries and Wages	\$0	\$735	\$735	\$735	\$0	\$0
Total Staff Benefits	0	350	350	350	0	0
Total Personal Services	\$0	\$1,085	\$1,085	\$1,085	\$0	\$0
Operating Expenses and Equipment						
5301 - General Expense	0	763	763	763	0	0
5302 - Printing	0	5	5	5	0	0
5304 - Communications	0	20	20	20	0	0
5306 - Postage	0	5	5	5	0	0
5320 - Travel: In-State	0	50	50	50	0	0
5322 - Training	0	25	25	25	0	0
5324 - Facilities Operation	0	25	25	25	0	0
5326 - Utilities	0	3	3	3	0	0
5340 - Consulting and Professional Services - External	0	50	50	50	0	0
5340 - Consulting and Professional Services - Interdepartmental	0	89	89	89	0	0
5368 - Non-Capital Asset Purchases - Equipment	0	80	80	80	0	0
Total Operating Expenses and Equipment	\$0	\$1,115	\$1,115	\$1,115	\$0	\$0
Total Budget Request	\$0	\$2,200	\$2,200	\$2,200	\$0	\$0
Fund Summary						
Fund Source - State Operations						
0001 - General Fund	0	2,200	2,200	2,200	0	0
Total State Operations Expenditures	\$0	\$2,200	\$2,200	\$2,200	\$0	\$0
Total All Funds	\$0	\$2,200	\$2,200	\$2,200	\$0	\$0

Program Summary

Program Funding

3250 - Central Valley Flood Protection Board	0	2,200	2,200	2,200	0	0
Total All Programs	\$0	\$2,200	\$2,200	\$2,200	\$0	\$0

Personal Services Details

Positions		Salary Information			<u>CY</u>	<u>BY</u>	<u>BY+1</u>	<u>BY+2</u>	<u>BY+3</u>	<u>BY+4</u>
		Min	Mid	Max						
3042	- Engring Assoc (Spec) (Eff. 07-01-2017)				0.0	4.0	4.0	4.0	0.0	0.0
3137	- Engr - Water Resources (Eff. 07-01-2017)				0.0	3.0	3.0	3.0	0.0	0.0
3261	- Sr Engr (Eff. 07-01-2017)				0.0	1.0	1.0	1.0	0.0	0.0
4962	- Sr Right of Way Agent				0.0	0.0	0.0	0.0	0.0	0.0
4965	- Assoc Right of Way Agent (Eff. 07-01-2017)				0.0	1.0	1.0	1.0	0.0	0.0
OT00	- Overtime				0.0	0.0	0.0	0.0	0.0	0.0
Total Positions					0.0	9.0	9.0	9.0	0.0	0.0
Salaries and Wages		CY	BY	BY+1	BY+2	BY+3	BY+4			
3042	- Engring Assoc (Spec) (Eff. 07-01-2017)	0	280	280	280	0	0			
3137	- Engr - Water Resources (Eff. 07-01-2017)	0	188	188	188	0	0			
3261	- Sr Engr (Eff. 07-01-2017)	0	114	114	114	0	0			
4962	- Sr Right of Way Agent	0	78	78	78	0	0			
4965	- Assoc Right of Way Agent (Eff. 07-01-2017)	0	65	65	65	0	0			
OT00	- Overtime	0	10	10	10	0	0			
Total Salaries and Wages		\$0	\$735	\$735	\$735	\$0	\$0			
Staff Benefits										
5150350	- Health Insurance	0	175	175	175	0	0			
5150600	- Retirement - General	0	175	175	175	0	0			
Total Staff Benefits		\$0	\$350	\$350	\$350	\$0	\$0			
Total Personal Services		\$0	\$1,085	\$1,085	\$1,085	\$0	\$0			

POV	
Year	FY17
Department	3860
House	GB Working
BR Name	3860-012-BCP-2017-GB
Run Time	12/19/2016 01:53:25 PM
Last Data Refresh	12/19/2016, 12:07 PM