



Improving Floodplain Management: Implications for Salmon, Public Safety, and Global Warming

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Why Does National Wildlife Federation Care about Floodplains?



National Wildlife Federation

- Mission:
 - Inspire Americans to protect wildlife for our children's future
- Members:
 - 4 million members; 48 affiliates
 - Hunters; anglers; gardeners; outdoor enthusiasts
 - Republicans and Democrats
- Strengths:
 - Science, policy, education, grassroots mobilization, litigation



NWF's Focus

- Drivers:
 - Confront global warming (mitigation)
 - Safeguard wildlife from the impacts of climate change (adaptation)
 - Connect people with nature
- Climate Change is the most urgent threat to fish, wildlife, and the natural resources they need to survive



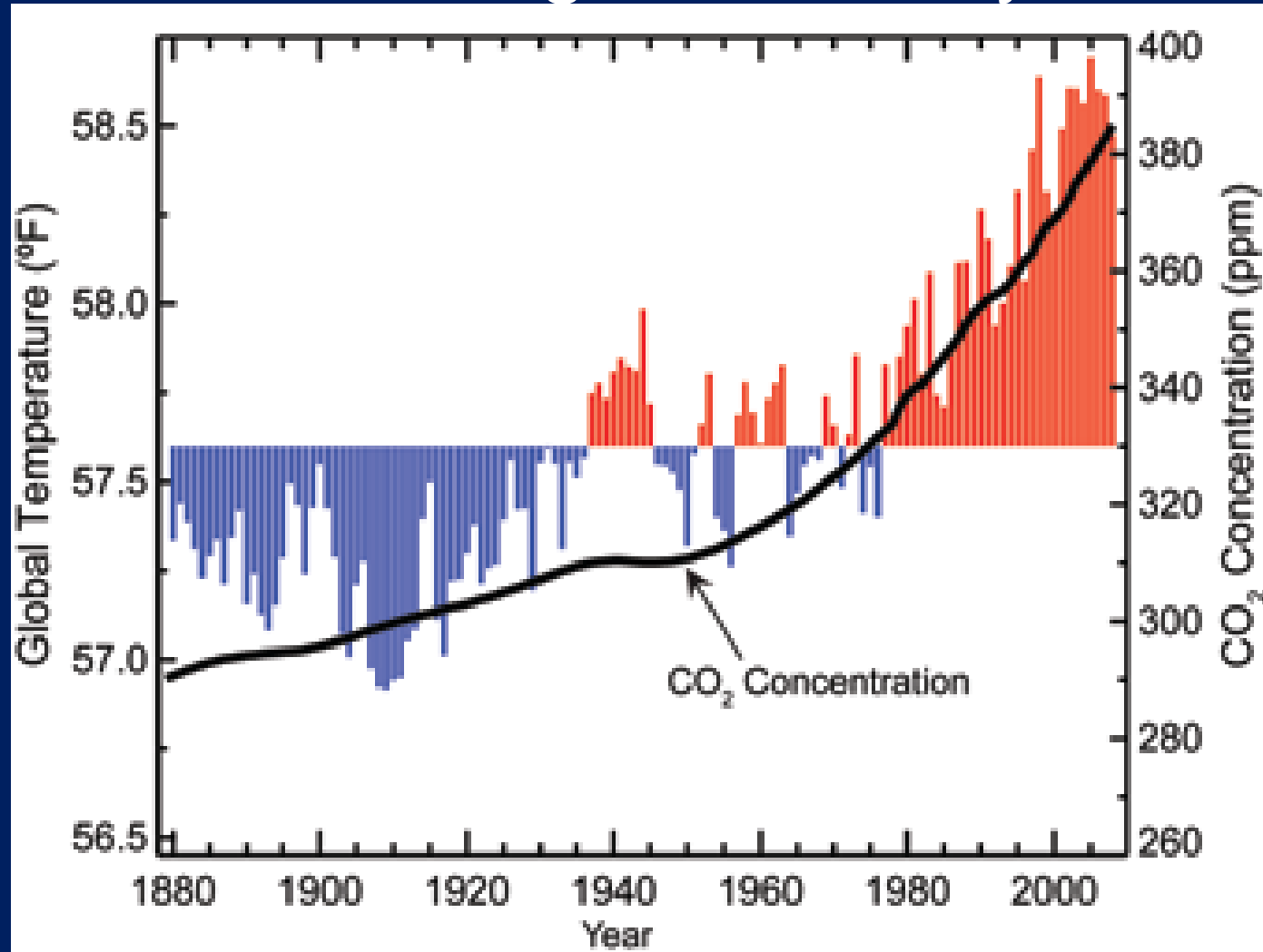
Floodplains = Habitat

ESA Listed Floodplain Species:

- Puget Sound: Salmon, steelhead and Orca
- Florida: Key Deer
- Oregon: Salmon
- Missouri: Least tern, pallid sturgeon
- Virginia: Sea turtles, sturgeon, tiger beetle
- Atlantic coast: sea turtles
- California Delta: Delta smelt, salmon, steelhead
- California (Santa Clara River): Steelhead, Tidewater Goby, Western Snowy Plover
- Arizona: Jaguar, southwestern willow flycatcher, razorback sucker
- Hawaii: Shorebirds, turtles, monk seal
- Texas; New Mexico; Others?



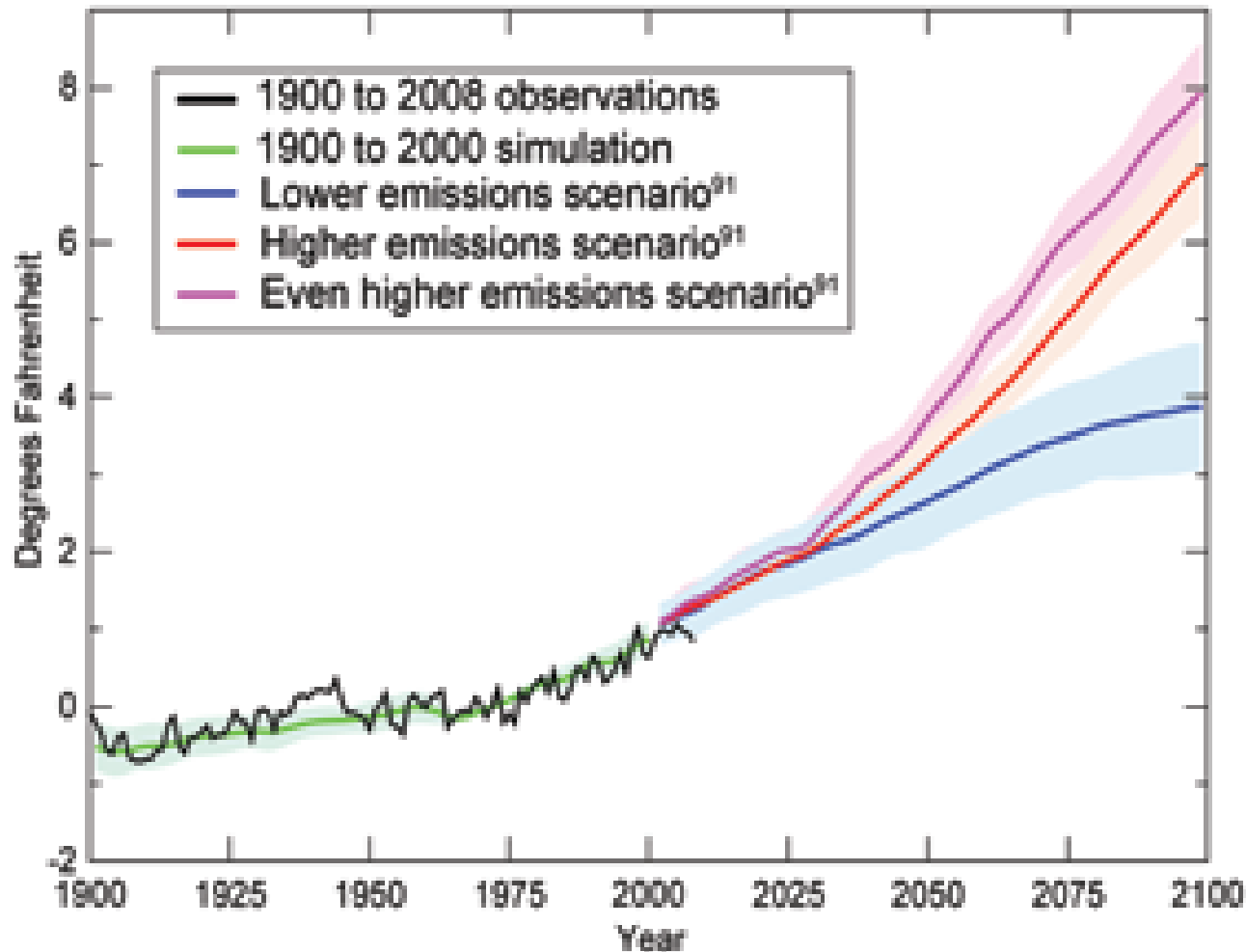
Climate Change is Already Affecting Us



Temperature has risen 1.5° since 1900

Global Temperature and CO₂

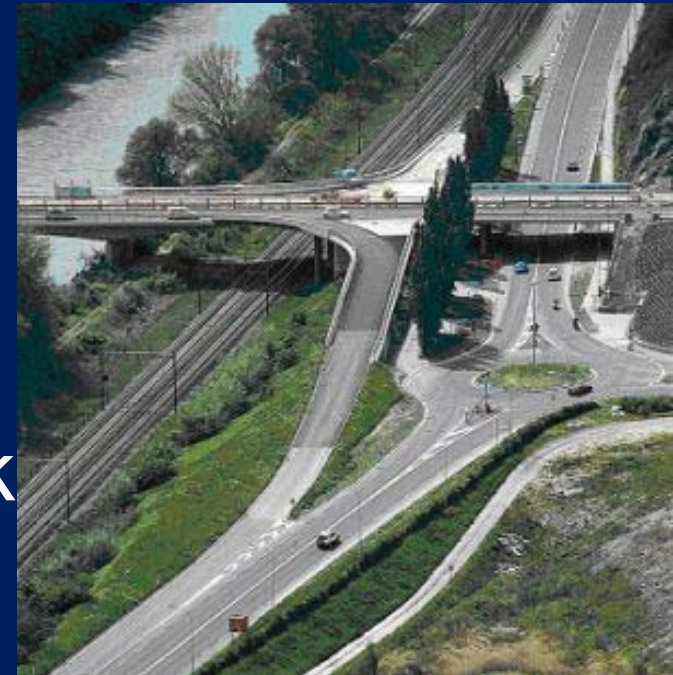
Temperature will rise 2° to 11.5°F



Changes are relative to the 1960-1979 average

Climate Change Impacts on Fish and Wildlife

- Exacerbates existing stressors
 - Habitat degradation, fragmentation, loss
- Adds new stressors
 - Increased temperature
 - Floods and scouring
 - Less water in summer
 - Increased pests and disease
- 20% - 30% of species at risk of extinction

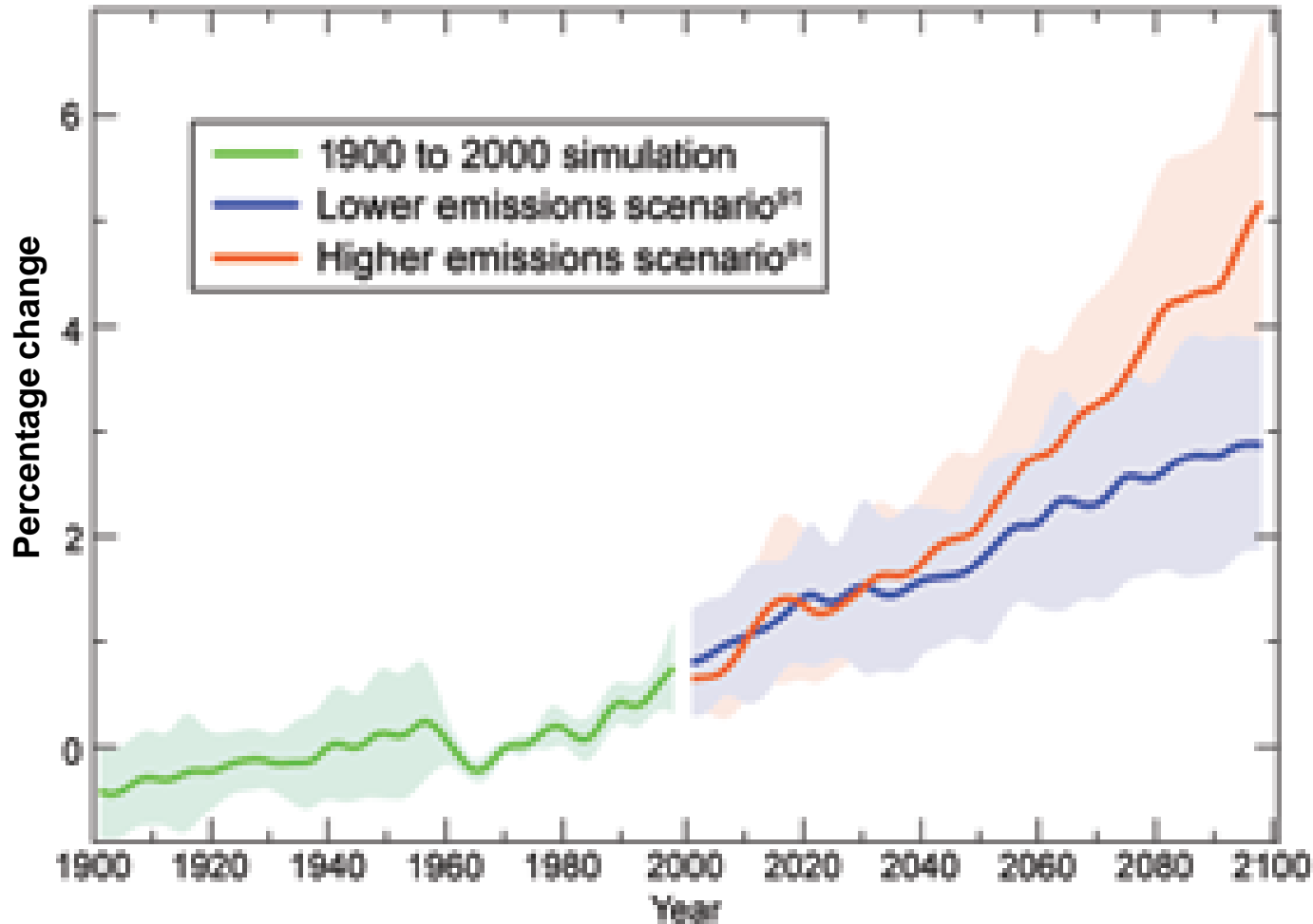


Floodplains = Migration Corridors

- Climate change pushing ranges north and upslope
 - Route for species movement
- Critical link to salmon habitat in higher, undeveloped areas
 - Temp; Water Quality



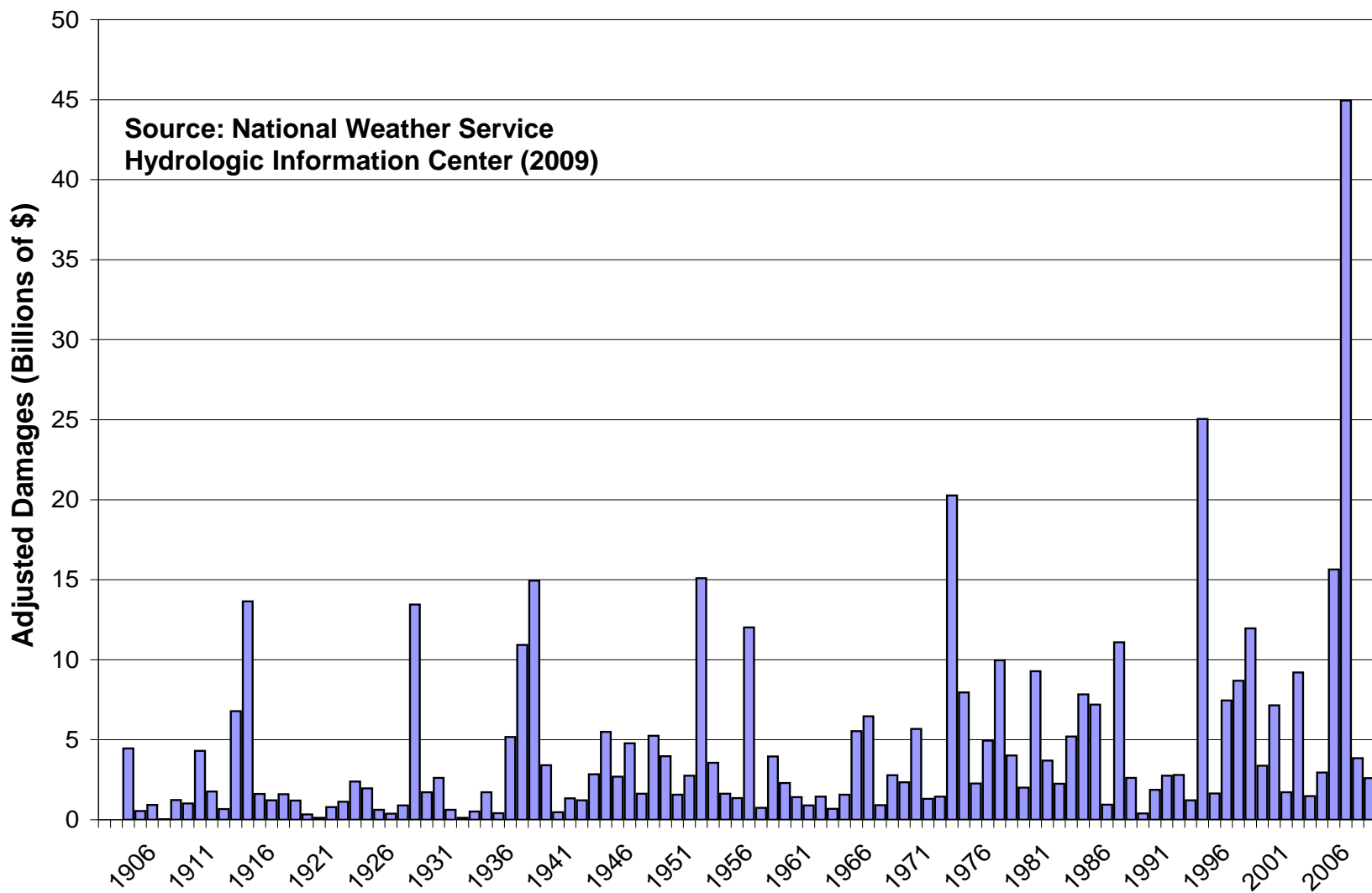
Heaviest Precipitation Events Increasing Flood Risk Increasing



Projected changes in precipitation falling in the heaviest 5 percent of daily events.

Changes are relative to the 1960-1979 average.

Annual Flood Damages are Increasing



Implications for Washington

- Flood frequency will increase January-March in transient basins (CIG)
 - Puget Sound
 - Southwest Washington
 - Low elevations east of Cascades
- Flood risk increases steadily over time (CIG)

Projected Sea Level Rise around San Francisco Airport (SFO)

Light Blue: Area Vulnerable to an approx. 16 in sea level rise by mid century

Dark Blue: Area Vulnerable to an approx. 55 inch sea level rise by end of century



Source: 2009 California Climate Adaptation Strategy Discussion Draft

National Flood Insurance Program



Purposes:

- Make flood insurance available on nationwide basis
- Reduce federal expenditures for disaster assistance and flood control.
- Guide development away from flood hazard areas
 - State and local regs

How NFIP Works

- Provide flood insurance to communities that *choose* to participate
 - Quid Pro Quo for insurance: sound floodplain management; landuse controls – reduce flood risk
- FEMA sets minimum criteria for NFIP participation
- NFIP actually subsidizes and encourages development in Floodplains
 - Most development in coasts and floodplains dependent on NFIP insurance
- Result has been massive development of coasts and floodplains; increased flooding and costs
 - NFIP debt is \$19 Billion and climbing

Flooding / NFIP Facts

Since 1990:

- 13 flood disaster declarations in PS
 - January 2009 Floods: 23 PS rivers flooded; 4 record floods
- Interstate 5 closed 4 times
 - \$181 million in losses in past 2 years
- \$860 million in flood losses
- 10.3 Sq. miles of floodplain lost every year in Puget Sound
- King Co. is CRS Class 2
 - Highest County Rating in Nation

Interstate 5 Flood Damage
Chehalis, Dec. 2007

Photo: THE OREGONIAN/Bruce Ely





Reforming the National Flood Insurance Program

- Decades of complaints that NFIP encourages development in flood-prone areas
- NFIP subsidy fueling harmful development of coastal and floodplain habitats
- Inability to obtain NFIP insurance would effectively stop development in flood hazard areas
 - Good for wildlife, communities, public safety, & taxpayers.

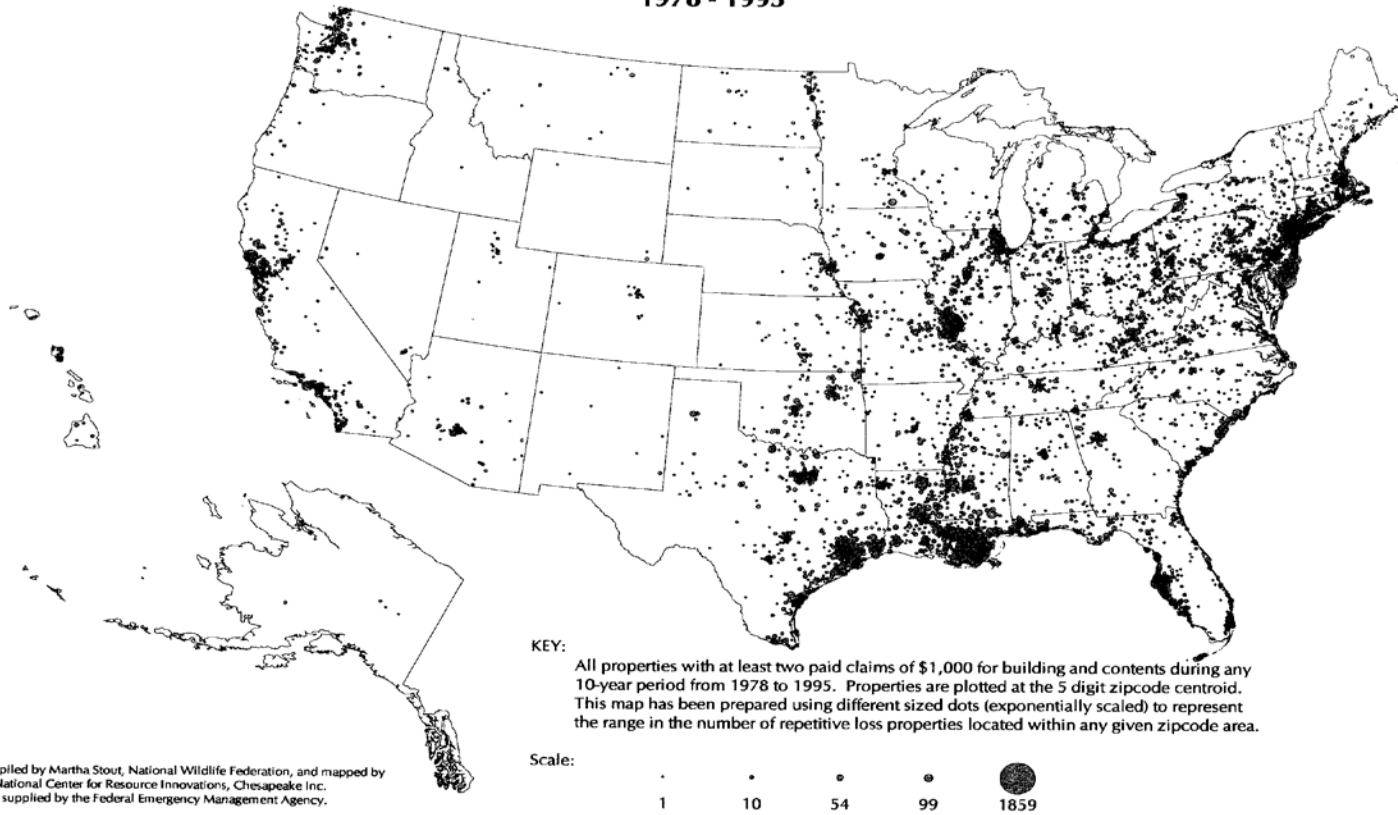


NFIP Evaluations

- 1998 NWF Report: Higher Ground
 - 2% of properties were generating nearly 40% of NFIP losses
 - 20% of repetitive losses occur outside floodplains
- 2006 Major Evaluation of NFIP, Led by American Institutes for Research. Findings:
 - Risky development continues due to lack of provisions to discourage development
 - Maps don't delineate some types of hazards and many floodplain areas
- 2009 Homeland Security Inspector General Report
 - Repetitive losses increasing; outpacing FEMA mitigation efforts 10 to 1
 - Florida, Louisiana and Texas are worst offenders

Repetitive Loss Properties

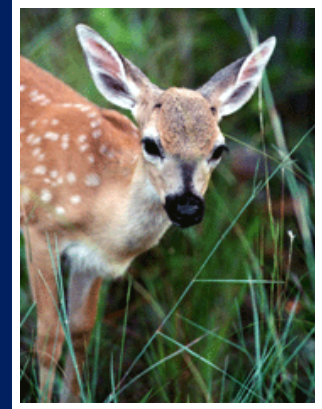
**U.S. Properties with Repetitive Loss Claims Paid by the National Flood Insurance Program
1978 - 1995**



Compiled by Martha Stout, National Wildlife Federation, and mapped by the National Center for Resource Innovations, Chesapeake Inc. Data supplied by the Federal Emergency Management Agency.

ESA v. NFIP

- 1994: Florida Key Deer ESA Lawsuit
 - Moratorium on development;
 - Still in court
- 2004: Puget Sound ESA Lawsuit
 - FEMA must consult with NMFS re: potential impacts of NFIP on listed salmon in PS



ESA Legal Claim

- ESA Sec. 7: Federal agencies must ensure their actions do not:
 - Jeopardize listed species
 - Adversely modify critical habitat
- If discretionary agency action might cause harm, must consult
- Courts found FEMA has discretion over:
 - Floodplain mapping
 - Minimum floodplain management criteria (for community inclusion in program)
 - Community rating system
- Therefore, FEMA must consult
- Sec. 7 Consultation results in Biological Opinion

Sept. 2008 Biological Opinion National Marine Fisheries Service Found:

- NFIP jeopardizes existence of
 - 3 salmonid populations
 - PS Chinook salmon
 - PS steelhead
 - Hood Canal summer-run chum salmon
 - Southern Resident killer whale population
- Adversely modifies critical habitat for:
 - PS Chinook salmon
 - Hood Canal summer-run chum salmon
 - Southern Resident killer whale



Reasonable and Prudent Alternatives (RPAs)

1. Notify participating PS communities- Temporary moratorium
 - Done
2. Update Floodplain maps; change modeling methods
 - Implement changes by March 09
3. Modify Floodplain management criteria
 - Tier 1: 1 year; Tier 2: 2 years; All: 3 years
4. Community Rating System
 - Make changes by June 09
5. Levee Vegetation Maintenance and construction
 - Sept. 2010
6. Floodplain mitigation activities
 - Now till full implementation of elements 2, 3, 5.
7. Monitoring and adaptive management
 - Annual reports to NMFS on progress, timelines, on-the-ground NFIP effects

Momentum for National Change

- 2008 Flood damage = \$5.5 Bil.
 - \$3 Bil more than avg. bt. 2000 -2007
- Floods are growing due to climate change
 - Repetitive losses increasing
- NFIP \$19 Billion in debt; not actuarially sound
- NFIP up for Congressional reauthorization
- At least 9 ESA lawsuits; more planned

NWF National Floodplain Agenda

- NFIP eligibility criteria must reduce flood risk and protect natural resources
- FEMA mapping must accurately reflect risk and prioritize natural resources protection
- Rates must reflect risk and provide incentive for floodplain and natural resource protection
- Prefer natural approaches to reduce flood risk
 - Levees as last resort
- Disaster relief programs must encourage floodplain protection

NWF Position

- Protecting floodplain habitat is consistent with reducing flood risk.
- FEMA has a national responsibility to minimize harm to all ESA species everywhere
 - Not just Puget Sound

Stormwater Management Solutions

- Ecosystem approach—Natural systems
 - Forestry practices
 - Protect & restore floodplain functions
 - Buffers
- Low Impact Development
 - Maintain (improve?) pre-development hydrology
- Levee Setbacks



Recap

- Floodplains are habitat
- Climate change will lead to more intense storms and flooding
- Protecting floodplain habitat is good for public safety, taxpayers, communities, and the environment
- Natural solutions are preferred
- FEMA has a national responsibility to minimize harm to all ESA species everywhere

Thank you

