

Old data won't protect against future flood risk

THE STATUS QUO HAS CHANGED

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The Conversation article

Urgent demand from municipalities



America's aging flood control infrastructure is failing – federal funding is coming, but too often new construction relies on old data

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Mississippi River flooding left parts of Davenport, Iowa, under water in May 2023. KC McGinnis/For The Washington Post via Getty Images

Heavy downpours and a thick snowpack in the Western mountains and Upper Midwest have put communities in several states at risk of flooding this spring – or [already under water](#).

Flooding is the costliest type of natural disaster in the U.S., responsible for about [90% of the damage](#) from natural disasters each year. It happens [almost every day](#) somewhere in the country.

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NATIONAL MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) NEEDS ASSESSMENT SURVEY

Topics discussed in the article:

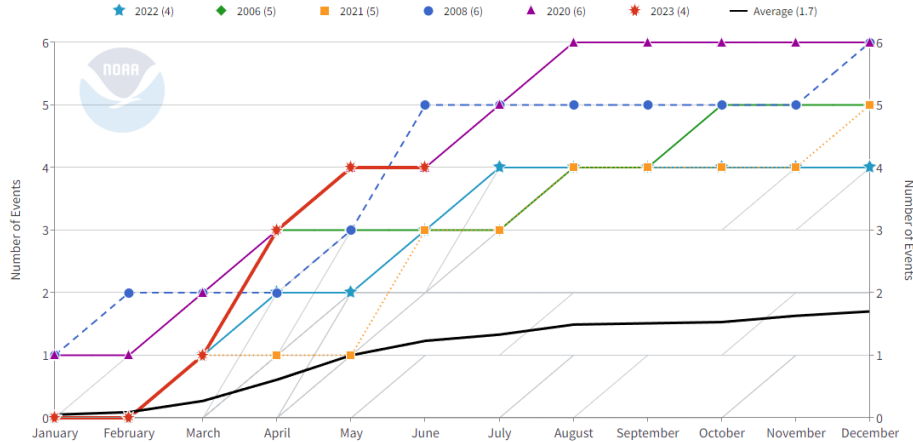
- Infrastructure is failing
- Old data won't protect against future flood risk
- What can communities do?

MS4s (643 respondents from 47 U.S. states) expressed an urgent need for more detailed information on projected rainfall depths, storm durations, and their impact on infrastructure sizing guidelines.

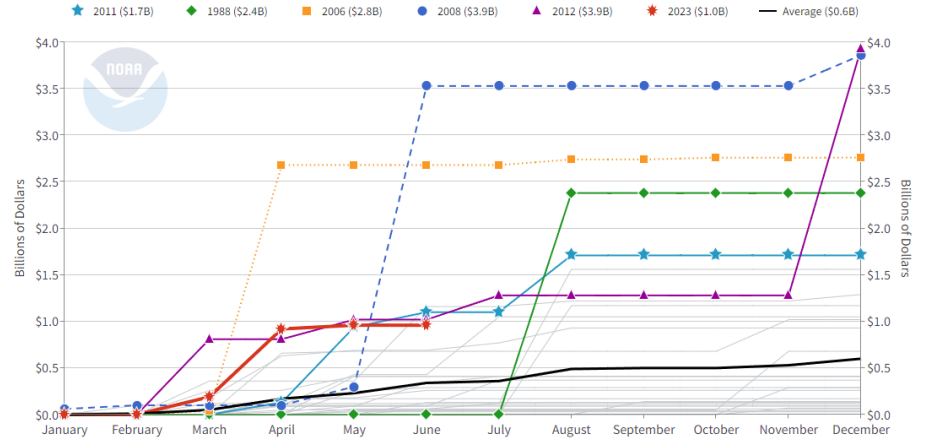
Billion-dollar disasters in Indiana

Drought + Flooding + Severe Storm

1980-2023 Indiana Billion-Dollar Disaster Year-to-Date Event Count (CPI-Adjusted)



1980-2023 Indiana Billion-Dollar Disaster Year-to-Date Event Cost (CPI-Adjusted)



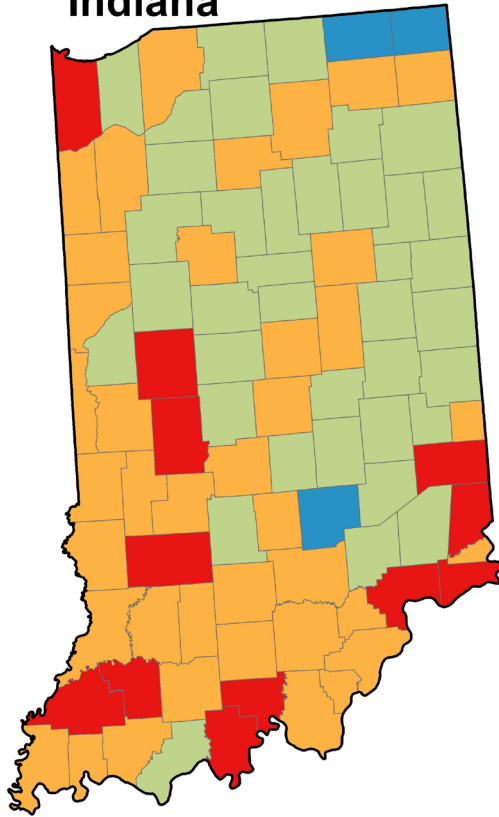
Number of events

These 3 disasters comprise **86.5%** of the total number of disasters
(9% + 6.7% + 70.8%)

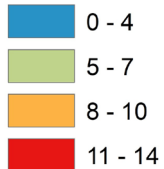
Economic damages

These 3 disasters represent **92.9%** of total disaster costs
(29.5% + 18.5% + 44.9%)

Indiana



No. Disasters

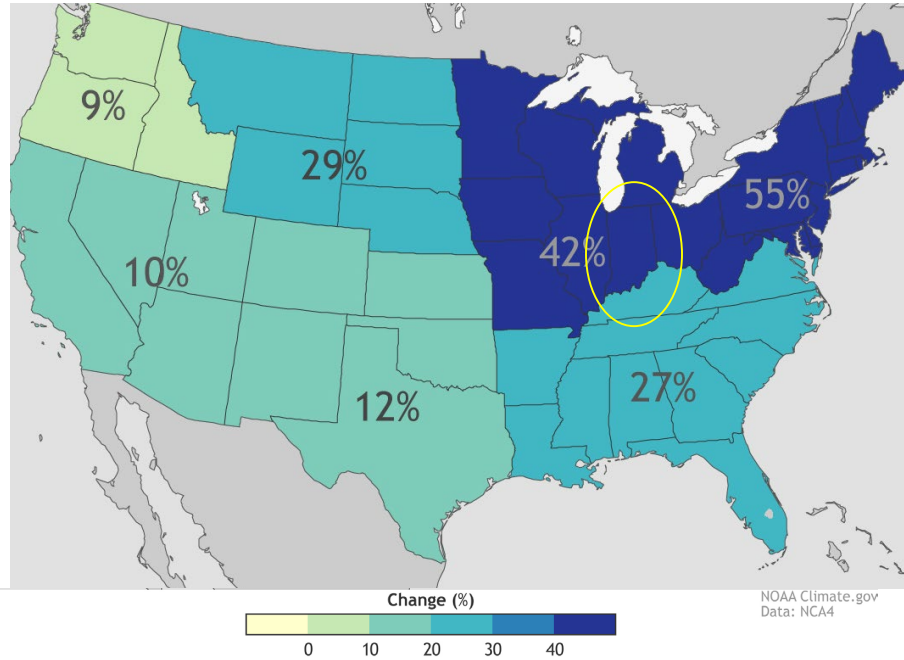


Flood-related declarations from 1989 to early 2022.

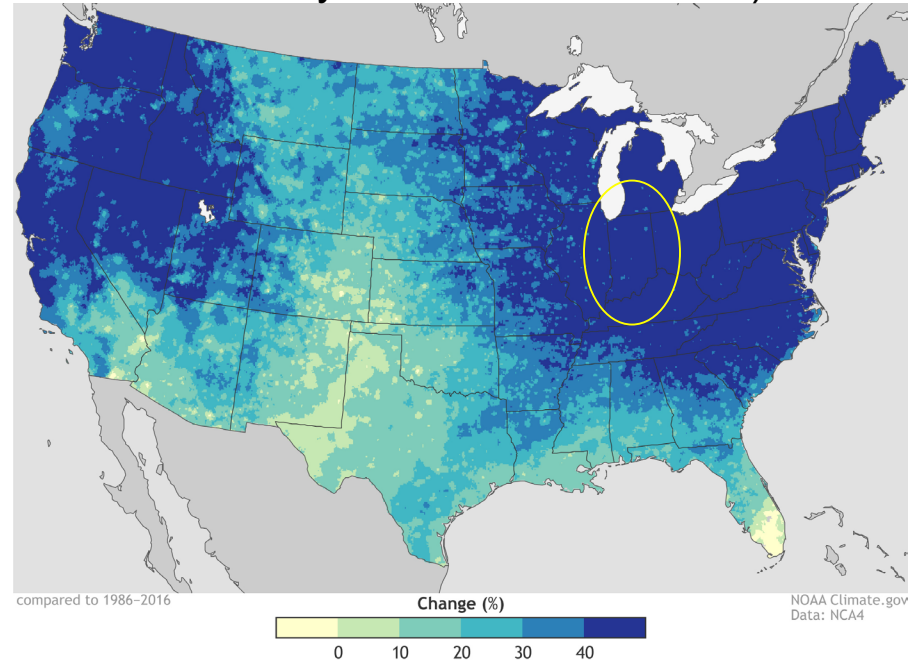
Exacerbated extreme rainfall

Status quo needs to change

Observed recent change (1958-2016)

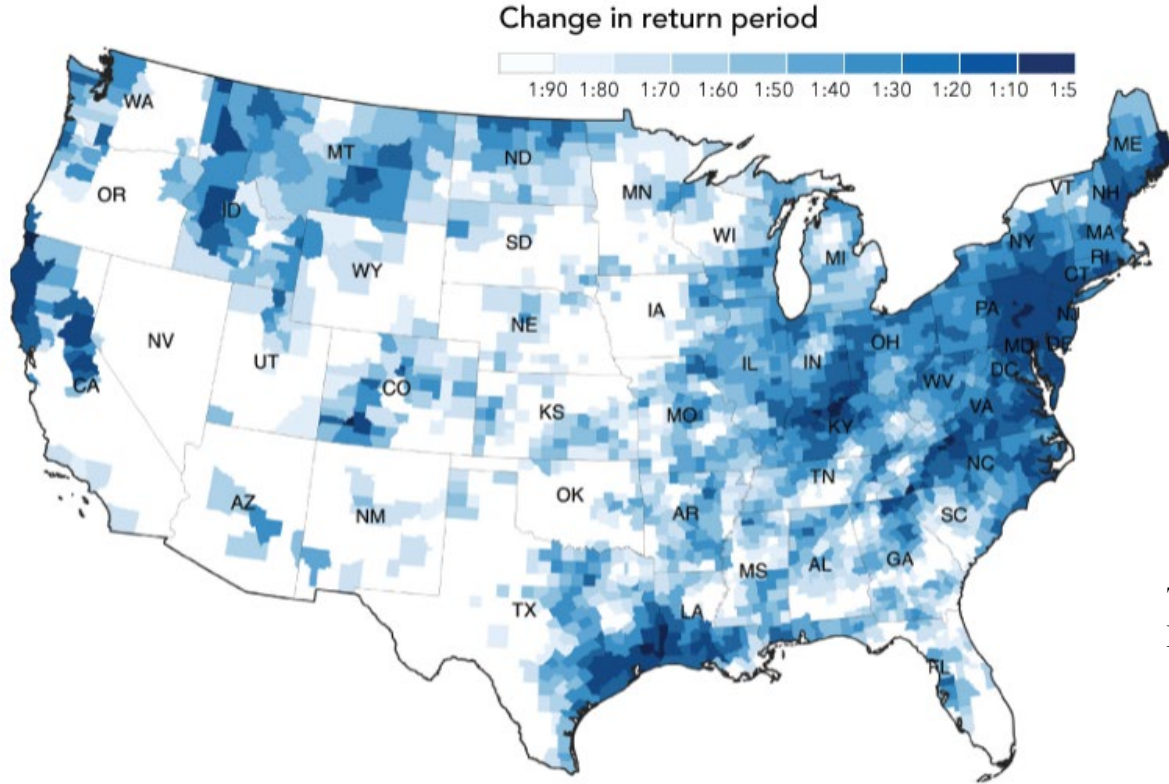


Future change under a warming climate (End of century relative to 1958-2016)



Design standards need to be updated

FSF-PM correction (in years) to Atlas 14's 1-in-100 year return period

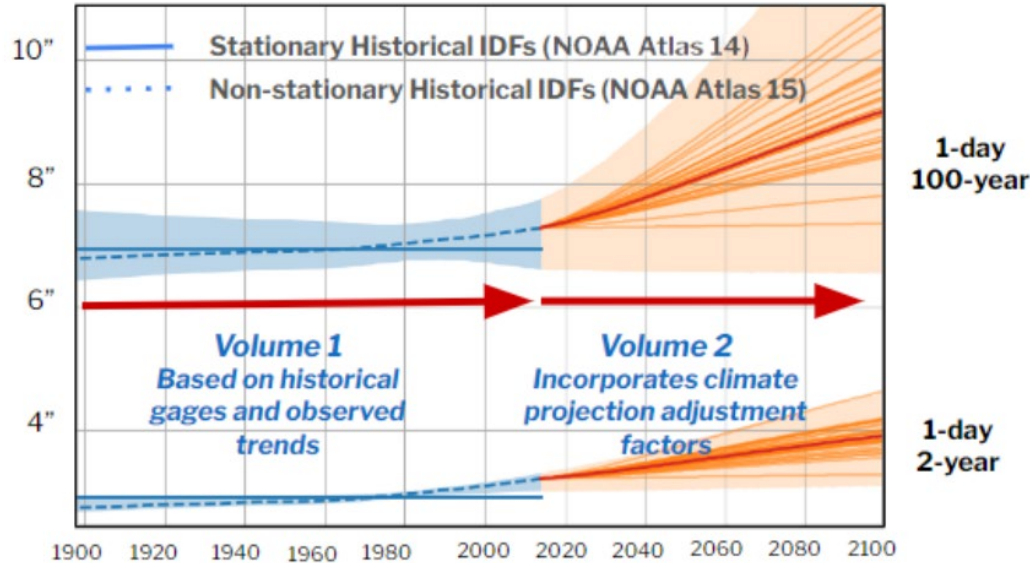


The Precipitation Problem

The 8th National Risk Assessment: The Precipitation Problem 1 © First Street Foundation

NOAA Atlas 15

New National Precipitation Frequency Standard

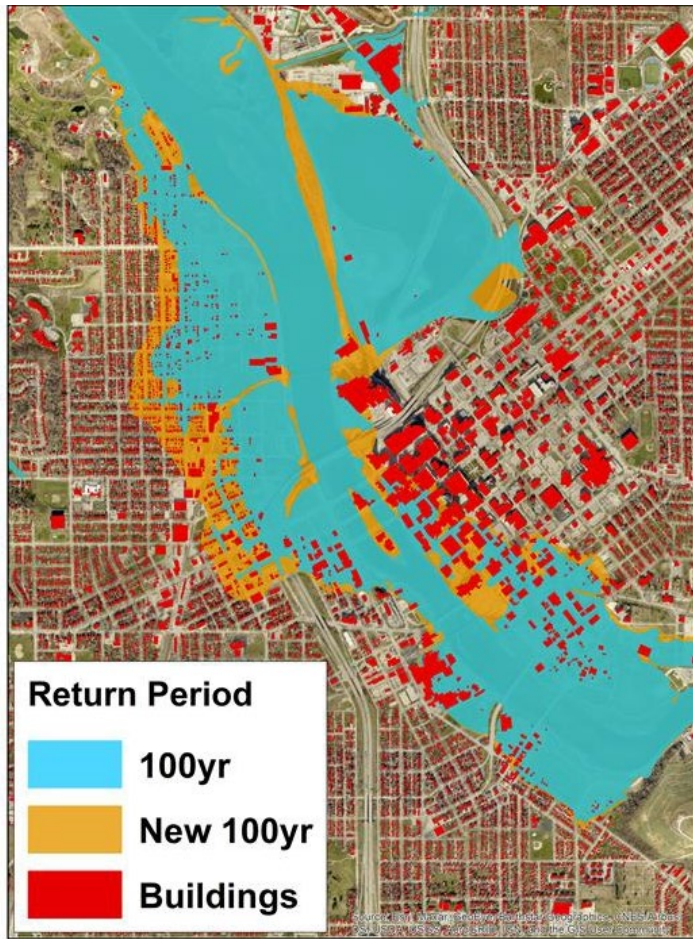


We are designing infrastructure based on a climate we no longer live in.

Historical and future intensity-duration-frequency estimates (IDFs)



**Updated floodplain maps
are key to decreasing
flood damages**



Floodplain	Number of Buildings
500 yr	2072
100 yr	581
<i>New 100yr</i>	<i>1121</i>

Updated floodplain maps allow people to know their actual flood risk

What can communities do?

- Reconsider building new homes in flood-prone areas (balance with political pressure and housing shortages)
- Incorporate climate change into infrastructure planning (change the status quo)
- Managed retreat from coastlines and riversides (more successful if community-led)
- Advocate for and invest in long-term solutions (\$1 for disaster mitigation saves \$6)



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