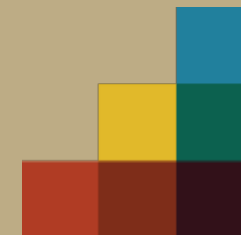


# Midwest Flooding: The Year's Biggest US Disaster

*Oct. 30, 2019*



EARLY  
RECOVERY  
FUND  
MIDWEST

# Moderator

2



**Regine A. Webster**

Vice President

*Center for Disaster Philanthropy*

# Thank You to Our Co-Sponsors



MINNESOTA COUNCIL  
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FOOD SYSTEMS FUNDERS



Kansas Association  
of Community Foundations



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network

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MISSISSIPPI  
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AND PHILANTHROPY



COUNCIL *on* FOUNDATIONS



NATIVE AMERICANS  
IN PHILANTHROPY

# How to Participate

4

- Use **#CDP4Recovery** to tweet along during the webinar.
- Submit questions using Q & A box at the bottom of your screen.
- Look for webinar recording and summary at [disasterphilanthropy.org](https://disasterphilanthropy.org).

# Goals for Today

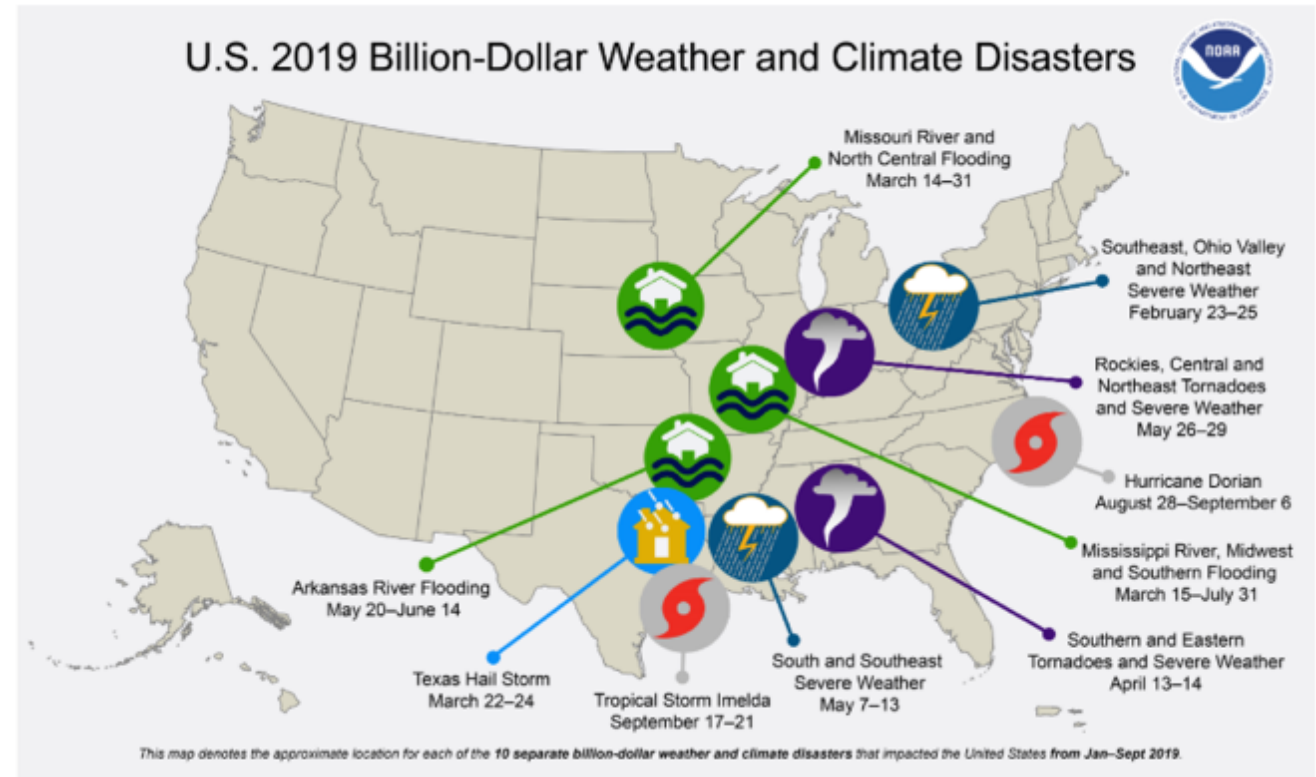
5

- An understanding of the extent and impact of flooding to date.
- Awareness of upcoming flood risks this winter and spring.
- Clear direction on what philanthropists should do now and in the next several months to help the recovery process.
- A sense of urgency around the magnitude of these disasters and the need to *do* something to support relief and recovery efforts.

# 2019 Floods

6

- So far in 2019 there have been 10 billion-dollar disasters. Three are flood-related:
  - ▣ Missouri River and North Central Flooding – March 14-31
  - ▣ Mississippi River, Midwest and Southern Flooding – March 15-July 31
  - ▣ Arkansas River Flooding – May 20-June 14
- FEMA has issued at least 13 declarations related to flooding including several states and a few tribal declarations.



# Speakers

7



**Nancy Beers**  
Director, Midwest  
Early Recovery Fund,  
*Center for Disaster  
Philanthropy*



**Dennis Today**  
Director, Midwest Climate Hub  
*USDA-ARS NLAE Ames, IA*



**Sara Going**  
*First National Bank of  
Omaha*



**Eric Tate**  
Associate Professor,  
*University of Iowa*



# Midwest Early Recovery Fund

8

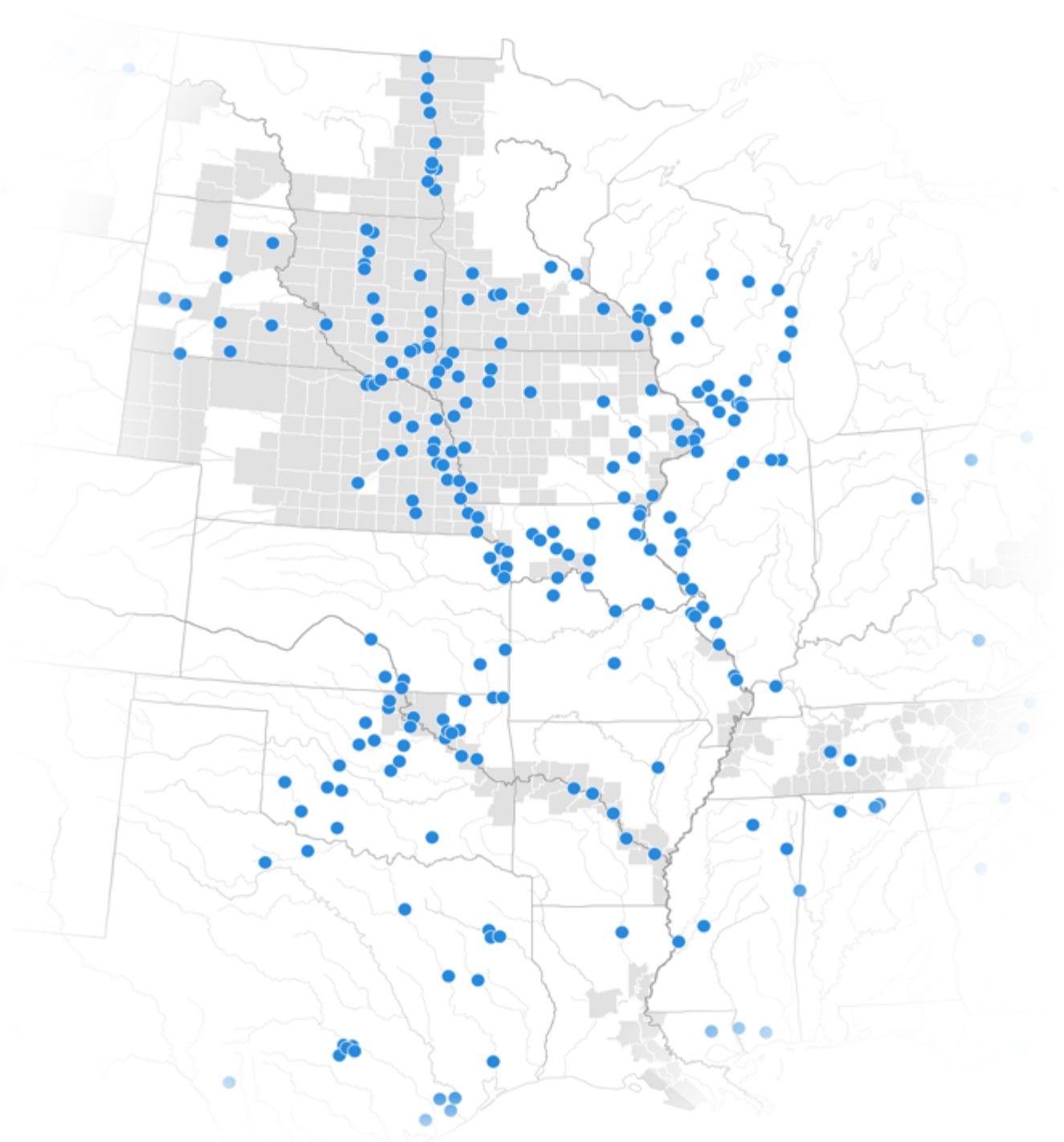


## **Nancy Beers**

Director, Midwest Early Recovery Fund,  
*Center for Disaster Philanthropy*



The Great Flood of 2019: A Complete  
Picture of a Slow-Motion Disaster  
**New York Times:** Sept. 11, 2019



# Widespread

*South Dakota, Nebraska and Iowa had widespread impacts from the Bomb Cyclone and ice jams as the spring thaw began....*

10



Niobrara River, Nebraska, March 2019



Pine Ridge Reservation, March 2019



Pacific Junction, Iowa, March 2019



Fairview, MT/East Fairview, North Dakota,  
March 2019

“I have a sense that some have underestimated the power of the Bomb Cyclone. It's like a 1,000 mile wide hurricane (winds = Cat 1 or 2) was plopped in the middle of the Central Plains – but it was snow.”

-Forecaster Ryan Maue

# Long Lasting...

*The Missouri River basin experienced more than a year's worth of runoff in March-May due to ongoing heavy rain events...*

11



Fort Smith, Arkansas, April 2019



Tulsa County, Oklahoma, June 2019



Burke, South Dakota, August 2019



Jefferson City, Missouri, May 2019



Kearney, Nebraska, July 2019



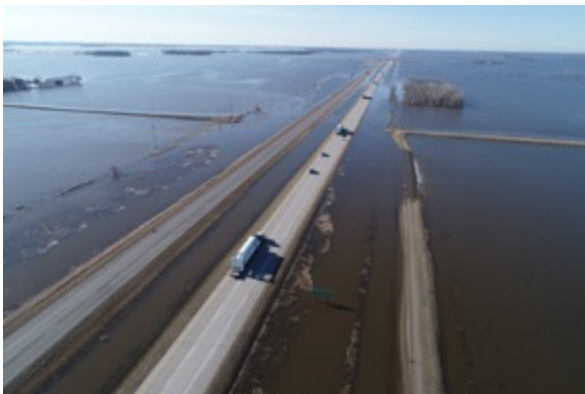
Crescent, Iowa, September 2019

# Record Setting – Ongoing since 2018

12



Madison, South Dakota,  
September 2019



I-29 near Grand Forks, North Dakota,  
October 2019

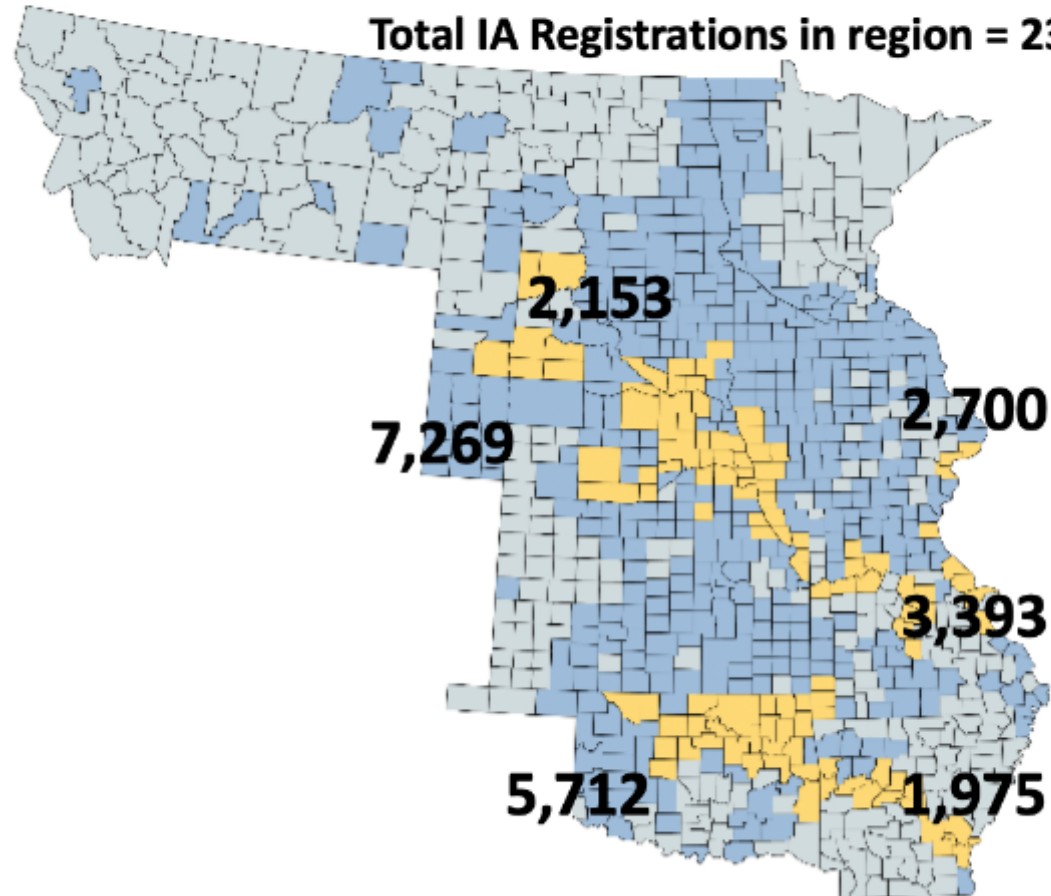
- Wettest Midwest Winter since 1895
- Wettest 12-month span on record (May 2018-April 2019)
- Mississippi crest near St. Louis, second highest on record—just 3.5 ft short of the 1993 level.
- By May 31<sup>st</sup> -- Arkansas River, record levels had already been set near Ponca City, Oklahoma and in Van Buren/Fort Smith, Dardanelle, Morrilton and the Toad Suck Reservoir in Arkansas. The record at Morrilton, had stood since the Great Flood of 1927.
- During the first two weeks of September, the Missouri River basin had 400% more rainfall than average.
- North Dakota had the highest recorded river levels for any October on record, due to heavy September rainfall and an early October blizzard.

# Regional Impact (IA declarations in yellow/ PA declarations in blue)

13

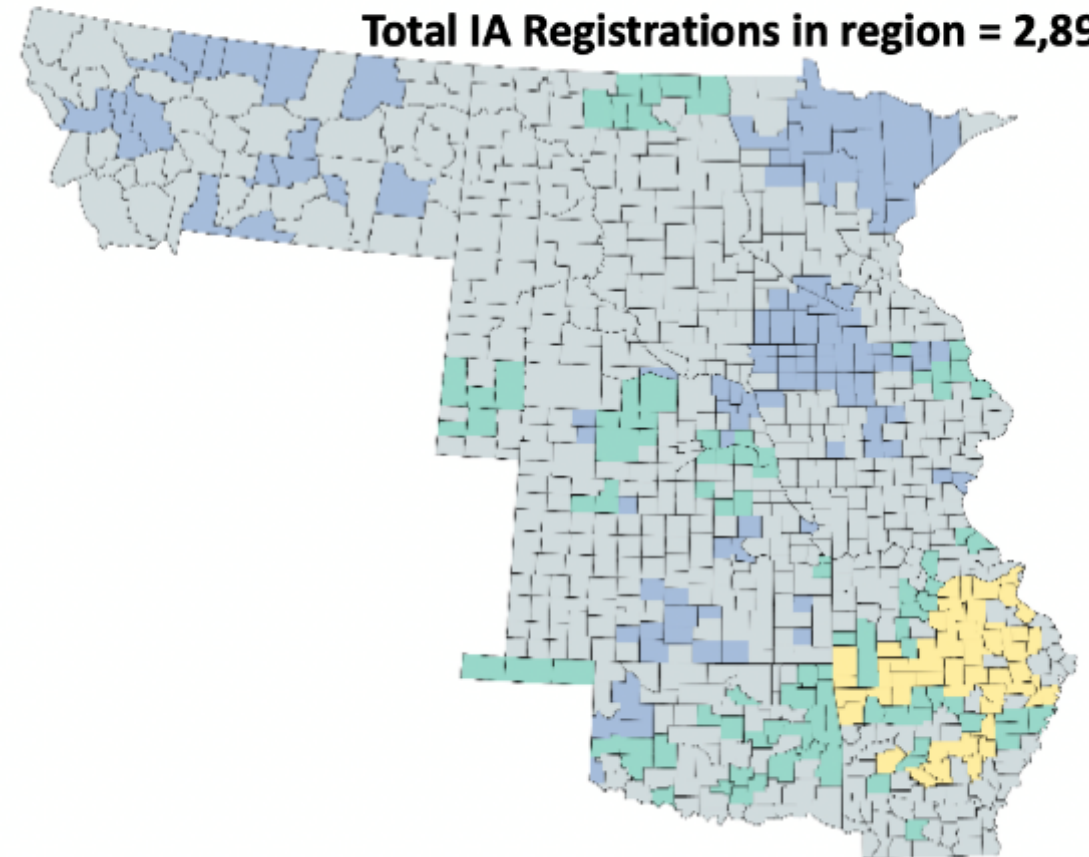
2019 (as of 10/18/19)

Total IA Registrations in region = 23,202



2017-2018

Total IA Registrations in region = 2,891



# By the Numbers – Our 10-State Region

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## Declaration Info

- **62.9%** of counties have a Federal Declaration (IA or PA)
- **7.4** million people live in IA declared counties
- **25%** of the total population of the 10 states live in counties with IA declarations
- **61.4 %** of Nebraskans live in IA counties; **47.8 %** (OK); **42.5%** (MO)

## Requests for Assistance

- 211 calls in South Dakota (for disaster needs) increased 2053% from 2018 to 2019
- In Nebraska 211 calls increased by 2927%

# Impacts – Just the Beginning ...

15

- Agriculture
  - ▣ Livestock: \$440 million estimate in NE
  - ▣ Unplanted Crops: 10.5 million acres in region, up from 768,818 in 2018
  - ▣ Stored Grain: \$7.3 million loss in Fremont County, Iowa alone
- Infrastructure
  - ▣ By June 2019, 51 Missouri levees that protect over \$300 million worth of property, had breached.
  - ▣ Many small, rural counties/reservations have been unable to raise the 25% match to replace damaged infrastructure (PA match).
- Economy
  - ▣ I-29 (runs from Kansas City Missouri to the Canadian border) has been shut down four times in 2019 because of flooding, impacting tourism, business and major transportation routes.
  - ▣ A LinkedIn data report in April showed a spike in employees changing their work location from Midwest flooded areas, to cities in the Southwest and on the West Coast. Omaha had an 8% decrease in hiring rates in April.

# Not Over Yet ...

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- ❑ The economic impact of the 2019 flooding is yet unknown but is estimated in the billions. (The Midwest economy is very AG dependent).
- ❑ With 7.4 million people in IA declared counties, direct and indirect impact yet unknown/unmeasured.
- ❑ Fall started with heavily saturated ground and rivers at record levels.
- ❑ Recovery is just beginning ... but winter is coming.
- ❑ Predicted wet winter has the potential to lead to additional catastrophic flooding in 2020.

*“Imagine putting a soaking wet sponge in the freezer, taking it out, and then trying to pour water on it. The water is going to immediately run off. This accurately describes our soils heading into winter and what we can expect in the spring.”*

*-Laura Edwards, South Dakota State Climatologist*

# Midwest Early Recovery Fund Response

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2019 Grants Out: 16 Grants Totaling: \$1,301,475

Iowa:	3 grants (legal aid, mental health, DCM)
Missouri:	3 grants (recovery coordinator, DCM)
South Dakota:	2 grants (recovery coordinator, volunteer/EOC)
Nebraska:	6 grants (DCM, recovery coordinator, mental health)
Oklahoma:	2 grants (reconstruction coordination, mental health)

The CDP Midwest Early Recovery Fund, a readiness grantmaking program, provides communities affected by low-attention disasters valuable recovery resources through a timely, consistent and replicable grantmaking process.

**PLEASE CONTACT:**

**Nancy Beers, Director, Midwest Early Recovery Fund**

Phone: 507-990-5307

Email: [Nancy.Beers@disasterphilanthropy.org](mailto:Nancy.Beers@disasterphilanthropy.org)

To learn more, please visit us at:

[disasterphilanthropy.org/midwest-early-recovery-fund](http://disasterphilanthropy.org/midwest-early-recovery-fund)



# Midwest Climate Hub

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**Dennis Todey**

Director, Midwest Climate Hub  
*USDA-ARS NLAE Ames, IA*




Midwest Climate Hub  
U.S. DEPARTMENT OF AGRICULTURE

A wide-angle photograph of a sunset over a dark field. The sun is low on the horizon, creating a bright orange and yellow glow that transitions into a darker, cloudy sky. Silhouettes of trees and utility poles are visible against the horizon.

# Midwest Water and Agriculture Issues – Fall 2019

*29 October 2019*

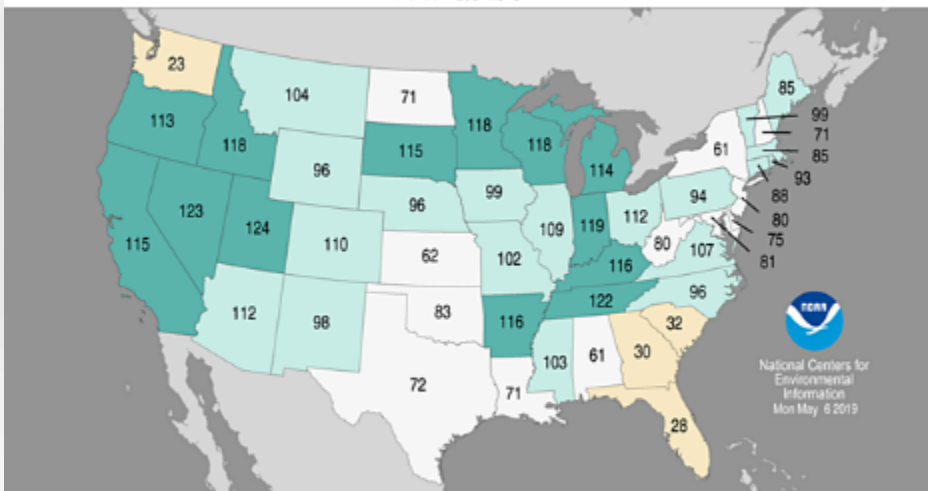
A close-up, slightly blurred photograph of a cornfield, showing the large, overlapping leaves of the corn plants in shades of green and white.

Dennis Todey  
Director, Midwest Climate Hub  
[Dennis.todey@ars.usda.gov](mailto:Dennis.todey@ars.usda.gov)

### Statewide Precipitation Ranks

February–April 2019

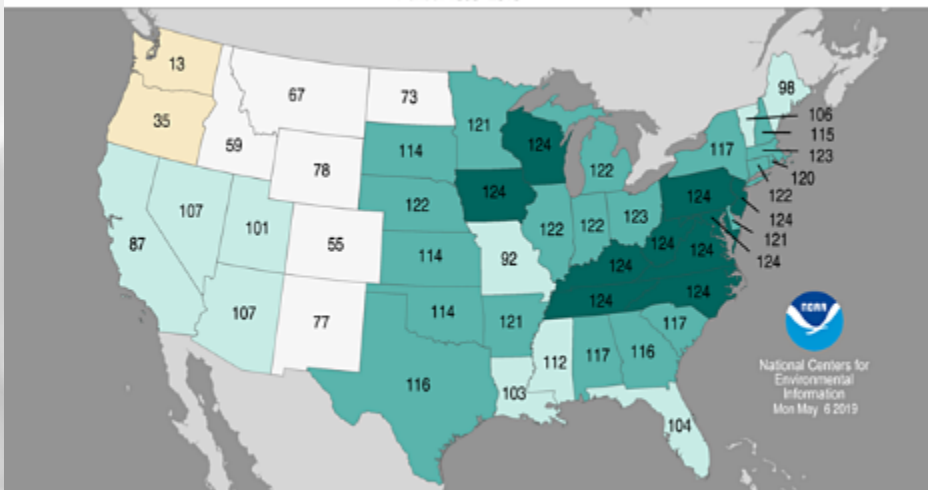
Period: 1895–2019



### Statewide Precipitation Ranks

May 2018–April 2019

Period: 1895–2019



Where we started this year

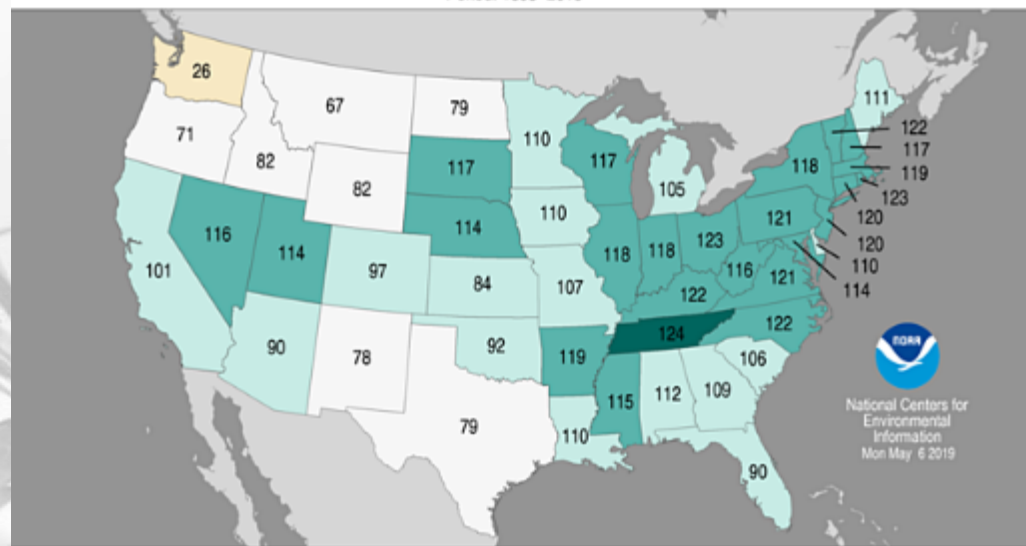
Precipitation rankings

3, 6, 12 month

### Statewide Precipitation Ranks

November 2018–April 2019

Period: 1895–2019



Wet all time scales in region

Moderate in MO and wrn plains



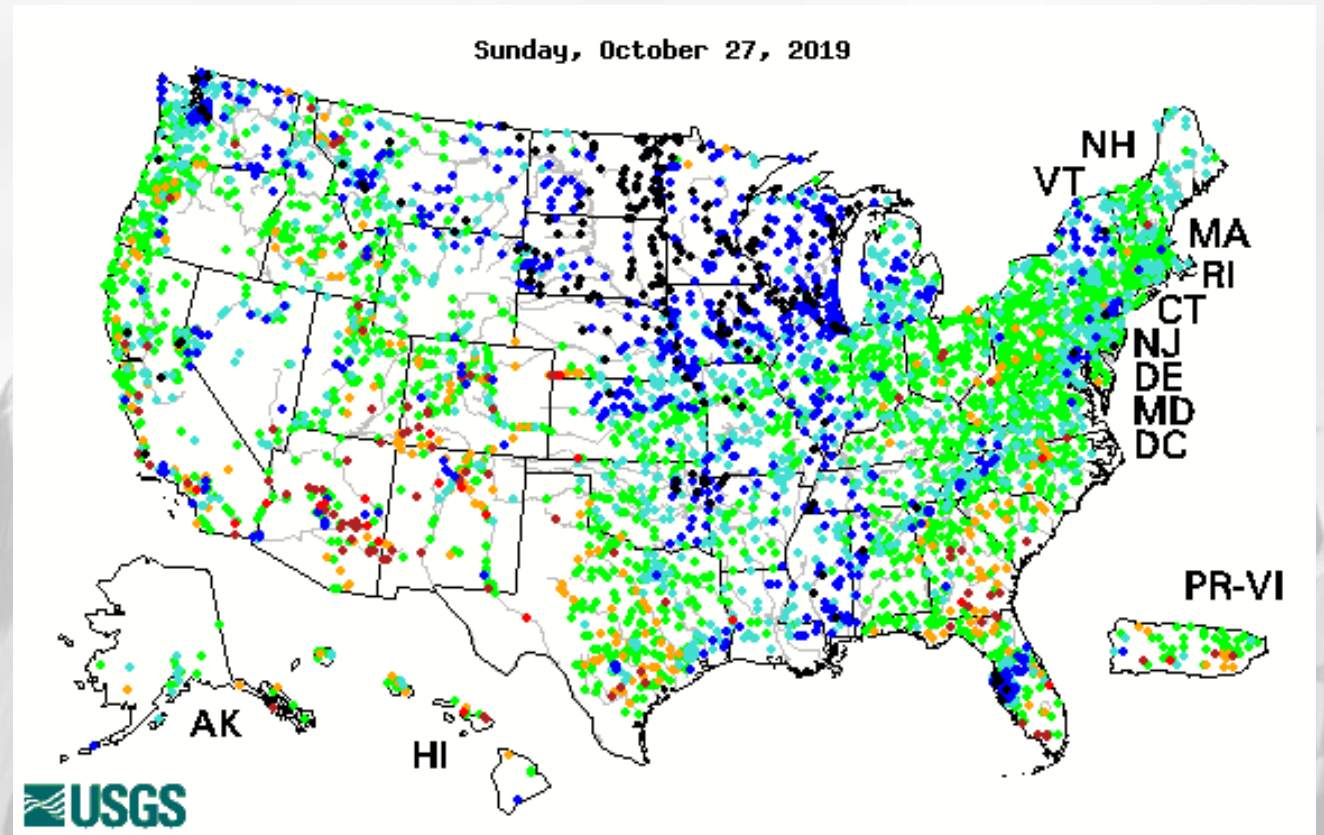
# 7 Day Average Stream Flow

Sunday, 27 October 2019

- Widespread wet
- Record flows
- SD/MN stations set peak flow (all time) in September

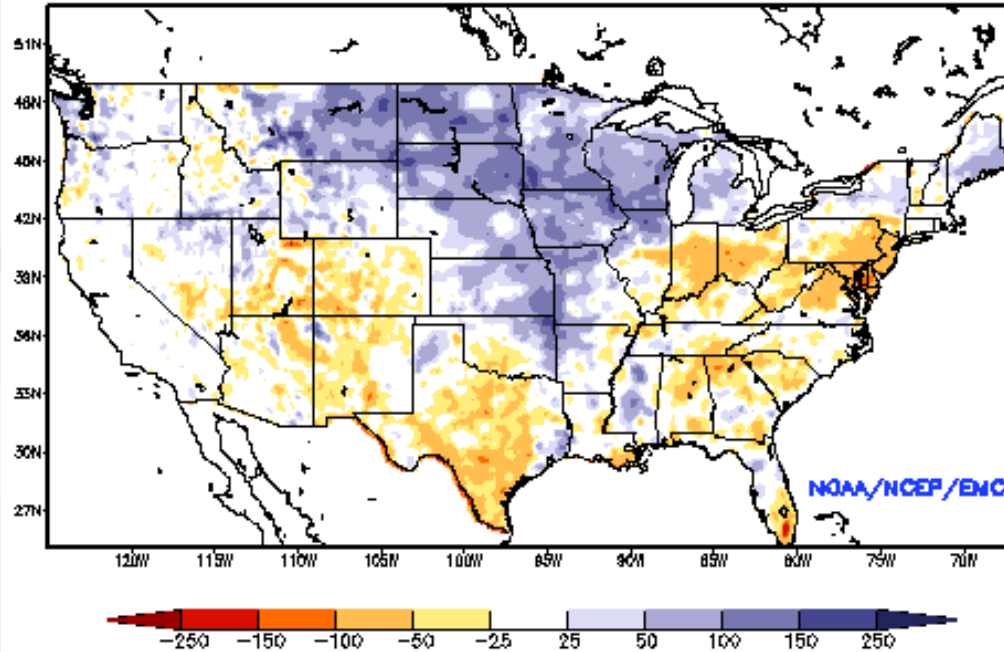
Missouri River Flooding

Photo: Mike Wilson



Explanation - Percentile classes						
Low	<10	10-24	25-75	76-90	>90	High
	Much below normal	Below normal	Normal	Above normal	Much above normal	

Ensemble-Mean - Current Total Column Soil Moisture Anomaly (mm)  
NCEP NLDAS Products Valid: OCT 24, 2019



Anomaly - 25 mm - 1 inch

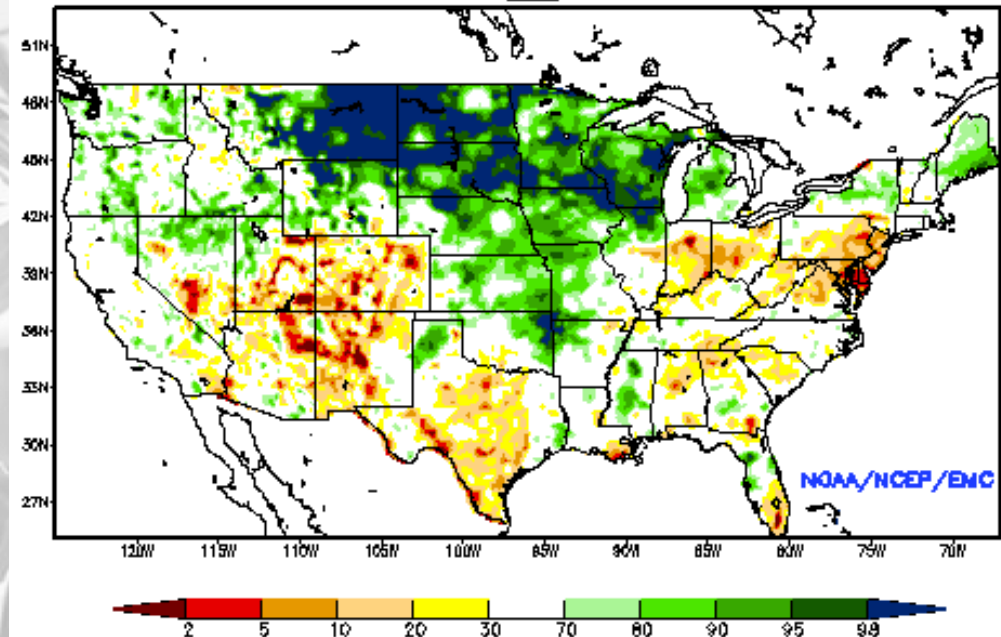
<http://www.emc.ncep.noaa.gov/mm/b/nldas/drought/>

[https://www.cpc.ncep.noaa.gov/products/Soilmst\\_Monitoring/US/Soilmst/Soilmst.shtml](https://www.cpc.ncep.noaa.gov/products/Soilmst_Monitoring/US/Soilmst/Soilmst.shtml)

# Soil Moisture

## Percentile Ranking

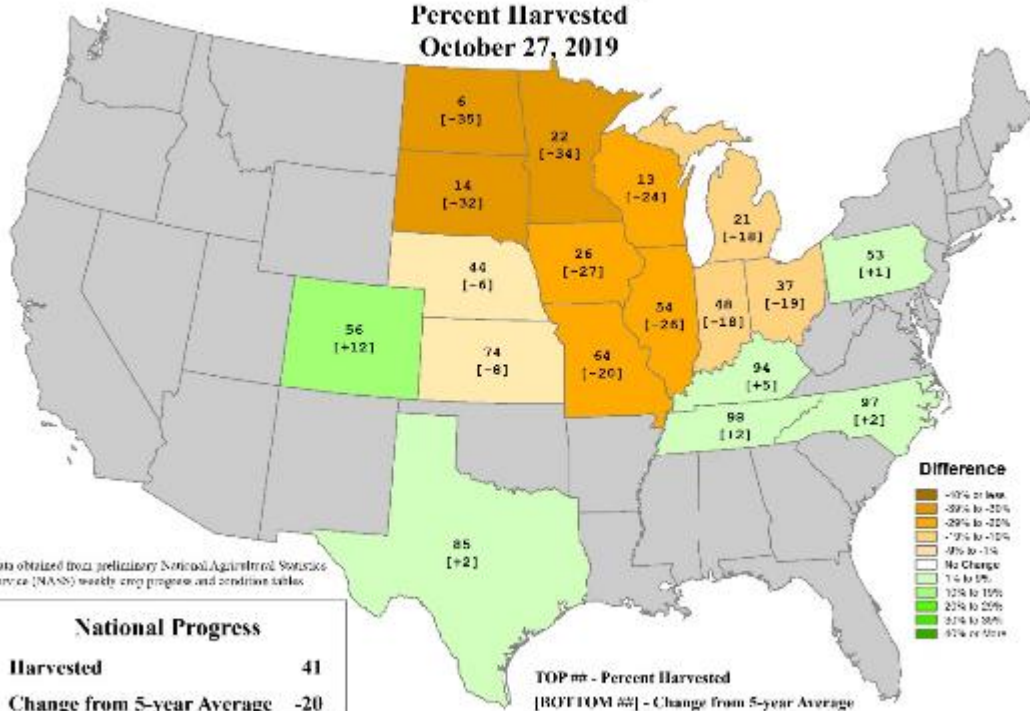
Ensemble-Mean - Current Total Column Soil Moisture Percentile  
NCEP NLDAS Products Valid: OCT 24, 2019



# USDA- NASS Harvest Progress

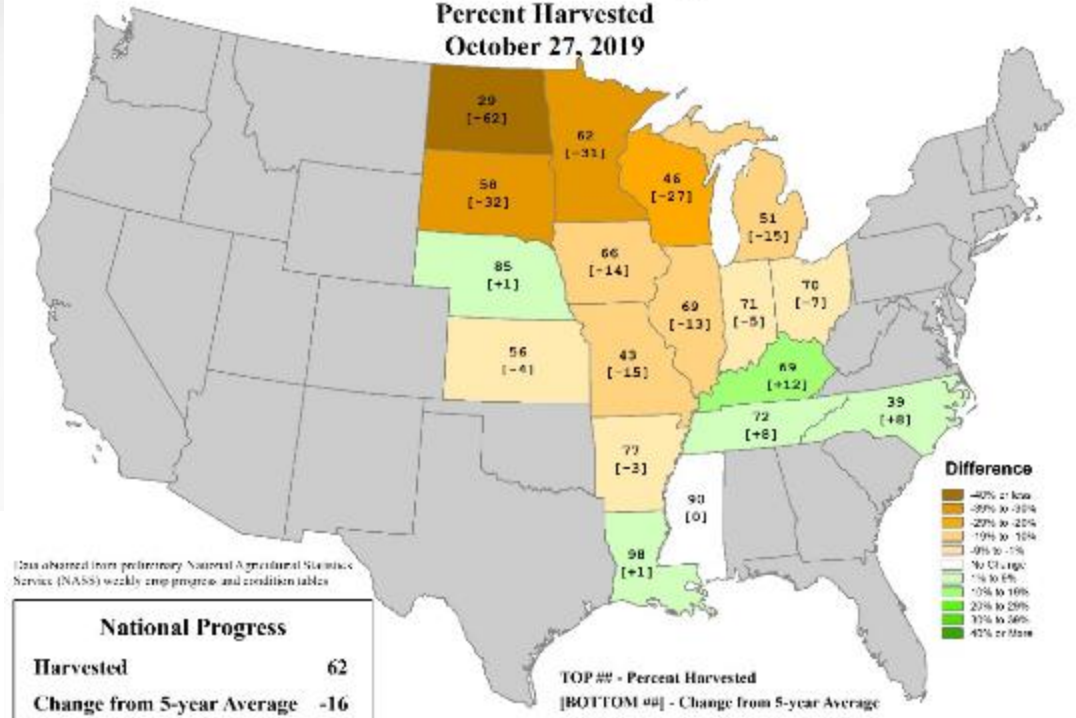
## U.S. Corn Progress

Percent Harvested  
October 27, 2019



## U.S. Soybeans Progress

Percent Harvested  
October 27, 2019

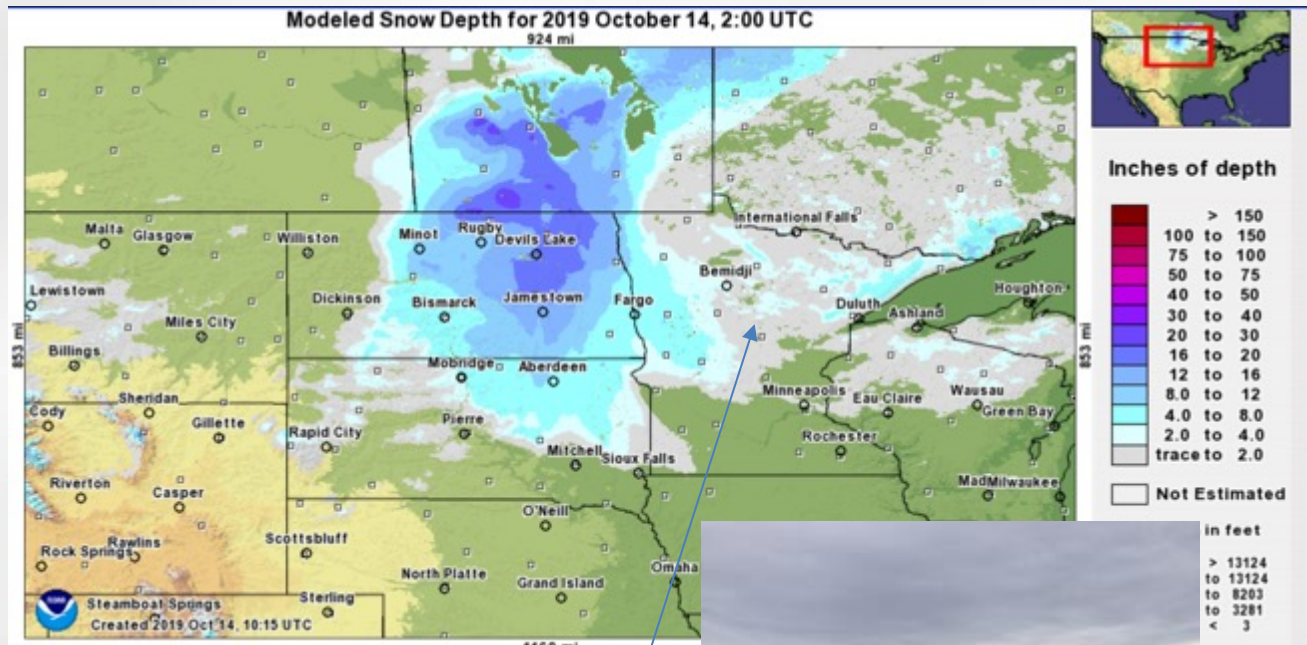


Slowest corn/soybean maturity on record

Harvest 2-2.5 weeks behind avg.

Widespread wetness keeping from harvest progress

# October 2019 Snow/Winds



20-30" amounts

Mature soybeans near  
Aberdeen, SD  
Photo by Laura Edwards,  
10/13/19



**12HR Peak Winds (mph)**

**SD RWIS Platte-Winner Bridge** **56**

**Charles Mix 1428ft**

SD RWIS Ward	53	Huron Regional Airport	53
Marshall Municipal Airport	53	Sioux Gateway Airport	53
Mitchell Municipal Airport	52	SD RWIS Plankinton	50
SD RWIS Kimball	49	SD RWIS Tripp	49
Madison Airport	49	SD RWIS Forestburg	48
Sioux Falls Airport	48	Hendricks MN-19 Mile Post 2	48
SD RWIS Arlington	47	SD RWIS Montrose	47
SD RWIS Alexandria	47	Chamberlain Municipal Airport	47
Beaver Creek I-90 Mile Post 4	47	Lake Benton US-14 Mile Post 7	47
SD RWIS Freeman	46	SD RWIS Wolsey	46
SD RWIS Tyndall	46	SD RWIS Cavour	46
Brookings Municipal Airport	46	Dovray MN-30 Mile Post 49	46
Gregory	45	Yankton Municipal Airport	45

valid at c:\mon04\1319\4119a - RWIS Sect 141

# Impacts - Agriculture

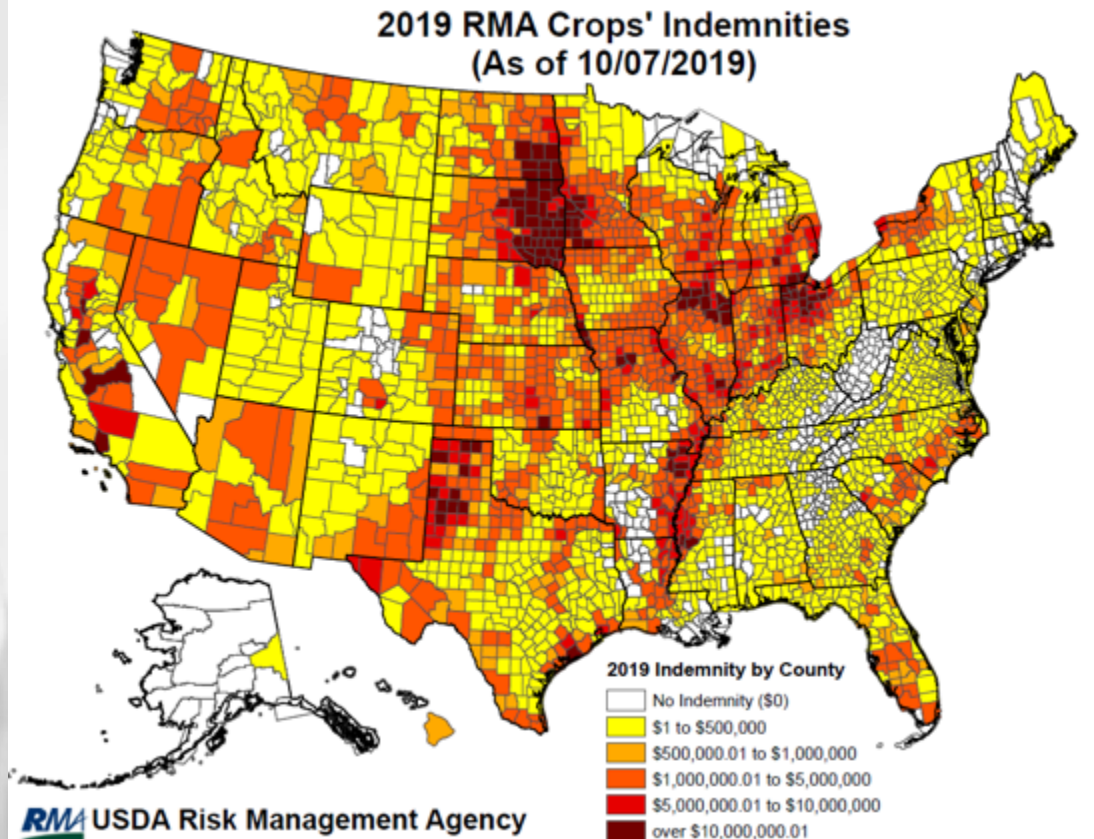
- Slow harvest season
  - Delayed crop maturity/freeze
  - Wet soils
  - Downed crops
- Some northern crops may not be harvested until spring – some may be a loss from flood/snow

Kansas City, MO  
Photo: Doug Kluck



Mental health issues ongoing due to several weather/climate events and larger issues.

# Crop Losses – USDA RMA



- Major crop losses mainly from wet soils/some from river flooding
- Additional losses pending due to mid-October snow in Dakotas/Minnesota
- Also losses from freeze still pending
- ND State emergency declared – doing flood meetings statewide.

# Impacts - Flooding

- Still flood stage on many rivers
  - Freeze-up not far off
- Rivers, lakes, etc. full from year's moisture
- Missouri River levees mostly unrepaired due to ongoing flooding
- USACE still moving water



Rulo, MO  
Photo: Mike Wilson

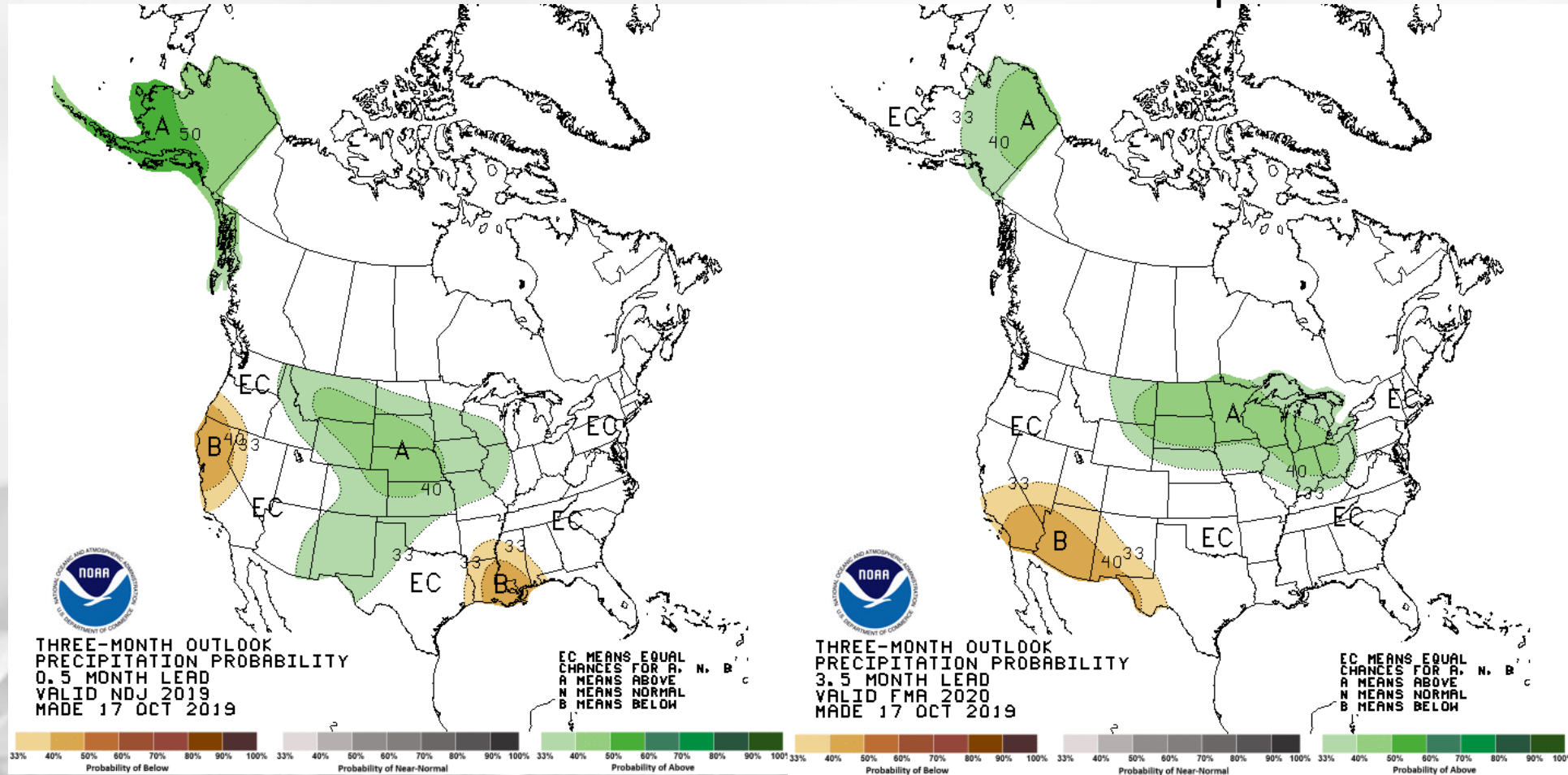


Some Missouri River towns/homes  
still not able to return this year.

# Winter Precip. Outlook

Nov - Jan

Feb - Apr



<http://www.cpc.ncep.noaa.gov/>

Outlook confidence only moderate – no El Niño/La Niña. But risk higher because of wet conditions.

# For More Information



Midwest Climate Hub



@dennistoday



<https://www.climatehubs.ocs.usda.gov/hubs/midwest>



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515-294-0136

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**Dennis Todey, Director**

515-294-2013

[Dennis.todey@ars.usda.gov](mailto:Dennis.todey@ars.usda.gov)

**Erica Kistner, Fellow**

515-294-9602

[Erica.kristner@ars.usda.gov](mailto:Erica.kristner@ars.usda.gov)

**National Laboratory for Agriculture and the Environment**

Attn: Midwest Climate Hub

1015 N University Blvd

Ames, Iowa 50011-3611


# University of Iowa

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## **Eric Tate**

Associate Professor,  
*University of Iowa, Department of Geographical and  
Sustainability Sciences*



# Flood (In)Equity

## Midwest Flooding: The Year's Biggest US Disaster

ERIC TATE

UNIVERSITY OF IOWA

OCTOBER 30, 2019

# What is Social Vulnerability to Hazards?

- **Higher susceptibility from economic, social, political, institutional processes**
- Some population groups persistently face greater impacts

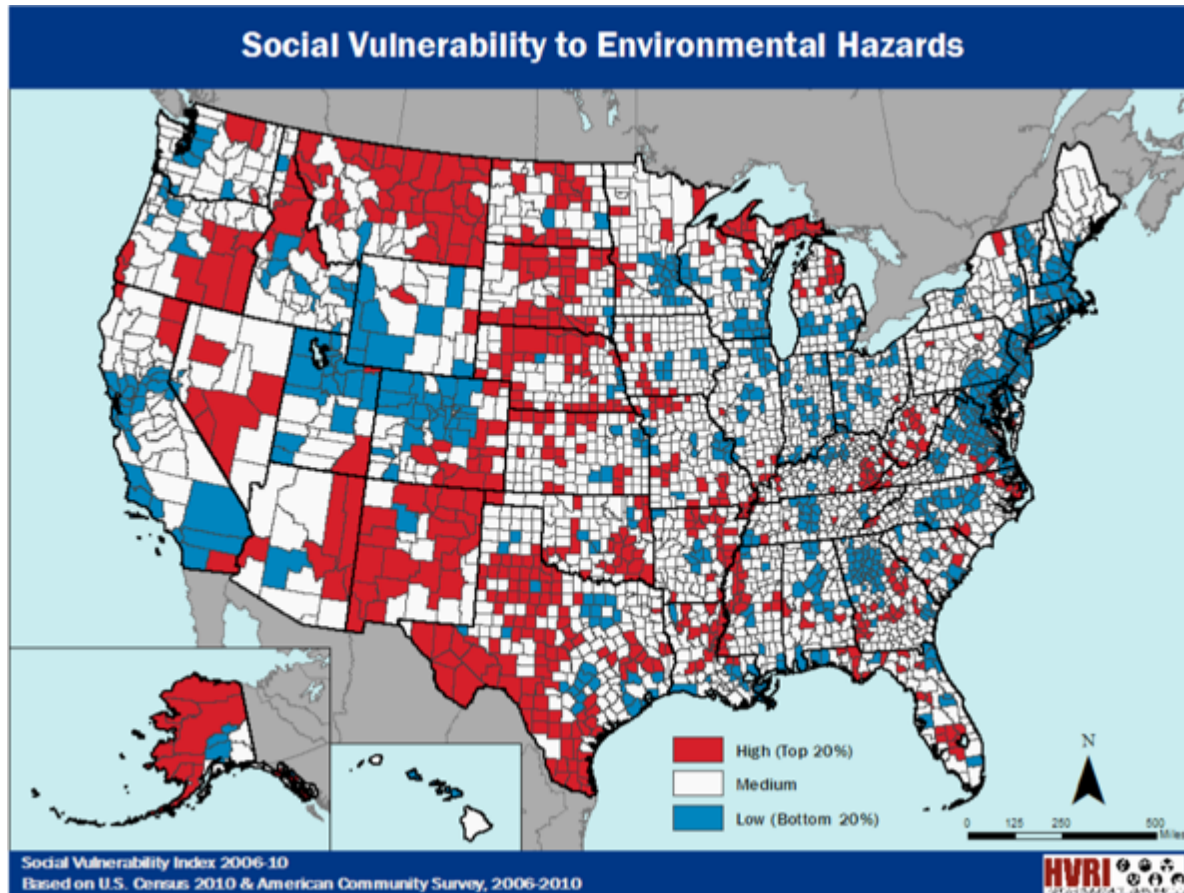
Dimension	Most Vulnerable	Manifestation
<b>Socioeconomic status</b>	Poor	Less ability to absorb losses and recover Lack transportation for evacuation Lower housing quality Increased mortality High proportional losses
<b>Race and ethnicity</b>	Non-White Non-Anglo	Cultural barriers Lower acceptance & trust of warnings Reside in high hazard zones
<b>Gender</b>	Women	Wage gap Care-giving role Domestic violence Pregnancy risks
<b>Health</b>	Chronically ill Children	Increased mortality Disease outbreak Post-traumatic stress

Dimension	Most Vulnerable	Manifestation
<b>Age</b>	Children Elderly	Reduced mobility in evacuation Special care requirements Heightened susceptibility to harm
<b>Home ownership</b>	Renters	Low control over home disaster resistance Lower rates of insurance Disaster assistance favors homeowners Higher post-disaster rent
<b>Functional needs</b>	Disabled Institutionalized Homeless	Reduced mobility in evacuation Custom shelter needs Lower receipt of warnings
<b>Immigrants</b>	Non-English speakers Recent arrivals	Language barriers Unfamiliarity with local hazards Less evacuation, disaster assistance access
<b>Population distribution</b>	Urban Rural	Evacuation complications Reduced emergency response capabilities Single-sector economic dependence



# Why should we focus on the vulnerable?

- Least responsible for increase in extreme hazards
- At greatest risk
- Fewer resources to cope with impacts
- Cost effective
- It's morally right



# FRAMING THE CHALLENGE OF URBAN FLOODING IN THE UNITED STATES

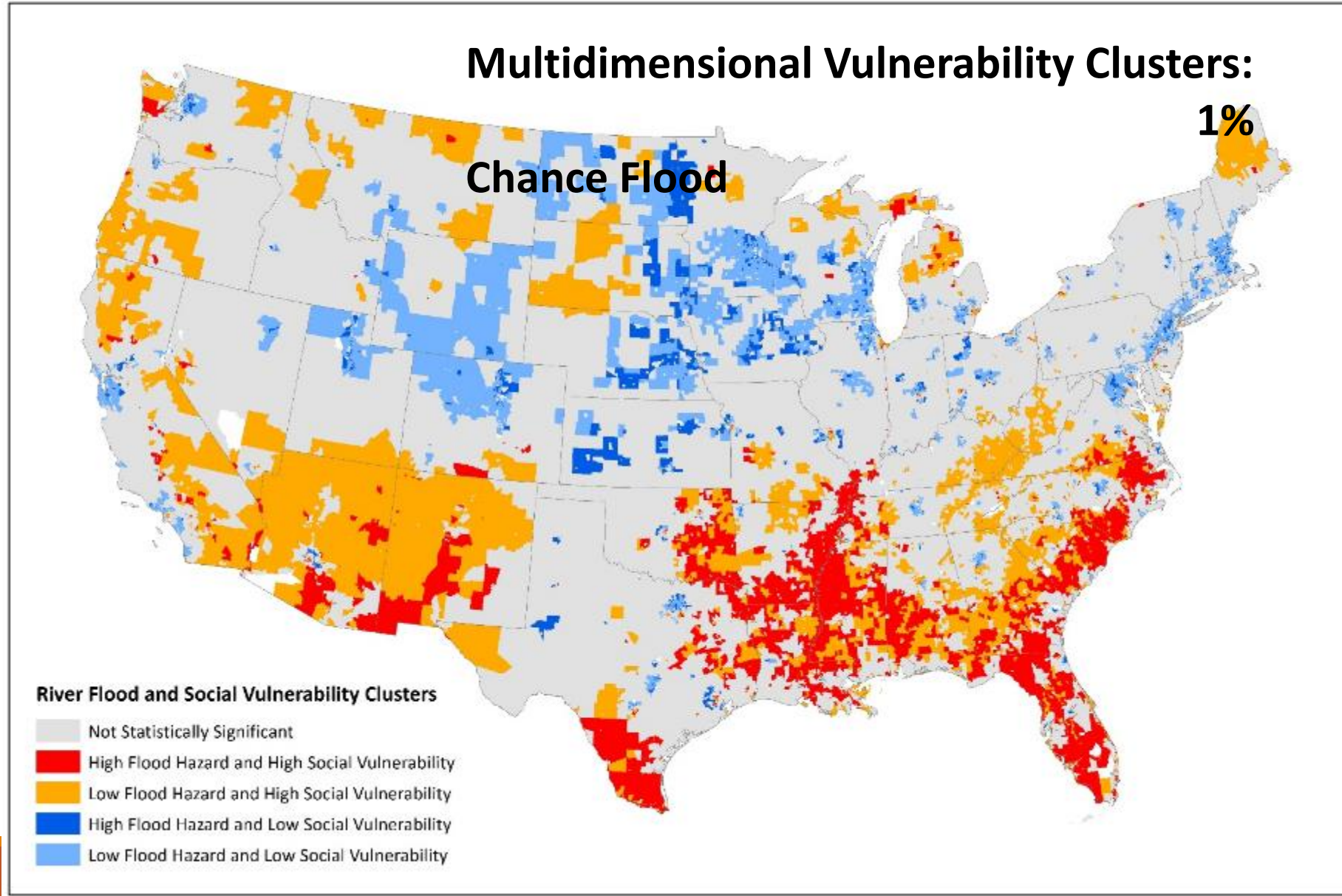


Q1: Who is most vulnerable to floods?

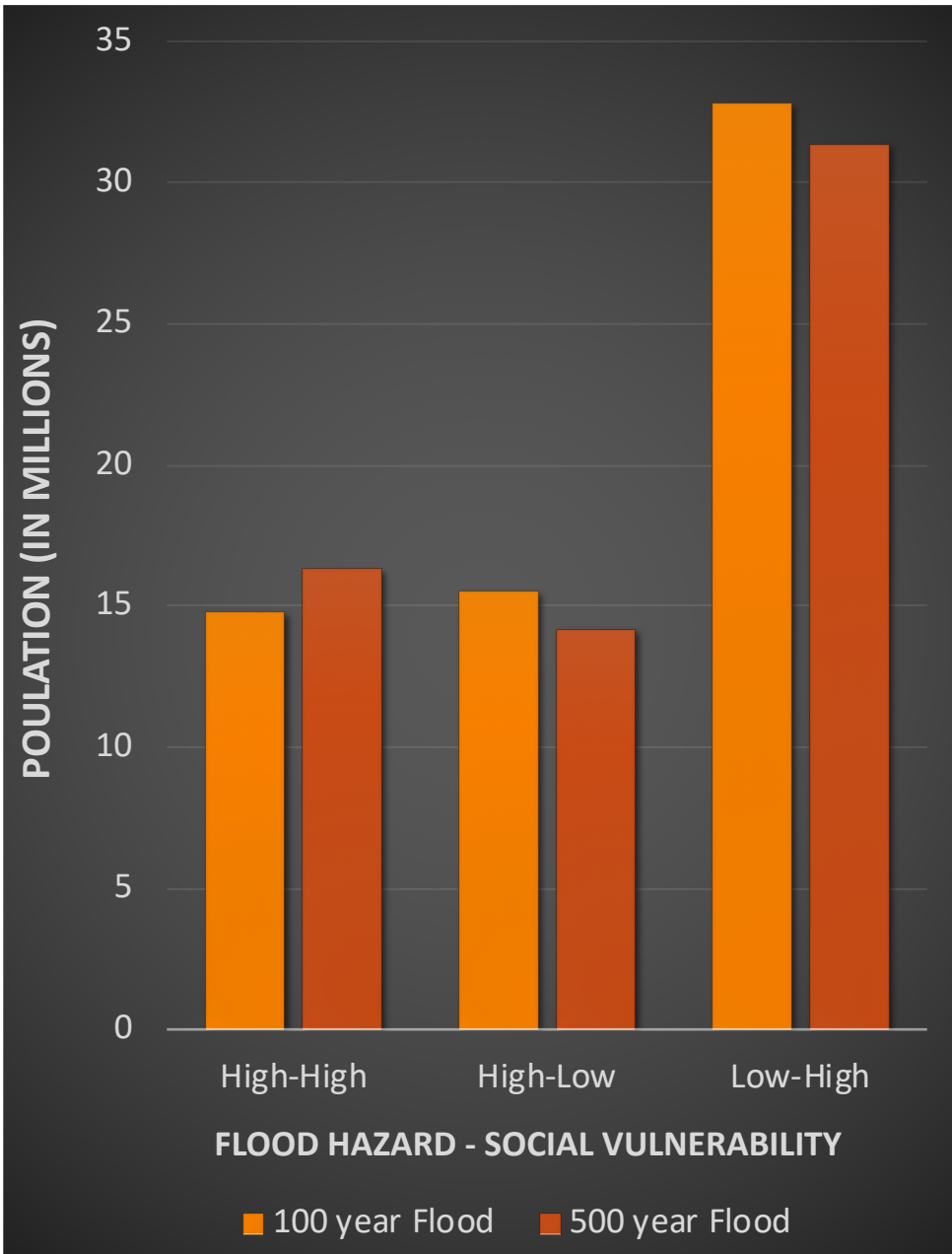
*...impacts from flooding tend to fall disproportionately on the most vulnerable and resource-constrained members of society, including children, the elderly, disabled, poor, and renters.*

*Poor, nonwhite, immigrants, and non-native English speakers disproportionately reside in flood-prone areas, but often have limited resources for flood mitigation and recovery.*

# Who lives in the floodplain?



# Which Social Characteristics Dominate?



Variable*	High-High	All other tracts
Median house value	\$106,637	\$237,800
Median per capita income	\$18,204	\$29,060
Median house rent	\$762	\$1,040
Black population	29.9%	12.7%
Children in married family	52.9%	67.5%
Poverty rate	26.3%	15.7%

\* 2012-2016 American Community Survey, US Census Bureau

\*\* Preliminary Findings \*\*



# Q2: How Equitable is Flood Recovery Assistance?



*Social Problems*, 2019, 66, 448–467  
doi: 10.1093/socpro/spy016  
Advance Access Publication Date: 14 August 2018  
Article



## Damages Done: The Longitudinal Impacts of Natural Hazards on Wealth Inequality in the United States

Junia Howell<sup>1</sup> and James R. Elliott<sup>2</sup>

*Results indicate that as local hazard damages increase, so does wealth inequality, especially along lines of race, education, and home ownership.....the more aid an area receives from FEMA, the more this inequality grows.*

SCIENCE ADVANCES | RESEARCH ARTICLE

ENVIRONMENTAL STUDIES

## Managed retreat through voluntary buyouts of flood-prone properties

Katharine J. Mach<sup>1,2,3\*</sup>, Caroline M. Kraan<sup>4,5</sup>, Miyuki Hino<sup>4,6</sup>, A. R. Siders<sup>7,8</sup>, Erica M. Johnston<sup>4</sup>, Christopher B. Field<sup>4</sup>

*...local governments in counties with higher population and income are more likely to administer buyouts. The bought-out properties, however, are concentrated in areas of greater social vulnerability within these counties*



*Flood insurance is the best way for a household to recover from a flood. Insured survivors recover more quickly and more fully than uninsured survivors.*

*Policyholders tend to have higher incomes than non-policyholders, especially in the highest risk areas.*

*26% of NFIP residential policyholder households inside Special Flood Hazard Areas (SFHAs) are low income and 51% of non-policyholder households in SFHAs are low income*



## An Affordability Framework for the National Flood Insurance Program

*April 17, 2018*



**Homeland  
Security**

# How equitable is the federal safety net?



Help After a Disaster  
**Low-Interest Disaster Loans**

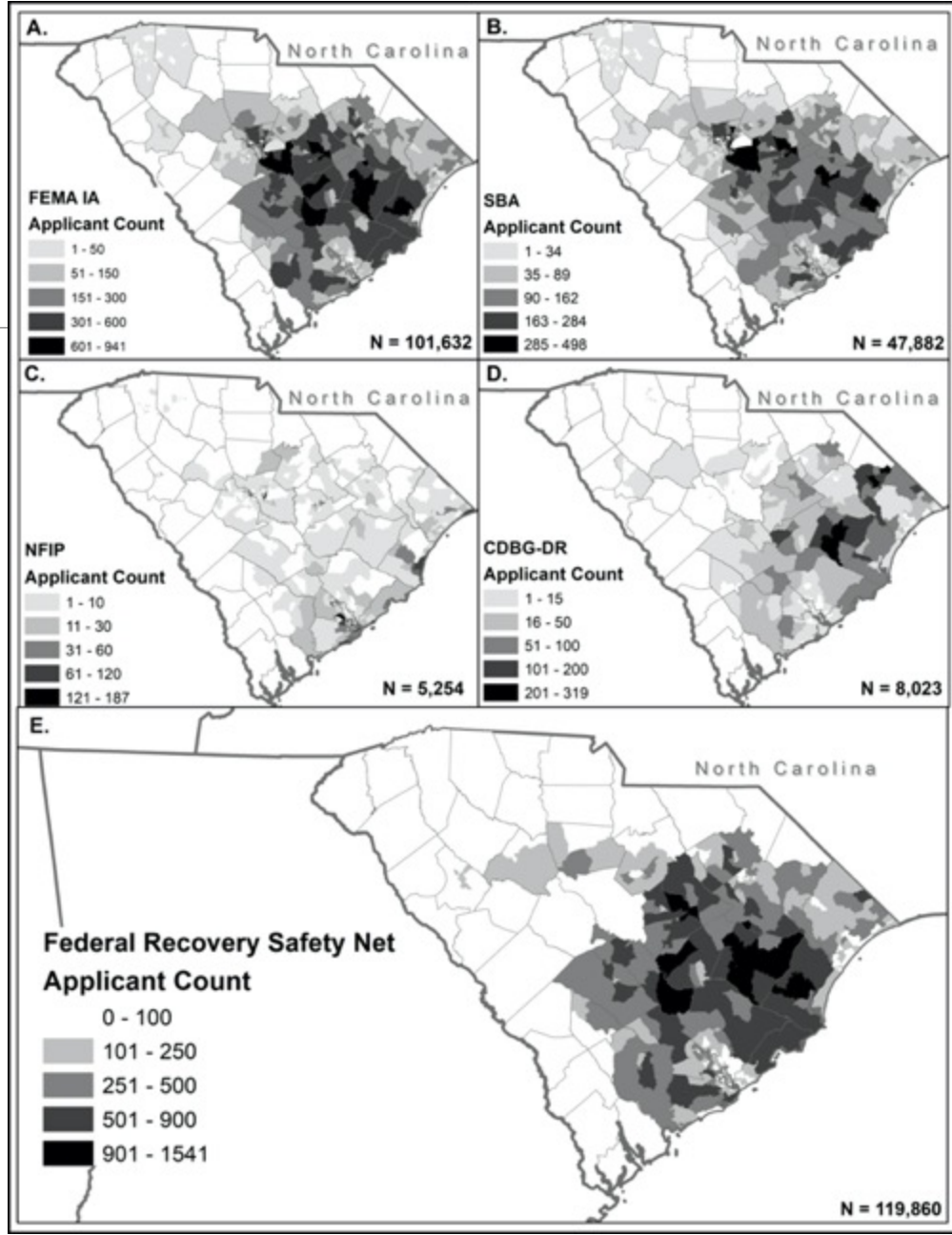


Community Development Block Grant



Disaster Recovery

Finding: flood recovery assistance strongly associated with physical damage, but weakly with social vulnerability



# We need to empower flood survivors



**What Does a Resilient Community Look Like?**  
**A RESILIENT COMMUNITY...**

- Engages governments, nonprofit and faith-based organizations, businesses, and citizens to identify and manage risks together
- Communicates risks clearly
- **Measures resilience and tracks progress**
- Exchanges lessons learned with other communities

<http://resilientamerica.nas.edu>

*Residents recognize the context in which debate and resources for recovery are provided. If they see mayors and politicians embracing the talk of recovery and resilience, while making decisions that make communities less resilient, they become deeply cynical.*

-Harriet Festing, Higher Ground

# Strategies for Addressing Flood Inequities

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- Disaggregate impacts by geography and populations
- Assess equity in mitigation and recovery spending
- Build capacity for flood survivors

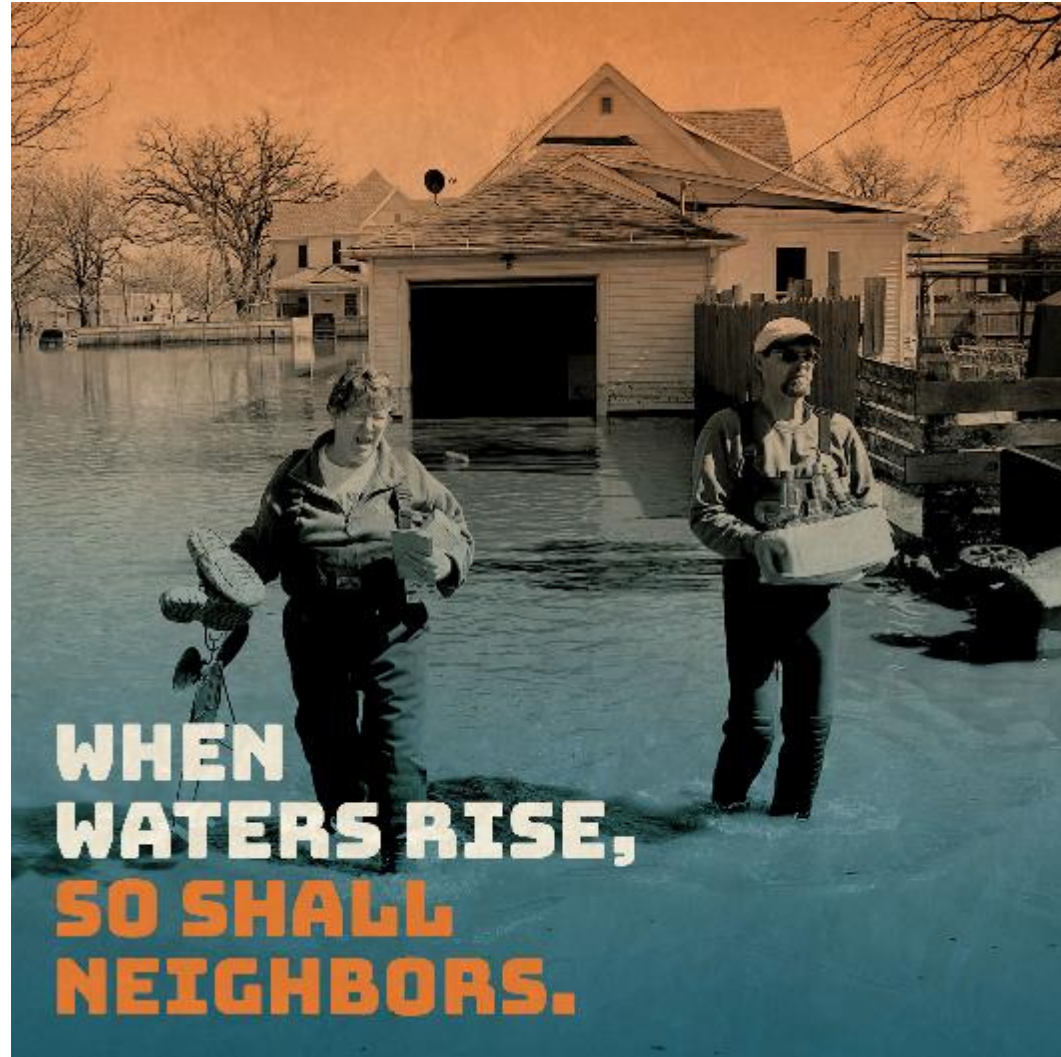
# First National Bank of Omaha

44

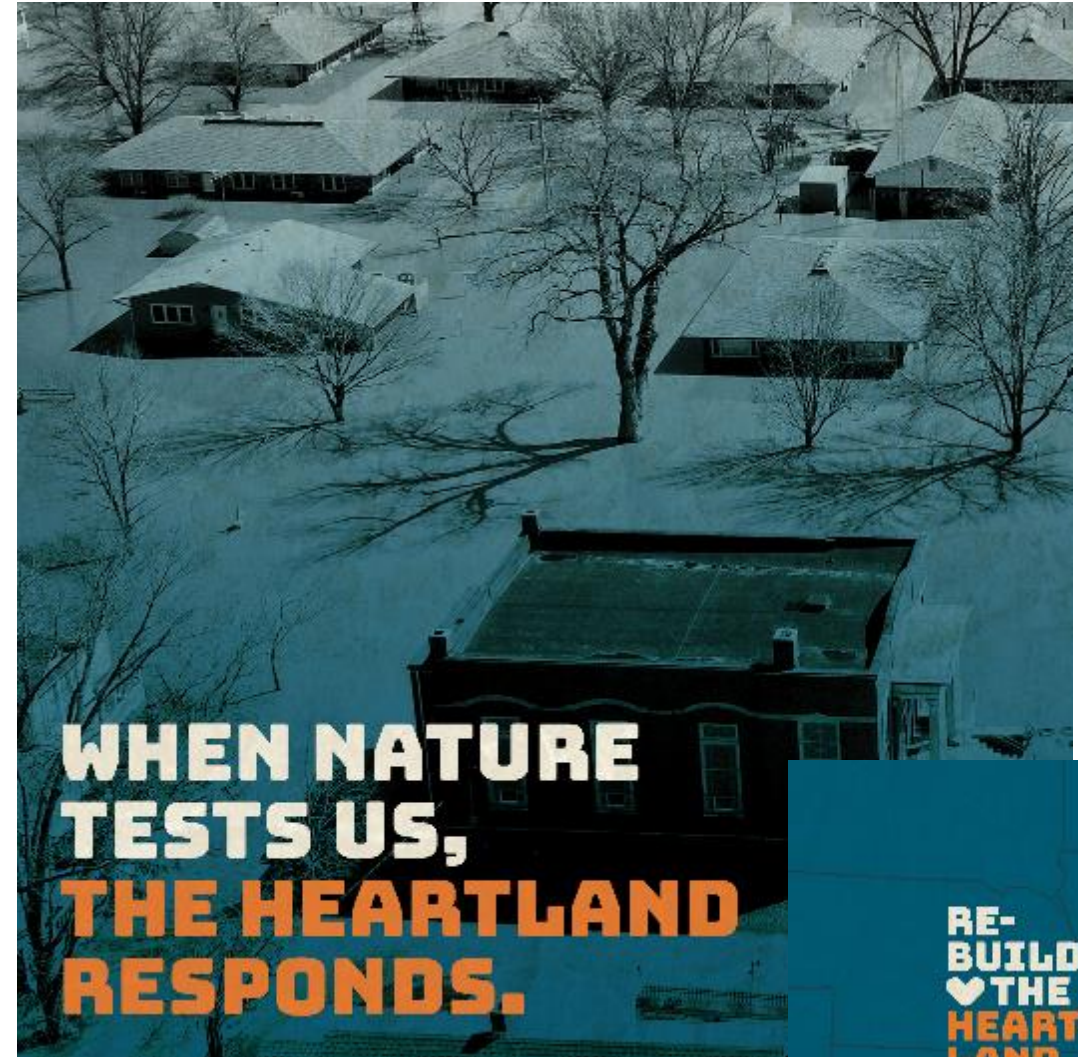


**Sara Going**

*First National Bank of Omaha*



**WHEN  
WATERS RISE,  
SO SHALL  
NEIGHBORS.**



**WHEN NATURE  
TESTS US,  
THE HEARTLAND  
RESPONDS.**









# Q & A

49

- Submit questions using the Q & A box at the bottom of your screen.
- Use **#CDP4Recovery** to tweet insights.





# DISASTER PHILANTHROPY PLAYBOOK

50

- The Disaster Playbook has a number of toolkits and resources to guide the philanthropic community in responding to future disasters.
- Learn more at [www.disasterplaybook.org](http://www.disasterplaybook.org).

The screenshot displays the 'My Playbook' dashboard for a user named Sam Wilson. The dashboard includes a search bar, navigation links for 'Strategies', 'Collaboration', 'Impact Stories', 'Resources', and 'About', and a 'MY PLAYBOOK' profile button. The main content area features four tiles: 'Strategies' (Mitigation & Preparedness), 'Collaboration' (Response Strategies for Regional Associations), 'Impact Stories' (M2R Disaster Recovery Effort), and 'Resources' (Immediate Relief / Individual Support Tip Sheet). Each tile has a trash icon for removal. Below the tiles are buttons for 'SHARE YOUR PLAYBOOK' and 'LOG OUT'. The logo for the 'EARLY RECOVERY FUND MIDWEST' is visible in the bottom right corner.

# Key Takeaways for Funders

51

- Take the long view
- Recognize there are places private philanthropy can help that government agencies might not
- All funders are disaster philanthropists
- Ask the experts
- Learn more:  
<http://disasterphilanthropy.org/resources-2/basic-tips-for-disaster-giving/>



# Questions?

**Mission:** Transform the field of disaster philanthropy to increase donor effectiveness throughout the lifecycle of disasters through our educational resources, fund opportunities and strategic guidance.

For additional information, contact:

**Regine A. Webster**

*Vice President*

[regine.webster@disasterphilanthropy.org](mailto:regine.webster@disasterphilanthropy.org)

