

THE GREAT MIDWEST FLOOD OF 1993



Courtesy of news.stlpublicradio.org/post/20-years-later-sounds-and-stories-great-flood-1993

Left: River water up to the steps of the St. Louis Arch.
Center: Water washed out innumerable roadways, here U.S. 94 in Jefferson City, MO.
Below Left: Flood waters reached record levels.



Aerial view of the Missouri River flooding on July 30, 1993, at U.S. Highway 54 just north of Jefferson City, Missouri, looking south (photograph from the Missouri Highway and Transportation Department).



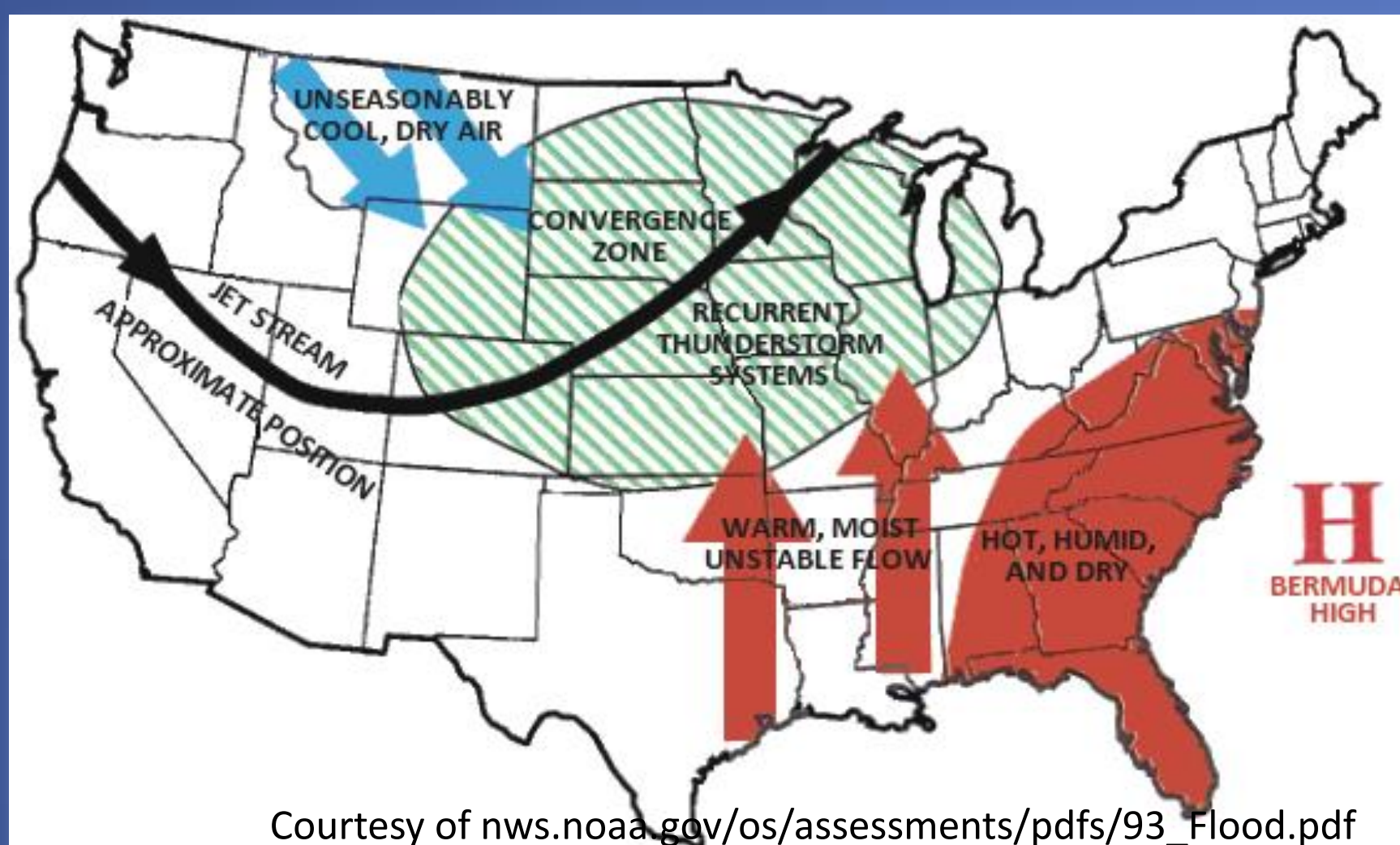
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Synopsis:

The Great Midwest Flood of 1993 was considered the most devastating flood and one of the worst natural disasters recorded in U.S. history. It was an areal flood which occurred over a 745-mile-long and 435-mile-wide portion of the Mississippi and Missouri River Basins as a result of a relentless and unmovable inclement weather pattern. Widespread, long-lasting heavy rain saturated the soil of the large river basins and flooded over 30,000 square miles of land. From May through August, thunderstorms produced between 4 and 7.5 times the normal rainfall for some locations and broke 20 river-stage records across the basins.

Factors Affecting Flood Intensity:

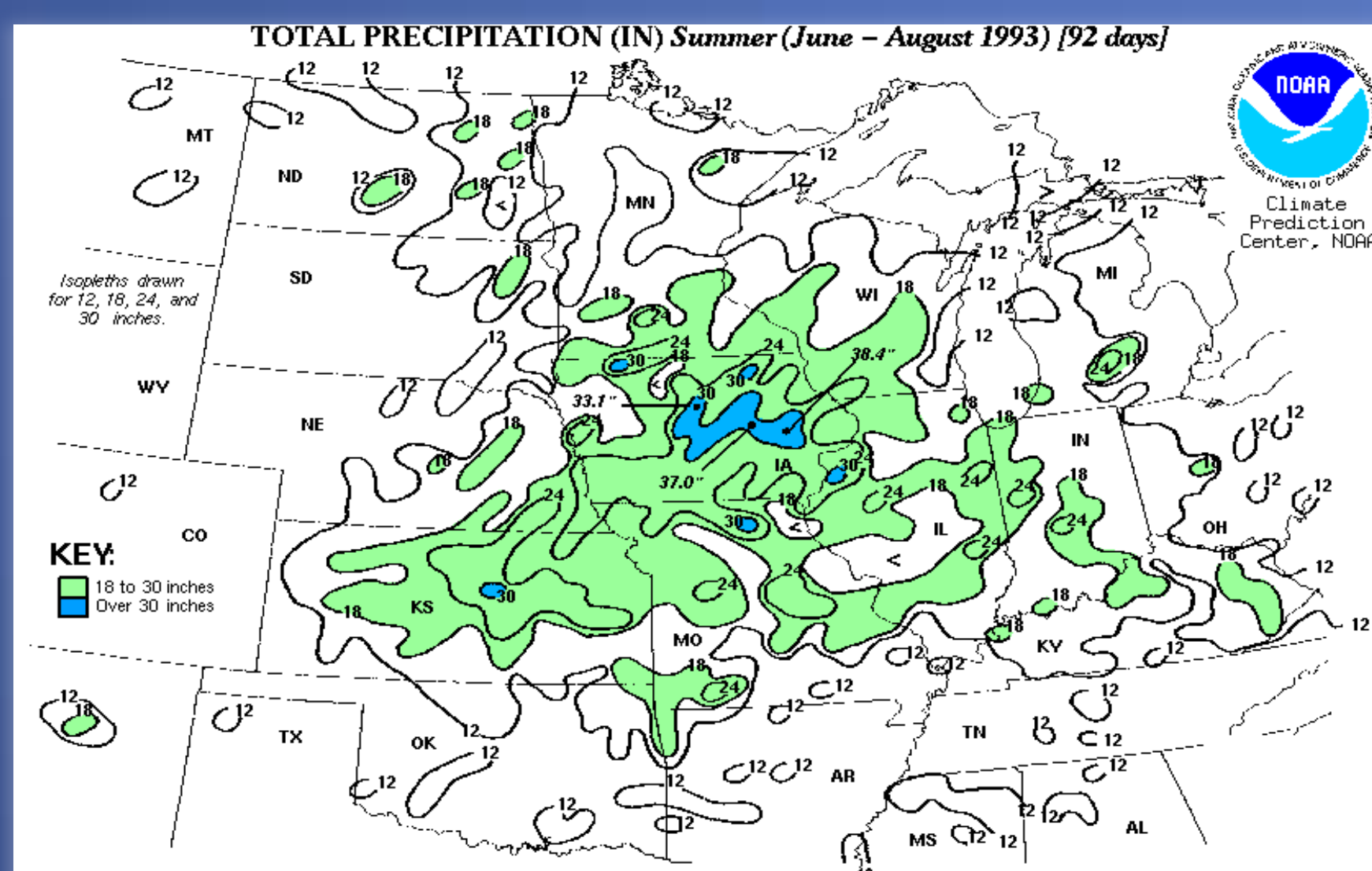
- Persistence of Saturated Soils
- High Number of Rain Events
- Large-Sized Rain Events
- Rain Area Orientations
- Frequent Localized Floods
- Reduced Evapotranspiration



Courtesy of nws.noaa.gov/os/assessments/pdfs/93_Flood.pdf

What Happened?

As depicted at left, the average position of the jet stream showed a trough over the Rockies with southwest flow across the Plains. Persistent East Coast high pressure blocked and stalled a low pressure frontal system in the Midwest. A continuous southerly flow between the high and low brought copious Gulf of Mexico moisture northward that fed the development of numerous convective complexes within the "convergence zone/recurrent thunderstorm systems." Many of the storms occurred in the unseasonably cool air north of the front. The second image shows rainfall totals that occurred in this pattern over a 92-day period, ranging from 12-37 inches.



Courtesy of livescience.com

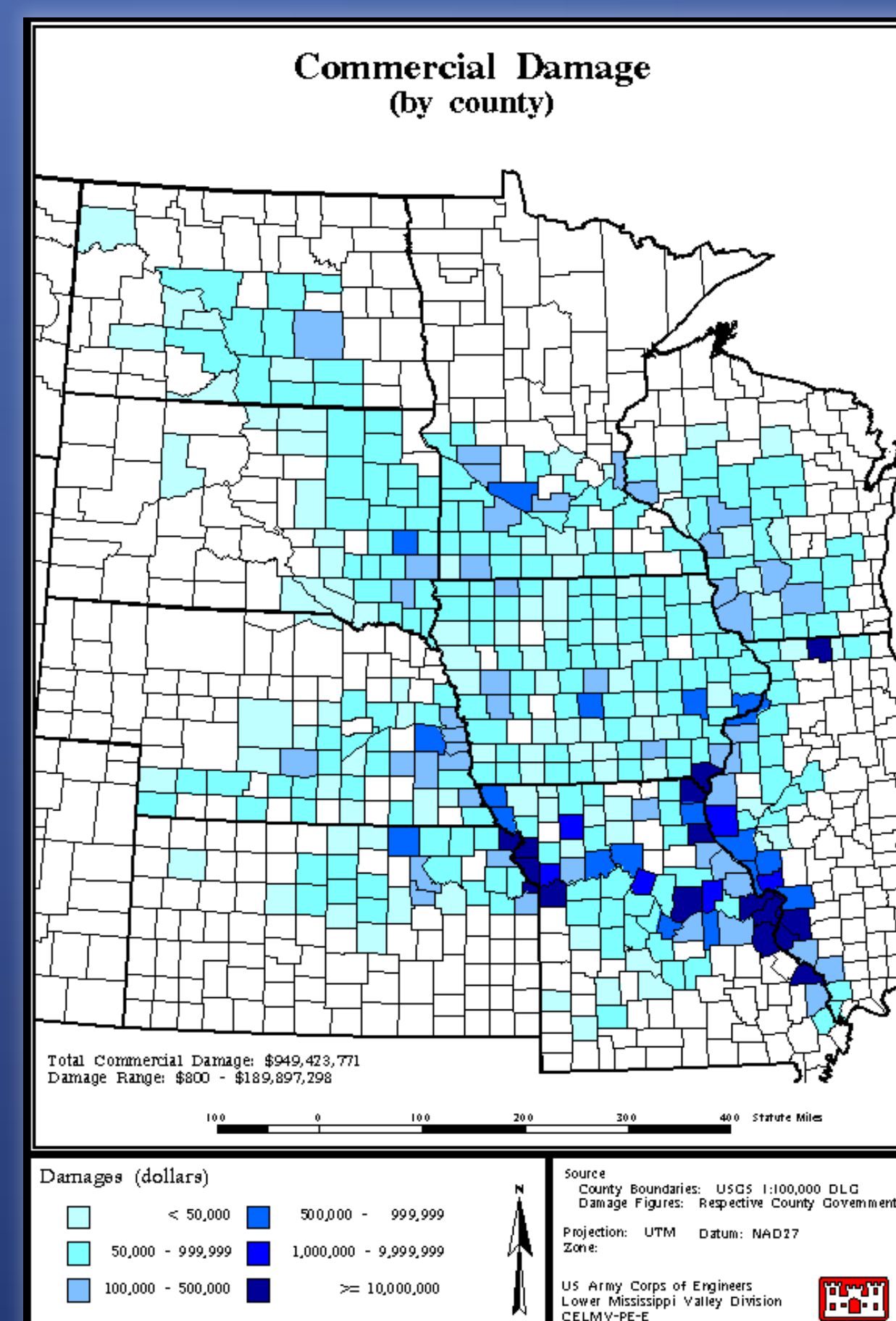
Impacts:

- 30,000 Square Miles of Flooding
- Hundreds of Levee Failures
- About \$15 Billion in Total Property Damage
- Nearly \$950 Million in Commercial Damage
- Over 11 Million Acres in Agricultural Damage
- 52 Deaths

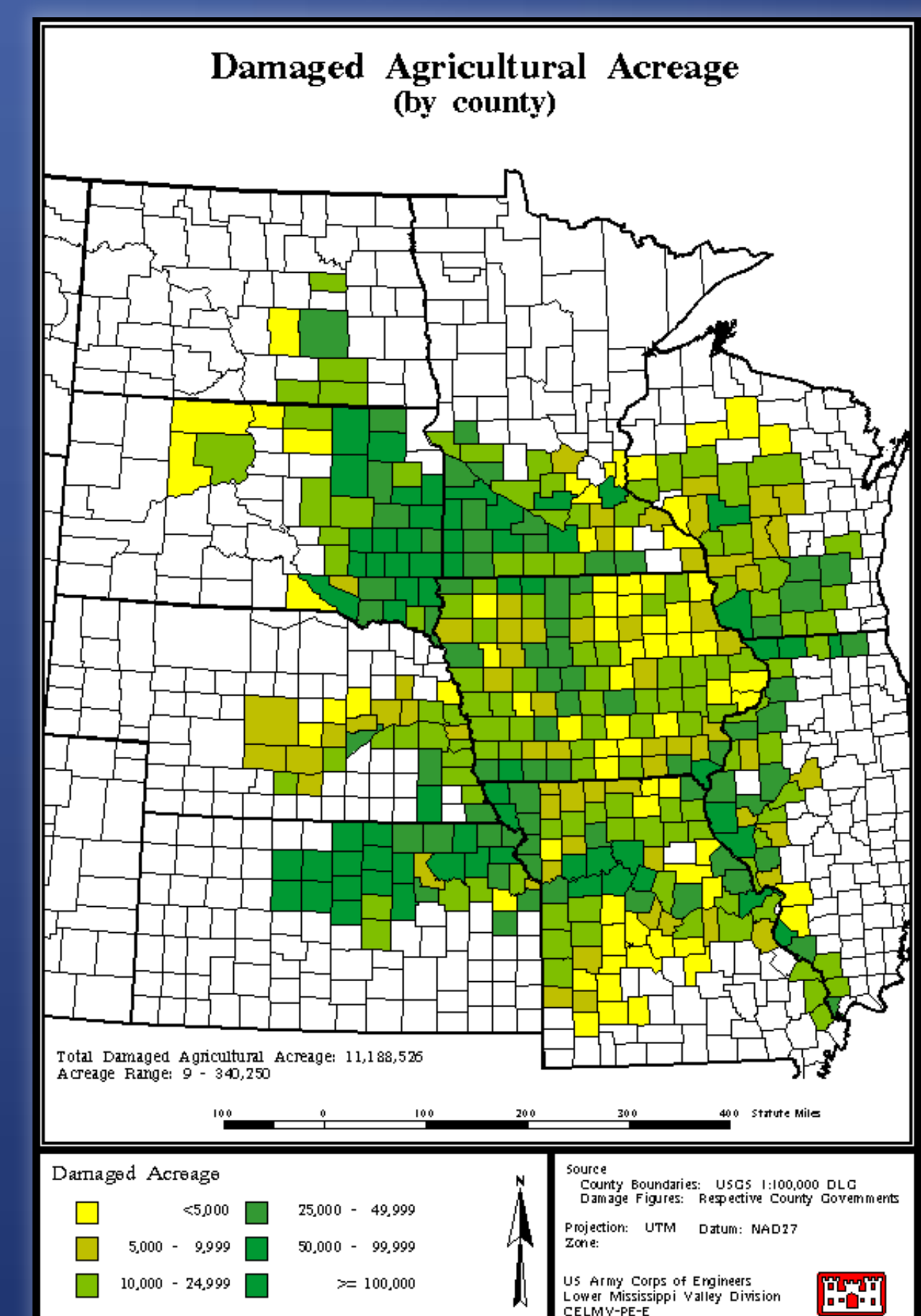
"Off we went to sandbag. When we got there, the situation was bleak and going to desperate quickly. We worked on that floodwall for about three hours and it started to rain hard and that was it. They felt sick that you helped them to no avail, and you felt bad that you can't make the wall tall enough."
 -Anonymous, River Des Peres, St. Louis (stltoday.com)

Effects on St. Louis:

St. Louis, MO felt some of the worst conditions because of its location at the convergence of Mississippi and Missouri Rivers. At one point, an estimated 1,000,000 cubic feet of water rushed past the city every second. Water levels reached as high as 20 feet above flood stage—the highest ever recorded in its history at that point—and did not breach the 52-foot-floodwall by a mere two feet. On October 7, 1993, the relentless flood waters finally fell below flood stage 103 days after they began, leaving the most expensive flood damage yet recorded in its wake.



Courtesy of U.S. Army Corps of Engineers



Courtesy of U.S. Army Corps of Engineers