

INTRODUCTION

Extreme weather conditions, which produced as much as 27.5 inches of rain during a 55-hour period from May 8-10, 1995, caused the most severe flooding in recent history along coastal areas of the Gulf of Mexico in Mississippi and southeastern Louisiana (fig. 1). A resident near Biloxi, Mississippi, whose house had been under almost 4 feet of water said, "This was a hurricane without the wind." Several streamflow-gaging stations used to measure water levels in streams and rivers in the area recorded the highest peak stages in the history of their operation.

At least six people died and thousands more were left homeless as a result of the intense flooding. At least \$3 billion in property damages were reported in New Orleans, Louisiana alone, and millions more in damage were reported in the Gulf Coast counties in Mississippi and parishes in southeastern Louisiana as a result of the storm (fig. 2; *The Clarion Ledger*, 1995).

FLOOD OF MAY 9-10, 1995

A short-wave trough of low pressure, fueled by excessive dew points coupled with a subtropical jet stream positioned along a stationary front, triggered extreme rainfall which persisted across the coastal areas of Mississippi and southeastern Louisiana during May 8-10, 1995, resulting in two separate storms. Official rainfall totals for the storms exceeded 20 inches at several locations in Mississippi and southeastern Louisiana. Rainfall intensities exceeded the 100-year rainfall for a 24-hour period in parts of the area. Rainfall rates of 2 to 3 inches per hour were common during this period (written and oral commun., Lower Mississippi River Forecasting Center of the National Oceanic and Atmospheric Administration, National Weather Service).

Intense rainfall in southeastern Louisiana resulted in severe urban flooding in New Orleans, Slidell, and many small towns in the State. The Tangipahoa River near Robert, Louisiana, and the Tchoufouca River near Folsom, Louisiana, however, had only moderate rises in stage. The lower Pearl River, which was above flood stage before the storms, rose an additional 2.5 feet during this storm.

In Mississippi, flooding was most severe in the Biloxi, Jourdan, Wolf, and Tchoutacabouffa River Basins. The response of these rivers to the storms was both rapid and devastating as rivers in the affected basins reached record or near record stages and returned to below flood stage within 48 hours after the end of the rainfall.

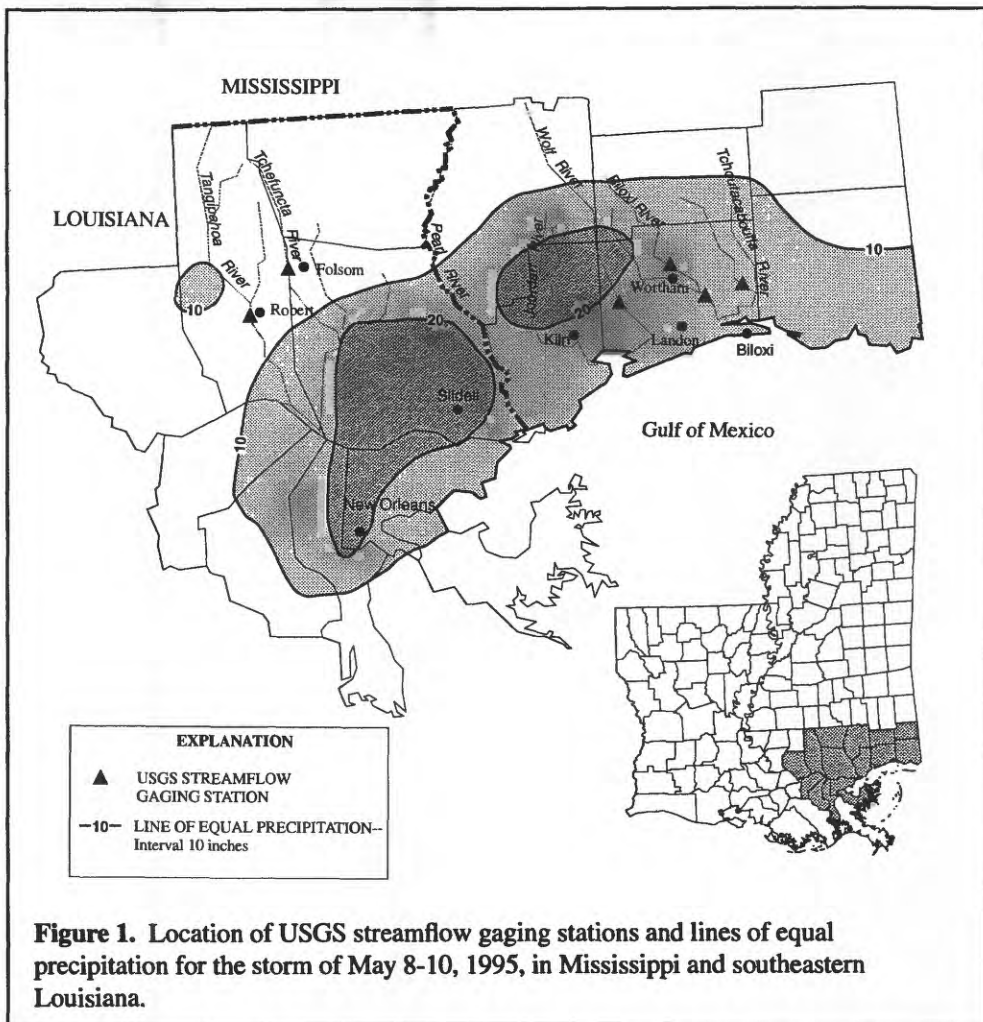


Figure 1. Location of USGS streamflow gaging stations and lines of equal precipitation for the storm of May 8-10, 1995, in Mississippi and southeastern Louisiana.

ROLE OF THE U.S. GEOLOGICAL SURVEY

The U.S. Geological Survey (USGS) collects and disseminates relevant, unbiased data to support planning and management of the Nation's water resources. In keeping with its mission, the USGS has operated a streamflow-gaging network in cooperation with Federal, State, and local agencies in Louisiana and Mississippi for about 100 years, that include many active and inactive gages in the flooded area.

During and after the flood event, personnel of the USGS made streamflow measurements at active and inactive gages in the area. From May 13-15, personnel of the USGS recovered high-water marks and observed and documented the scouring effect of water and debris at 81 bridge crossings. High-water marks were recovered upstream and downstream at 33 of the 81 crossings to determine hydraulic characteristics at

the bridge sites. Local residents were interviewed where possible for historical documentation of floods as well as for assistance in locating high-water marks.

FLOOD FACTS AND HISTORICAL COMPARISON

The Biloxi River near Wortham, Mississippi, peaked on May 9 at a stage of 28.94 feet, and a discharge of 13,100 cubic feet per second (fig. 3). This stage was 3.6 feet above the peak stage for the period of record (1948-95), and the discharge was greater than a 100-year flood (the 100-year flood is the peak streamflow that has a 1-percent chance of being equaled or exceeded in any given year). The Biloxi River near Lyman, Mississippi, peaked on May 10 at a stage of 23.95 feet (datum of this gage is 3.00 feet below sea level) and a discharge of 37,000 cubic feet per second. This stage was 4.2 ft above the peak stage for the period of record (1948-95), and the discharge was greater



Figure 2. Sand and mud deposited as a result of the flood of May 9-10, 1995 along the Jourdan River at Kiln, Mississippi (photo by J.D. Schwalm, *The Clarion Ledger*).

than a 100-year flood. The Wolf River near Landon, Mississippi, peaked on May 10 at a stage of 28.85 feet, and a discharge of 24,500 cubic feet per second. This stage was 1.7 feet above the peak stage for the period of record (1971-95), and the discharge was about a 50-year flood.

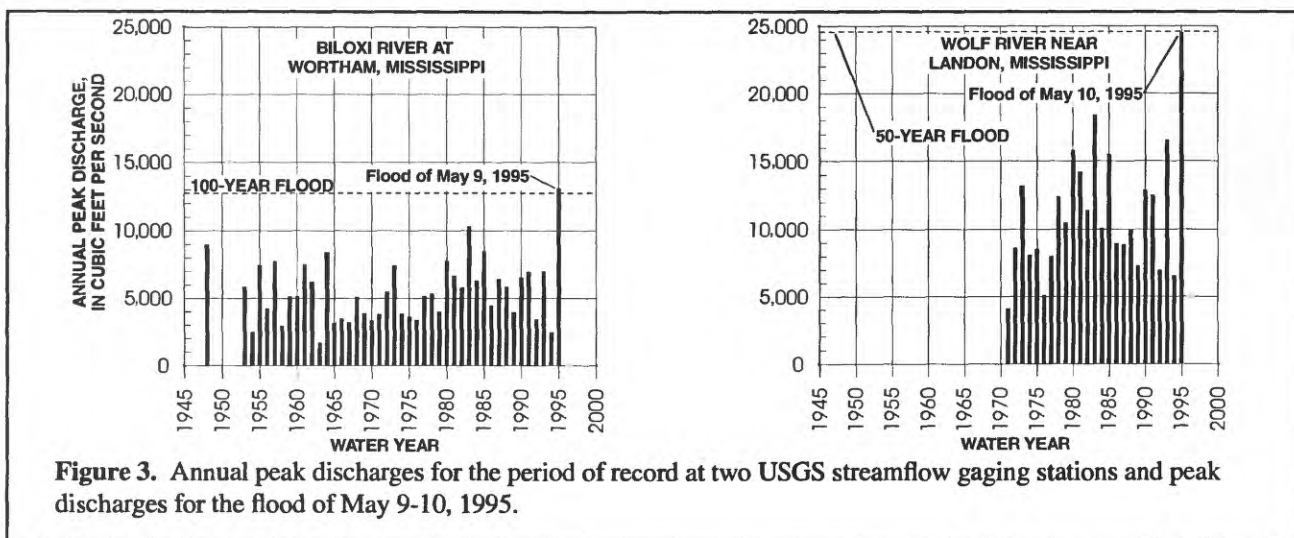
High-water marks recovered in the Biloxi River Basin indicate that more than half of the bridge crossings were topped during the flood. State and county road bridges were damaged throughout the area. At one site the measured streamflow over the road exceeded the measured streamflow under the bridges.

Rainfall, stage, and discharge data in this report are provisional and subject to change upon further review by personnel of the U.S. Geological Survey and the National Weather Service.

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