Alabama Flood History

History of Flooding in Alabama

A moderate flood occurs in some main stream almost every year, while major flooding can be expected on at least one major river every three to five years and may produce property damage amounting to millions of dollars. During the 12-month period from January 1990 to January 1991, 63 of the 67 counties in Alabama were included in presidential disaster declarations for flooding.

In February 1990, a flood disaster occurred from saturation flooding and the inability of the drainage to accommodate the large volume of water dumped on the central and northeast parts of the state during the first half of February. Twenty-seven counties in central and northeastern Alabama were given disaster declarations due to repetitive rains over a 15-day period, which saturated the ground and weakened the root support systems of the trees.

Immediately following the February 1990 floods, 33 counties in southern Alabama were included in a March 21 disaster declaration resulting from a series of strong thunderstorms continuously forming and moving over the same area. With rain falling nearly parallel to the affected river basins, flooding was more severe than in the past flood events, where rain fell across the basins. The United States Geological Survey (USGS) reported a greater than 100-year flood event on the Choctawhatchee River at Blue Springs and Newton; on the Pea River near Ariton; and on the Conecuh River at Brantley. Flooding along the Alabama River in Selma and Montgomery was characterized as a 50-year event.

In January 1991, 12 north Alabama counties were declared flood disaster areas resulting from weather conditions over a four-day period. The resultant slow-moving front produced a "train-echo" effect in the continuous formation and northeastward movement of thunderstorms over the area. The rainfall amounts across north Alabama spanned from 10 to nearly 16 inches. The water level in rivers and creeks equaled the 1973 flood of record. The majority of the damage from this flood was in Madison and Morgan Counties. Four of the counties (Cullman, Jackson, Morgan, and Marshall) were also designated in the February 1990 declaration.

Tropical Storm Alberto made landfall in the Destin, Florida/Choctawhatchee Bay area on July 3, 1994. Lack of upper air movement caused the storm to stall over Alabama and Georgia until July 8, 1994. Because the storm did not move far from the Gulf or the Atlantic, it continued to bring moisture from both of these sources into the system. The effects of Tropical Storm Alberto can be compared to Hurricane Juan in 1985, which stalled and caused severe flood damage in Louisiana.

The most serious and devastating flooding from Alberto occurred along the Choctawhatchee and Pea Rivers as one of the worst floods in Alabama history. Only the Great Flood of March 1929, and the more recent flood in March 1990 have been more severe than this flood in the modern period of record. Other significant flooding occurred along the Chattahoochee River, Shoal River, Yellow River, Conecuh River, and lower Tallapoosa River.

Hurricane Opal, the ninth hurricane of an active 1995 season, made landfall near Hurlbut Field, just east of Fort Walton Beach, Florida on Wednesday, October 4, 1995. In the coastal Alabama communities of Baldwin and Mobile Counties

storm surge severely eroded beaches, damaged piers, docks, boats, and roads, and flooded low-lying areas.

Vulnerability to Flooding

Alabama receives more annual rainfall than any other state in the Union, creating the potential for devastating floods. Alabama is divided into three distinct geographic regions that have different flooding problems: Highlands (North), Piedmont (Central), and Gulf Coastal South).

North Alabama, commonly referred to as the Tennessee Valley Region, is a unique area to the State of Alabama. The 12 northernmost counties reside in the Highland Rim and Cumberland Plateau Formations. Rainfall in this area is usually abundant and distributed throughout the months with an average range of 52 to 56 inches annually, of which 20 to 24 inches is runoff. This region has experienced considerable growth. The 12 counties comprise approximately 20 percent of the total Alabama population for 1990, or approximately 814,000 residents.

The 27 counties included in the February 1990 declaration extend through the central and northeast portion of the state. Four counties in the west central part of the state can be considered alluvial river basin land. The remaining 23 counties are hilly and heavily wooded in unpopulated areas. In this area, Jefferson and Shelby counties have the worst record of serious flooding. The hilly terrain has an extensive drainage system of small streams that flow generally southeast to form the Coosa and Tallapoosa River systems in the eastern part of the state and the Cahaba, Warrior, Sipsey, and Tombigbee River systems in the western part of the area. The larger river systems south of the area included in the February 1990 flood were able to handle the runoff from the creeks and streams in the mountainous terrain. The 27 counties comprise almost half of the total state population.

The ten southern counties affected in theJuly 1994 disaster declaration lie predominantly in the Choctawhatchee, Pea, Conecuh, and Chattahoochee River watersheds. These rivers are fed by tributaries, including the Little Choctawhatchee and Chipola Rivers, Whitewater, Patrick, Newton, Cowarts, Limestone, Beaver, Double Bridges, Wedowee, Frog Level, Murder, Uchee, Little Uchee, Hatchechubee, Otter, Shack, Hunter, Tomley, Cane, and Claybank Creeks. The area is subject to riverine flooding from the major streams and tributaries as a result of runoff or backwater from storm systems such as Alberto. Excessive rainfall and severe flooding caused erosion and damage to agricultural and forest lands. In some instances, this damage threatened life and property. Large amounts of sediment and debris were deposited in floodplains and within streams throughout the affected watersheds.

This area of Alabama is heavily cultivated and is highly vulnerable to erosion because the area is mostly composed of deep sandy soils. Large, caving gullies frequently develop where surface flows are concentrated on steep slopes. The area is predominantly rural with the largest city being Dothan, in Houston County, with a population of 53,589 in 1990.

Flooding occurs frequently in the coastal area due to the low contours and close proximity to coastal rivers and bays. Due to the increase in population and development in the two coastal counties, flood zones that were not considered developable 20 years ago are now being developed. Although FEMA identifies a base flood elevation for all buildings within a flood prone area, substantial damage can still occur to developments in these areas.