

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
AUSTIN, TEXAS

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FLOODS IN DEVILS AND
PECOS RIVER BASINS OF TEXAS
JUNE 27, 28, 1954

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MISCELLANEOUS DATA

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by
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General

Record-breaking floods occurred June 27, 28, 1954, in the Devils and lower Pecos Rivers and in some tributaries to those streams, caused by heavy rainfall of June 26-28. At the time of the flood the Geological Survey was not operating a gaging station in the Devils River basin or in the Pecos River basin below Girvin. Continuous records of the flow of Devils River were obtained by the Geological Survey at the station at Baker's Crossing near Juno from May 1925 to September 1949 and on the Pecos River near Sheffield from October 1921 to April 1925 and from October 1939 to September 1949. Records of the great flood flows near the mouths of the Devils and Pecos Rivers mentioned above were obtained by the International Boundary and Water Commission, United States and Mexico, at gaging stations maintained by that agency on the Devils River near Del Rio and the Pecos River near Comstock. The outstanding nature of the flood in the lower Pecos River is shown by the fact that the maximum stage reached at the Comstock gaging station was 97.8 ft on June 27, 1954, whereas the maximum stage reached at this gage between the beginning of record in 1900 and 1954 was only 38.2 ft.

Records of rainfall from the few official Weather Bureau rainfall stations in the area were supplemented by numerous unofficial records obtained by a bucket survey conducted by the Weather Bureau, the International Boundary and Water Commission, and the Corps of Engineers.

A survey party from the Geological Survey, Surface Water Branch,

Austin, Texas, was in the Devils and Pecos River basins during July 6-11, 1954, for the purpose of obtaining field data for determining the maximum discharge of Johnson Draw at Ozona, to determine maximum stages at the discontinued gaging stations near Juno and near Sheffield, and to obtain miscellaneous information about the floods at other points. Information obtained in the field by this survey is given below.

Devils River at Baker's Crossing near Juno, Tex.

The record-breaking flood that crested in the Devils River between 12:30 and 2:30 p.m., June 28, 1954, at the discontinued gaging station at Baker's Crossing near Juno was found by levels of July 9, 1954, to have reached a stage of 35.0 ft gage datum.

Jim Baker, who lives in Baker Ranch house on the left bank of Devils River about 800 ft upstream from the discontinued gage, stated that only moderate flood flows occurred on Sunday, June 27, the first large flood flow beginning around midnight on that date. The first large crest occurred about 2 a.m., Monday, June 28, and was equal in height to the flood of July 4, 1948, which reached a gage height of 26.8 ft.

Mr. Baker stated that by 10 a.m., June 28, the stage had fallen about 10 ft from this crest and then started rising to the maximum peak of 35.0 ft occurring between 12:30 and 2:30 p.m. He stated that the river had fallen about 8 ft from the maximum peak by 5:30 p.m. and had fallen about another 10 ft by 10:30 p.m. At daylight on June 29 the stage of the river was 8 or 10 ft, and was down to 4 or 5 ft on the morning of June 30.

Mr. Baker stated that he had measured down from the floor of the front porch of his house, which was built in 1882, to the high water of June 28, 1954. He stated that the maximum high water on June 28, 1954 was 1 foot higher than that of Sept. 1, 1932, as determined by these measurements. The peak stage of the flood of Sept. 1, 1932, at the gaging station then in operation was determined to be and published as, 31.3 ft. That figure was revised in 1948 to 33.8 ft, on the basis of information obtained in 1948, which is 1.2 ft lower than the peak stage determined for the flood of June 28, 1954.

The maximum discharge for the flood of Sept. 1, 1932, was determined by the slope-area method to be 370,000 cfs, gage height 33.8 ft, and for the flood of July 4, 1948, to be 245,000 cfs, gage height 26.8 ft. An extension of the rating curve based on these two measurements, and on other measurements at lower stages, gives a maximum discharge of 393,000 cfs for the peak stage of 35 ft for the flood of June 28, 1954.

Information furnished by Messrs. Walter and Jim Baker shows that the greatest flood at this place since 1882 was that occurring the afternoon of June 28, 1954, which reached a stage of 35.0 ft. The second highest flood was that of Sept. 1, 1932, which reached a stage of 33.8 ft. The third highest flood occurred July 4, 1948, and reached a stage of 26.8 ft. The maximum stage occurring between 1882 and 1932 was about 22 ft which, according to Mr. Baker, occurred in three different years--1882, 1896, and 1916.

Devils River above Johnson Draw at Juno, Tex.

Bill Greenwood of Juno stated that the Devils River at the Juno post office--on the right bank of the Devils River about 2 miles upstream from the mouth of Johnson Draw--had a moderate flood, up 10 ft or so, and that all draws in the neighborhood were up and down on Sunday, June 27. He stated that 3 to 5 inches of rain fell in the early hours of Monday, giving a total of 14.5 inches between Saturday noon and 6 a.m., Monday. He also stated that the big rise on Devils River at this place started about daylight Monday, June 28, and reached its maximum stage about 1 p.m. that day.

Observations by local residents and other evidence indicated that the peak which occurred about 1 p.m., June 28, at the Juno post office was very large. This is the peak that contributed to the record-breaking peak at the old Juno gage at Baker's Crossing, about 18 miles downstream from the Juno post office and 16 miles downstream from Johnson Draw.

Johnson Draw at Ozona, Tex.

A flood occurred in Johnson Draw at Ozona about 5 to 6 a.m. on June 28 which flooded a large part of the town, drowned a number of people, and destroyed much property. In addition to the business establishments that may have been damaged or destroyed, it is stated that 102 homes were completely washed away, 117 badly damaged, and another 111 received some damage.

Dick Henderson, who lives near the right edge of the Johnson Draw flood plain, a short distance upstream from Ozona, stated that the first peak occurred in Johnson Draw about midnight Sunday, June 27, when the

maximum stage was 5 or 6 ft below the highway bridge on U. S. 290, and that the stage was falling at 1 a.m. He stated that the second peak, which was many feet higher than the first, occurred about 5 a.m., June 28. He also stated that Gurley Draw, which flows into Johnson Draw from the left a short distance downstream from U. S. Highway 290 and which flows through a section of town known as Mexico, peaked about 11 p.m., June 27. It is a comparatively short draw and would not hold a peak very long. Mr. Henderson also stated that the small draw between his place and Ozona had also peaked before midnight.

Levels were run from a mean sea level benchmark at the court house in Ozona to high-water marks along U. S. Highway 290 and the elevation of the peak of the flood of June 28, 1954, was found to be 2,343.2 ft above mean sea level near the left edge of the overflow on U. S. Highway 290.

George Cook, a longtime resident, was reported to have stated that a flood in 1900 reached about the same stage as the recent flood and that a flood in 1921 was nearly as big.

John Bailey, a longtime resident, was reported to have stated that the 1900 flood in the town of Ozona was bigger than the 1954 flood.

The discharge for the peak occurring at Ozona at 5-6 a.m., June 28, 1954, was determined to be 72,700 cfs by the slope-area method at a reach beginning 2 miles upstream from U. S. Highway 290 crossing. This discharge was from an area of 120 sq mi. Only small draws enter Johnson Draw between the slope-area reach and Ozona and from evidence on the ground and from observations by local residents, these small draws had crested and largely run out prior to the main peak in Johnson Draw.

Johnson Draw near mouth near Juno, Tex.

An inspection was made of Johnson Draw from its mouth upstream 10 or 12 miles in search of a suitable reach for determining peak discharge by the slope-area method. A high-water profile was run at one reach extending downstream from the J. C. Mayfield ranchhouse, which is about 2 miles upstream from the mouth. This profile indicated that the reach was unsuitable for use. The high-water marks at this reach showed two peaks, the first peak being about 1.5 ft higher than the second. Information obtained at the J. C. Mayfield ranch shows that the first and greatest peak occurred about 2:30 a.m. on June 28, 1954, and the second peak (about 1.5 ft lower) occurred shortly after noon on the same day. The higher peak was the greatest flood ever seen at this place according to J. C. Mayfield, who has lived here about 38 years.

The first and greatest peak from Johnson Draw undoubtedly was the main contribution to the first and smaller peak at the former gaging station near Juno 16 miles downstream, which was said to have equalled the 1948 peak discharge of 245,000 cfs. According to statements from local residents, the Devils River above the mouth of Johnson Draw was only moderately flooding during the night of June 27, which indicates that most of the flood that reached the peak discharge of 245,000 cfs at the old gage early in the morning of June 28 came from Johnson Draw. These facts and evidences on the ground indicate that the peak discharge out of Johnson Draw was around 200,000 cfs. The second and smaller rise out of Johnson Draw apparently tied in closely

in time with the large rise from the main Devils River and produced the record-breaking stage of 35 ft at the former gage at Baker's Crossing near Juno.

Liveoak Creek at U. S. Highway 290 east of Sheffield, Tex.

An inspection of this stream was made on July 10, 1954. A flood of unusual magnitude occurred here during the night of June 27-28, 1954, partly destroying the highway bridge. The flood overflowed the bridge and the approach for some distance. This bridge had considerable waterway opening for a stream of this size but had collected great quantities of drift that had reduced the waterway opening an unknown amount at the peak of the flood. This flood apparently moved great quantities of drift.

The stream channel was inspected upstream for a distance of about 2 miles. Where a tree in the flood plain was of sufficient size not to have been destroyed by the flood, a great amount of drift was found lodged against it. Undoubtedly much bulldozing of brush and timber had been done in recent years in this basin and prior to this recent flood no flood of sufficient size had occurred to move any considerable quantity of the debris.

From the appearance of the stream channel and evidences of flood velocities, the peak discharge at U. S. Highway 290 is estimated to have been about 100,000 cfs.

Pecos River near Sheffield, Tex.

A flood occurred during the night of June 27, 28, 1954, at the discontinued gaging station known as Pecos River near Sheffield, which reached a maximum stage of 17.72 ft. On the basis of a short extension

of the rating curve developed for this station when it was in operation, the discharge corresponding to the stage of 17.72 ft was about 17,000 cfs. This flood came from tributaries to the Pecos a short distance upstream.

As no flood occurred at the active gaging station on Pecos River near Girvin, about 50 miles upstream from the discontinued station near Sheffield, the tremendous flood that occurred at the gaging station on Pecos River near Comstock came largely from tributaries to the Pecos River downstream from Sheffield.