

Aerial photomosaic was assembled from photographs furnished by the U. S. Department of Agriculture



LICKING RIVER FLOOD AREA
Heavy, solid, black lines represent approximate limit of the flood of January 21, 1959. Indicated gauge height is for the gaging station on Licking River near Newark, located at Stadden Bridge.

DATE OF FLOOD	ELEVATION ABOVE MEAN SEA LEVEL (FEET)	GAGE HEIGHT (FEET)
Jan. 21, 1959	799.3	20.3

EXPLANATION

— Flood limit 1959

○ 33.0
+ River miles above mouth of Licking River

FLOODS ON LICKING RIVER, NORTH FORK AND SOUTH FORK OF LICKING RIVER AND RACCOON CREEK, AT NEWARK, OHIO IN 1959

The approximate area inundated at Newark, Ohio, by the Licking River, by the North Fork and South Fork of Licking River, and by Raccoon Creek, during the flood of January 21, 1959, is shown on a photomosaic base in order to record the flood hazard in graphical form. This flood is a historic fact. Greater floods are possible, but no attempt has been made to show their probable overflow limits. The 1959 flood was the greatest on the Licking River since at least 1884. Protective works built after the flood of January 1959 can reduce the frequency of flooding in the area but will not necessarily eliminate future flooding. New highways and other cultural changes made after the flood of 1959 may influence the inundation pattern of future floods.

Flood height.—The height of a flood at a gaging station is usually stated in terms of the gage height or stage, which is the elevation of the water surface above a selected datum plane. Gage heights or stages at the gaging station on Licking River near Newark, which is located at Stadden Bridge about 3 1/2 miles east (downstream) of Newark, can be converted to elevations above mean sea level by adding 779.02 feet. Water surface elevations shown on the map are in feet above mean sea level datum.

Flood frequency.—The graph showing frequency of floods on Licking River (fig. 2) has been derived from the records at the U. S. Geological Survey gaging station combined with a regional flood-frequency relation for all streams in Ohio except those in the Maumee River basin. Large errors may result if the flood frequency curves are extrapolated beyond the limits shown. Frequency of flooding on North Fork and South Fork of Licking River and on Raccoon Creek has not been determined.

Recurrence intervals.—As applied to flood events, recurrence interval is the number of years, on the average, that will elapse between occurrences of floods that equal or exceed a specific flood height. It is inversely related to the chance of a specific flood being equalled or exceeded in any one year. Thus, a 20-year flood would have 1 chance in 20 of being equalled or exceeded in any one year, or a 25-year flood would have 1 chance in 25 of being equalled or exceeded in any one year.

The general relationship between recurrence interval and flood height at the Stadden Bridge gaging station on the Licking River near Newark from figure 2 is shown in the following tabulation.

Recurrence interval (years)	Elevation above mean sea level at Stadden Bridge (feet)
50	796.4
30	796.0
20	795.6
10	794.9
5	794.0
3	793.2

It is emphasized that recurrence intervals are average figures—the average number of years that will elapse between occurrences of floods that equal or exceed a certain flood height. Thus on Licking River, a flood that reaches a 795.6-foot elevation at the Stadden Bridge is said to have a 20-year recurrence interval. However, because of the erratic nature of flood occurrence, the 795.6-foot elevation may not be reached in any one 20-year period, or it may be reached more than once.

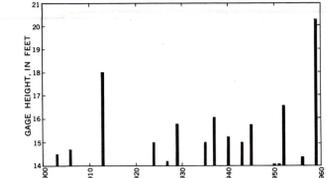


FIGURE 1.—ANNUAL FLOODS ABOVE 14-FOOT GAGE HEIGHT AT THE STADDEN BRIDGE GAGING STATION ON LICKING RIVER NEAR NEWARK, OHIO, 1903-06, 1913, 1922-59

Gage height and year of each annual flood (highest peak discharge each year) above the 14-foot gage height at the Stadden Bridge gaging station during the period of record on Licking River near Newark are shown in figure 1. The 14-foot gage height, which corresponds to an elevation of 793 feet, was exceeded 16 times in 43 years of record (fig. 1). Although floods above a 14-foot stage occurred on the average of about three times per decade, none were experienced in some decades, whereas five occurred during the period 1950-59. The erratic occurrence of floods is evident.

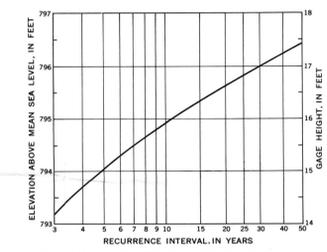


FIGURE 2.—FREQUENCY OF FLOODS ABOVE ELEVATION 793 FEET AT THE STADDEN BRIDGE GAGING STATION ON LICKING RIVER NEAR NEWARK, OHIO

Flood profiles.—Profiles of the water surface along Licking River, North Fork and South Fork of Licking River, and Raccoon Creek, constructed from marks left by the flood of January 21, 1959, are shown in figure 3. Profiles of floods corresponding to other flood heights can be plotted on this diagram generally parallel to those shown.

Additional data.—Other information pertaining to floods at Newark, Ohio, may be obtained at the office of the U. S. Geological Survey, 1509 Hess Street, Columbus, Ohio, and from the following published reports:

Floods of January-February 1959 in Ohio, U. S. Geological Survey Circular 418.

Floods in Ohio, Magnitude and Frequency, State of Ohio Department of Natural Resources, Division of Water, 1959, Bulletin 32.

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The aerial photomosaic was assembled from photographs furnished by the U. S. Department of Agriculture.

Flood profile data were furnished by the Ohio Department of Natural Resources, Division of Water.

The flood map was prepared by Frederick H. Ruggles, Jr., the flood-frequency relation was developed by William P. Cross, and the explanatory text was written by George W. Edeken, Jr.



Photograph by the Ohio Department of Highways
AERIAL VIEW OF FLOODED NEWARK, OHIO, JANUARY 22, 1959

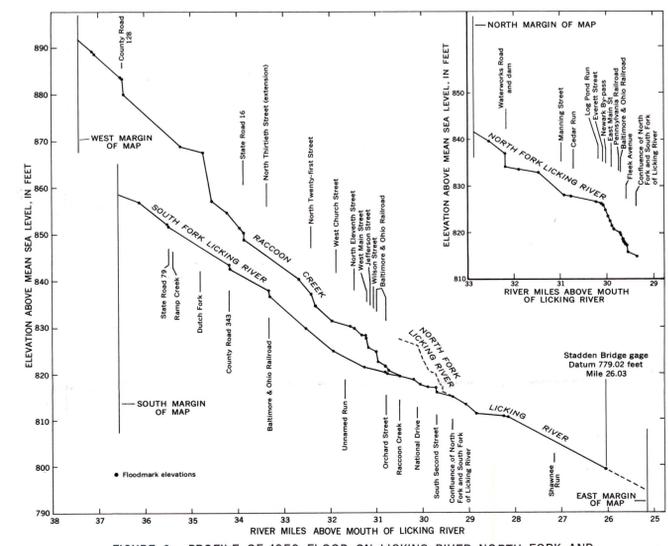


FIGURE 3.—PROFILE OF 1959 FLOOD ON LICKING RIVER, NORTH FORK AND SOUTH FORK OF LICKING RIVER, AND RACCOON CREEK