

Figure 1.--Map of conterminous United States showing areas covered by 18 of the 20 volumes on surface water supply. The area covered by this report is shaded.

Water-supply papers and other publications of the Geological Survey containing data on the water resources of the United States may be purchased or consulted as follows:

1. Copies may be purchased from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., who will, on application, furnish lists giving prices. A list of Geological Survey publications may also be obtained by applying to the Director, Geological Survey, Washington, D. C.

2. Sets of the reports may be consulted in the libraries of the principal cities in the United States.

3. Sets are available for consultation in the offices of the Water Resources Division of the Geological Survey. Addresses of the Offices in the area covered by this report are given on page 2.

Early records of the flow of streams in the United States are published in the reports listed below. In many of these reports records for years earlier than those indicated have been included for some streams.

Streamflow data for the years 1884-1901, in reports of the Geological Survey
(A = Annual Report; B = Bulletin)

Report	Character of data	Year
10th A, pt. 2	Descriptive information only.	
11th A, pt. 2	Monthly discharge and descriptive information.....	1884 to September 1890.
12th A, pt. 2do.....	1884 to June 30, 1891.
13th A, pt. 3	Monthly discharge and descriptive information.....	1884-92.
14th A, pt. 2	Monthly discharge.....	1888-93.
B 131.....	Descriptions, measurements, gage heights, and ratings.....	1893-94.
16th A, pt. 2	Descriptive information only.	
B 140.....	Descriptions, measurements, gage heights, ratings, and monthly discharge.	1895.
WSP 11.....	Gage heights.....	1896.
18th A, pt. 4	Descriptions, measurements, ratings, and monthly discharge..	1895-96.
WSP 15.....	Descriptions, measurements, and gage heights of streams east of the Mississippi River, and Missouri River and tributaries above Kansas River.	1897.
WSP 16.....	Descriptions, measurements, and gage heights of streams west of the Mississippi River, except Missouri River and tributaries above Kansas River.	1897.
19th A, pt. 4	Descriptions, measurements, ratings, and monthly discharge..	1897.
WSP 27.....	Measurements, ratings, and gage heights of streams east of the Mississippi River, and Missouri River and tributaries.	1898.
WSP 28.....	Measurements, ratings, and gage heights of streams west of the Mississippi River, except Missouri River and tributaries.	1898.
20th A, pt. 4	Monthly discharge.....	1898.
WSP 35 to 39.	Descriptions, measurements, gage heights, and ratings.....	1899.
21st A, pt. 4	Monthly discharge.....	1899.
WSP 47 to 52.	Descriptions, measurements, gage heights, and ratings.....	1900.
22d A, pt. 4.	Monthly discharge.....	1900.
WSP 65, 66...	Descriptions, measurements, gage heights, and ratings.....	1901.
WSP 75.....	Monthly discharge.....	1901.

Reports on surface-water supply containing records from 1899 to date for drainage basins in this report are listed below. The data for any particular gaging station will, in general, be found in the reports covering the years during which the station was maintained. Before 1951, records for the Missouri River basin below Sioux City, Iowa, were included with those of the other rivers of the Missouri River basin.

Numbers of water-supply papers containing results of stream measurements in Missouri River basin below Sioux City, Iowa, 1899-1959

Year	WSP	Year	WSP	Year	WSP	Year	WSP	Year	WSP
1899	37	1912	326	1925	606	1937	825	1949	1146
1900	49, a50	1913	356	1926	626	1938	856	1950	1176
1901	66, 75	1914	386	1927	646	1939	876	1951	1210
1902	84	1915	406	1928	666	1940	896	1952	1240
1903	99	1916	436	1929	686	1941	926	1953	1280
1904	130, b131	1917	456	1930	701	1942	956	1954	1340
1905	172	1918	476	1931	716	1943	976	1955	1390
1906	208	1919-20	506	1932	731	1944	1006	1956	1440
1907-8	246	1921	526	1933	746	1945	1036	1957	1510
1909	266	1922	546	1934	761	1946	1056	1958	1560
1910	286	1923	566	1935	786	1947	1086	1959	1630
1911	306	1924	586	1936	806	1948	1116		

a Loup, Platte, and Elkhorn Rivers and tributaries below Platte River.

b Platte and Kansas Rivers.

A compilation of records for the area covered by this report through September 1950 has been published as Water-Supply Paper 1310. That report contains a summary of monthly and annual discharges for all previously published records as well as some records not contained in the annual series of water-supply papers. All records were reexamined and revised where warranted. Estimates of discharge were made to fill short gaps whenever practical.

The reports listed in the foregoing tables contain the customary records of discharge collected during the systematic operation of gaging stations. Detailed information on the stage and discharge of many streams during major floods has been included in special reports on these floods published by the Geological Survey or other agencies. The more recent of these special reports also contain other pertinent hydrologic information and analyses and compilations of data relating to earlier notable floods. The following list gives the numbers and titles of these reports.

<u>Report</u>	<u>Issued by</u>
WSP 96: Destructive floods in the United States in 1903.	U. S. Geological Survey
WSP 147: Destructive floods in the United States in 1904.	Do.
WSP 162: Destructive floods in the United States in 1905.	Do.
WSP 520-G: Some floods in the Rocky Mountain region.	Do.
WSP 771: Floods in the United States, magnitude and frequency.	Do.
WSP 796-B: Flood on Republican and Kansas Rivers, May and June 1935.	Do.
WSP 847: Maximum discharges at stream-measurement stations through September 1938.	Do.
WSP 997: Floods in Colorado.	Do.
WSP 1137-D: Floods in May-July 1950 in southeastern Nebraska.	Do.
WSP 1139: Kansas-Missouri floods of July 1951.	Do.
WSP 1227-D: Summary of floods in the United States during 1951.	Do.
WSP 1260-B: Floods of April 1952 in the Missouri River basin.	Do.
WSP 1320-A: Floods of June 1953 in northwestern Iowa.	Do.
WSP 1320-E: Summary of floods in the United States during 1953.	Do.
WSP 1370-A: Floods of June 1954 in Iowa.	Do.
WSP 1370-C: Summary of floods in the United States during 1954.	Do.
Bull. 1: Iowa floods, magnitude and frequency.	Iowa Highway Research Board.
Floods in Nebraska, magnitude and frequency,	Nebraska State Department of Roads and Irrigation.

RECORDS OF DISCHARGE COLLECTED BY AGENCIES OTHER THAN THE GEOLOGICAL SURVEY

The Agricultural Research Service of the United States Department of Agriculture has collected records of discharge from 13 areas near Hastings, Nebr., beginning in 1939, 1 of 3,490 acres, 1 of 2,086 acres, 1 of 481 acres, 1 of 411 acres, and 9 of about 4 acres each; and from 2 areas near McCredie, Mo., 1 of 153 acres beginning in 1941 and 1 of 44.3 acres beginning in 1951. These records are in the files of the Agricultural Research Service.

HYDROLOGIC CONDITIONS

Runoff during the water year was generally below median or deficient in the western part of the area and above median to excessive in the eastern part of the area except at times when it was deficient in parts of Iowa and Missouri. Local flooding occurred in Iowa and Kansas in May. The flood in the Black Vermillion River near Frankfort, Kans., on May 30 caused severe damage. Severe flooding, which exceeded any flood remembered by local residents for at least a 50-year period, occurred on August 2 in Wahoo and Silver Creeks in Nebraska. The resultant damage was estimated to exceed \$1,000,000 and over 23,000 acres of cropland were inundated. Outstanding floods also occurred in the Grand River basin in Iowa and Missouri in August.

Figure 2 on page 12, for which records of three long-term gaging stations were used, shows a comparison of the monthly and yearly mean discharges for the 1959 water year with the median discharge for the period 1921-45.

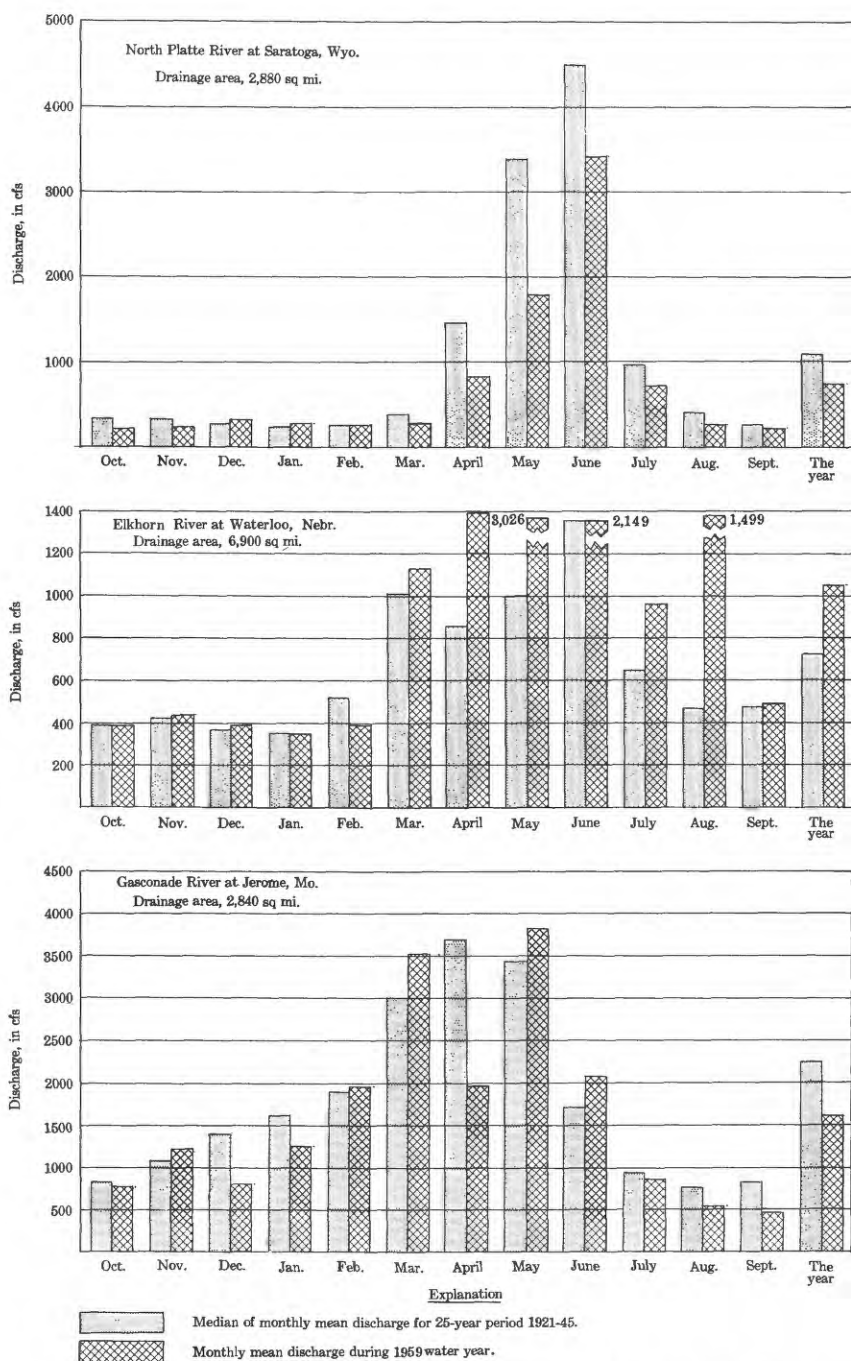


Figure 2. Comparison of discharge at three key gaging stations during 1959 water year with median discharge for 25-year period.

