

Annual Peak-Flow Frequency Analysis

For more information on the contents of this documentation, see Kessler and others (2013).

**Streamgauge number and name:**

05094000 South Branch Two Rivers at Lake Bronson, Minn.

**Peak-flow information:**

Number of systematic peak flows in record	74
Systematic period begins	1929
Systematic period ends	2011
Length of systematic record	83
Years without information	9
Number of historical peak flows in record	0

**Frequency analysis options:**

Method	Expected moments algorithm (EMA)
Skew option	Weighted
Generalized skew	-0.5
Standard error of generalized skew	0.4266
Low-outlier method	Single Grubbs-Beck test

**EMA systematic record analysis results:**

**Moments of the common logarithms of the peak flows:**

	Standard	
Mean	deviation	Skewness
3.1368	0.3642	-0.676

**Low-outlier information:**

Number of low outliers	1
Low-outlier threshold	200

**Final analysis results:**

**Moments of the common logarithms of the peak flows:**

	Standard	
Mean	deviation	Skewness
3.1369	0.3638	-0.605

**Annual frequency curve at selected exceedance probabilities:**

[WIE, Weighted independent estimate; --, not computed]

Exceedance probability	Peak estimate	Lower-95 level	Upper 95 level	WIE estimate	Lower-95 WIE level	Upper 95 WIE level
0.9950	99	24.6	176	--	--	--
0.9900	136	43.1	224	--	--	--
0.9500	304	161.0	426	--	--	--
0.9000	450	287.0	597	--	--	--
0.8000	702	514.0	888	--	--	--
0.6667	1,030	806.0	1,270	--	--	--
0.5000	1,490	1,210.0	1,820	1,480	1,220	1,800
0.4292	1,720	1,400.0	2,090	--	--	--
0.2000	2,810	2,330.0	3,420	2,810	2,350	3,360
0.1000	3,740	3,100.0	4,700	3,750	3,100	4,540
0.0400	4,920	3,980.0	6,630	4,960	3,930	6,270
0.0200	5,780	4,490.0	8,260	5,850	4,430	7,730
0.0100	6,600	4,900.0	10,100	6,740	4,860	9,340
0.0050	7,390	5,220.0	12,000	--	--	--
0.0020	8,390	5,530.0	15,000	8,750	5,640	13,600

**Peak-flow data used in the analysis:**

Explanation of symbols and codes

-- none

\* Less than low-outlier threshold

Water	Peak	Peak-flow	Water	Peak	Peak-flow
year	flow	code	year	flow	code
1929	940	--	1974	2,460	--
1930	1,820	--	1975	1,960	--
1931	300	--	1976	980	--
1932	1,310	--	1977	219	--
1933	415	--	1978	2,770	--
1934	64	*	1979	3,340	--
1935	565	--	1980	820	--
1936	358	--	1981	340	--
1937	594	--	1982	1,040	--
Gap in systematic record			1983	1,530	--
1941	1,580	--	1984	623	--
1942	2,210	--	1985	2,790	--
1943	1,050	--	1986	2,510	--
1944	820	--	1987	996	--
1945	670	--	1988	1,170	--
1946	668	--	1989	2,100	--
1947	1,290	--	1990	784	--
Gap in systematic record			1991	2,160	--
1954	567	--	1992	1,870	--
1955	1,020	--	1993	3,050	--
1956	2,650	--	1994	850	--
1957	1,810	--	1995	2,080	--
1958	355	--	1996	4,290	--
1959	1,110	--	1997	4,260	--
1960	1,270	--	1998	1,510	--
1961	451	--	1999	4,290	--
1962	2,960	--	2000	881	--
1963	1,570	--	2001	3,380	--
1964	2,210	--	2002	2,730	--
1965	2,780	--	2003	547	--
1966	5,410	--	2004	3,610	--
1967	2,430	--	2005	3,000	--
1968	2,290	--	2006	4,590	--
1969	3,520	--	2007	1,260	--
1970	4,140	--	2008	780	--
1971	1,500	--	2009	2,790	--
1972	1,480	--	2010	3,120	--
1973	200	--	2011	3,080	--