Annual Peak-Flow Frequency Analysis
For more information on the contents of this documentation, see Kessler and others (2013).

Streamgage number and name:

05112000 Roseau River below State Ditch 51 near Caribou, Minn.

Peak-flow information:

Number of systematic peak flows in record	92
Systematic period begins	1920
Systematic period ends	2011
Length of systematic record	92
Years without information	0
Peak flows not used in analysis	1
Number of historical peak flows in record	0

Frequency analysis options:

Method	Bulletin 17B
Skew option	Weighted
Generalized skew	-0.505
Standard error of generalized skew	0.426
Low-outlier method	Bulletin 17B Grubbs-Beck test

Bulletin 17B systematic record analysis results:

Moments of the common logarithms of the peak flows:

Mean	Standard deviation	Skewness
3.2085	0.2269	-0.774

Outlier criteria and number of peak flows exceeding:

Low	339.0	0
High	7704.1	0

Bulletin 17B Final analysis results:

Moments of the common logarithms of the peak flows:

Mean	Standard deviation	Skewness
3.2085	0.2269	-0.676

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	304	236	371	––	––	––
0.9900	373	298	447	––	––	––
0.9500	626	533	716	––	––	––
0.9000	806	704	903	––	––	––
0.8000	1,070	957	1,180	––	––	––
0.6667	1,360	1,240	1,490	––	––	––
0.5000	1,710	1,570	1,880	1,740	1,550	1,940
0.4292	1,870	1,710	2,060	––	––	––
0.2000	2,530	2,290	2,830	2,570	2,330	2,840
0.1000	3,010	2,700	3,420	3,070	2,760	3,410
0.0400	3,540	3,130	4,080	3,640	3,180	4,160
0.0200	3,880	3,420	4,530	4,040	3,430	4,760
0.0100	4,190	3,670	4,930	4,430	3,640	5,380
0.0050	4,470	3,890	5,300	––	––	––
0.0020	4,800	4,150	5,740	5,260	4,010	6,890

Peak-flow data used in the analysis:

Explanation of symbols and codes

−− none

H Historic, outside of systematic record

Water year	Peak flow	Peak-flow code	Water year	Peak flow	Peak-flow code
1917	1,470	H	1955	1,080	−−
			1956	2,300	−−
1920	1,720	−−	1957	1,790	−−
1921	1,980	−−	1958	877	−−
1922	1,360	−−	1959	1,570	−−
1923	2,980	−−	1960	1,650	−−
1924	1,230	−−	1961	611	−−
1925	2,140	−−	1962	2,070	−−
1926	1,900	−−	1963	1,510	−−
1927	3,170	−−	1964	1,430	−−
1928	1,670	−−	1965	2,690	−−
1929	980	−−	1966	3,120	−−
1930	1,380	−−	1967	2,410	−−
1931	1,140	−−	1968	1,860	−−
1932	1,710	−−	1969	2,480	−−
1933	1,350	−−	1970	2,940	−−
1934	424	−−	1971	1,740	−−
1935	800	−−	1972	1,690	−−
1936	1,020	−−	1973	719	−−
1937	1,360	−−	1974	2,720	−−
1938	1,750	−−	1975	2,540	−−
1939	340	−−	1976	1,330	−−
1940	832	−−	1977	380	−−
1941	1,660	−−	1978	2,260	−−
1942	2,070	−−	1979	2,980	−−
1943	1,700	−−	1980	1,050	−−
1944	1,270	−−	1981	742	−−
1945	1,760	−−	1982	1,660	−−
1946	1,560	−−	1983	1,400	−−
1947	1,780	−−	1984	1,230	−−
1948	2,460	−−	1985	1,490	−−
1949	1,480	−−	1986	2,370	−−
1950	4,080	−−	1987	1,630	−−
1951	2,200	−−	1988	1,000	−−
1952	1,070	−−	1989	1,340	−−
1953	797	−−	1990	400	−−
1954	1,160	−−	1991	1,340	−−

Water year	Peak flow	Peak-flow code
1992	2,470	−−
1993	1,730	−−
1994	1,300	−−
1995	2,350	−−
1996	3,350	−−
1997	3,320	−−
1998	1,590	−−
1999	2,590	−−
2000	1,520	−−
2001	2,920	−−
2002	4,320	−−
2003	781	−−
2004	3,480	−−
2005	2,450	−−
2006	2,970	−−
2007	2,000	−−
2008	1,250	−−
2009	3,240	−−
2010	2,220	−−
2011	3,000	−−