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

Streamgage number and name:

05132000 Big Fork River at Big Falls, Minn.

Peak-flow information:

Number of systematic peak flows in record	83
Systematic period begins	1910
Systematic period ends	2011
Length of systematic record	102
Years without information	19
Number of historical peak flows in record	0

Frequency analysis options:

Method	Expected moments algorithm (EMA)
Skew option	Weighted
Generalized skew	-0.28
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:

Mean	Standard deviation	Skewness
3.7031	0.2668	-0.411

Low-outlier information:

Number of low outliers	1
Low-outlier threshold	1,300

Final analysis results:

Moments of the common logarithms of the peak flows:

Mean	Standard deviation	Skewness
3.7032	0.2667	-0.365

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	842	391	1,200	––	––	––
0.9900	1,030	543	1,410	––	––	––
0.9500	1,730	1,200	2,150	––	––	––
0.9000	2,250	1,720	2,710	––	––	––
0.8000	3,050	2,510	3,570	––	––	––
0.6667	4,000	3,410	4,630	––	––	––
0.5000	5,240	4,530	6,030	5,200	4,540	5,970
0.4292	5,840	5,070	6,700	––	––	––
0.2000	8,530	7,440	9,880	8,470	7,390	9,710
0.1000	10,800	9,340	12,900	10,700	9,230	12,500
0.0400	13,600	11,600	17,300	13,500	11,300	16,300
0.0200	15,800	13,000	21,000	15,600	12,500	19,400
0.0100	17,800	14,300	25,000	17,600	13,700	22,800
0.0050	19,900	15,400	29,500	––	––	––
0.0020	22,600	16,600	36,000	22,200	15,700	31,500

Peak-flow data used in the analysis:

Explanation of symbols and codes

−− none

∗ Less than low-outlier threshold

Water year	Peak flow	Peak-flow code	Water year	Peak flow	Peak-flow code
1910	4,820	−−	1962	9,560	−−
1911	1,910	−−	1963	3,840	−−
1912	2,090	−−	1964	4,840	−−
Gap in systematic record			1965	7,510	−−
1929	2,240	−−	1966	9,520	−−
1930	4,470	−−	1967	5,250	−−
1931	750	∗	1968	2,620	−−
1932	2,220	−−	1969	13,300	−−
1933	5,440	−−	1970	10,100	−−
1934	2,340	−−	1971	7,110	−−
1935	3,700	−−	1972	6,510	−−
1936	3,480	−−	1973	1,860	−−
1937	13,000	−−	1974	9,010	−−
1938	11,200	−−	1975	9,350	−−
1939	2,830	−−	1976	3,750	−−
1940	6,320	−−	1977	3,090	−−
1941	8,550	−−	1978	6,300	−−
1942	3,260	−−	1979	14,000	−−
1943	7,440	−−	1980	3,800	−−
1944	7,680	−−	1981	2,500	−−
1945	8,520	−−	1982	12,300	−−
1946	6,000	−−	1983	6,790	−−
1947	5,760	−−	1984	6,510	−−
1948	9,600	−−	1985	10,100	−−
1949	6,000	−−	1986	8,080	−−
1950	14,800	−−	1987	5,670	−−
1951	11,000	−−	1988	3,800	−−
1952	4,950	−−	1989	5,800	−−
1953	7,500	−−	1990	3,740	−−
1954	9,730	−−	1991	3,420	−−
1955	3,700	−−	1992	3,110	−−
1956	6,240	−−	1993	3,190	−−
1957	9,940	−−	1994	3,190	−−
1958	1,300	−−	Gap in systematic record		
1959	1,860	−−	1998	3,430	−−
1960	4,270	−−	1999	7,680	−−
1961	4,290	−−	2000	1,750	−−

Water year	Peak flow	Peak-flow code
2001	9,570	−−
2002	9,570	−−
2003	1,810	−−
2004	3,550	−−
2005	8,740	−−
2006	5,310	−−
2007	1,740	−−
2008	4,130	−−
2009	6,220	−−
2010	3,920	−−
2011	9,870	−−