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

Streamgage number and name:
    05280000 Crow River at Rockford, Minn.

Peak-flow information:

Number of systematic peak flows in record	90
Systematic period begins	1910
Systematic period ends	2011
Length of systematic record	102
Years without information	12
Number of historical peak flows in record	0

Frequency analysis options:

Method	Expected moments algorithm (EMA)
Skew option	Weighted
Generalized skew	-0.18
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
3.5645	0.3884	-0.772

Low-outlier information:

Number of low outliers	1
Low-outlier threshold	354

Final analysis results:

Moments of the common logarithms of the peak flows:

Mean	Standard deviation	Skewness
3.5648	0.3872	-0.552

Annual frequency curve at selected exceedance probabilities:

Exceedance probability	Peak estimate	Lower-95 level	Upper-95 level
0.9950	234	68	409
0.9900	324	117	526
0.9500	747	423	1,040
0.9000	1,130	748	1,480
0.8000	1,790	1,340	2,250
0.6667	2,690	2,130	3,300
0.5000	3,980	3,250	4,830
0.4292	4,650	3,820	5,620
0.2000	7,880	6,560	9,540
0.1000	10,800	8,950	13,500
0.0400	14,600	11,800	19,500
0.0200	17,400	13,500	24,800
0.0100	20,300	15,000	30,700
0.0050	23,000	16,200	37,300
0.0020	26,600	17,400	47,300

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	4,300	−−	1958	2,510	−−
1911	566	−−	1959	524	−−
1912	3,850	−−	1960	4,800	−−
1913	1,790	−−	1961	1,200	−−
1914	3,080	−−	1962	5,020	−−
1915	4,030	−−	1963	4,630	−−
1916	10,600	−−	1964	1,420	−−
1917	8,500	−−	1965	22,400	−−
Gap in systematic record			1966	4,210	−−
1930	1,120	−−	1967	5,110	−−
1931	354	−−	1968	1,820	−−
1932	1,710	−−	1969	15,100	−−
1933	678	−−	1970	1,820	−−
1934	107	∗	1971	4,300	−−
1935	750	−−	1972	7,410	−−
1936	4,480	−−	1973	4,270	−−
1937	1,180	−−	1974	2,950	−−
1938	2,240	−−	1975	8,660	−−
1939	3,440	−−	1976	2,990	−−
1940	1,200	−−	1977	1,040	−−
1941	3,950	−−	1978	3,640	−−
1942	2,730	−−	1979	7,740	−−
1943	5,270	−−	1980	1,970	−−
1944	5,570	−−	1981	1,920	−−
1945	4,620	−−	1982	7,330	−−
1946	3,610	−−	1983	6,080	−−
1947	2,570	−−	1984	7,620	−−
1948	7,190	−−	1985	6,790	−−
1949	3,180	−−	1986	8,800	−−
1950	5,680	−−	1987	988	−−
1951	7,720	−−	1988	866	−−
1952	13,900	−−	1989	1,900	−−
1953	5,160	−−	1990	5,390	−−
1954	2,620	−−	1991	8,740	−−
1955	2,360	−−	1992	5,930	−−
1956	3,280	−−	1993	10,000	−−
1957	13,500	−−	1994	5,260	−−

Water year	Peak flow	Peak-flow code
1995	4,320	−−
1996	4,310	−−
1997	11,800	−−
1998	5,750	−−
1999	3,280	−−
2000	1,380	−−
2001	13,000	−−
2002	12,000	−−
2003	6,080	−−
2004	6,900	−−
2005	5,540	−−
2006	5,820	−−
2007	3,960	−−
2008	2,920	−−
2009	5,560	−−
2010	11,900	−−
2011	11,700	−−