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

Streamgage number and name:

05067500 Marsh River near Shelly, Minn.

Peak-flow information:

Number of systematic peak flows in record	68
Systematic period begins	1944
Systematic period ends	2011
Length of systematic record	68
Years without information	0
Number of historical peak flows in record	0

Frequency analysis options:

Method	Expected moments algorithm (EMA)
Skew option	Weighted
Generalized skew	-0.42
Standard error of generalized skew	0.4266
Low-outlier method	Fixed Threshold

EMA systematic record analysis results:

Moments of the common logarithms of the peak flows:

Mean	Standard deviation	Skewness
3.0369	0.4452	-0.555

Low-outlier information:

Number of low outliers	4
Low-outlier threshold	220

Final analysis results:

Moments of the common logarithms of the peak flows:

Mean	Standard deviation	Skewness
3.0374	0.4436	-0.490

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	49.2	5.8	100	––	––	––
0.9900	70.6	11.6	131	––	––	––
0.9500	178.0	64.3	270	––	––	––
0.9000	282.0	139.0	398	––	––	––
0.8000	477.0	304.0	637	––	––	––
0.6667	755.0	546.0	982	––	––	––
0.5000	1,180.0	905.0	1,520	1,130	893	1,430
0.4292	1,410.0	1,090.0	1,820	––	––	––
0.2000	2,610.0	2,040.0	3,410	2,500	1,990	3,130
0.1000	3,780.0	2,930.0	5,170	3,600	2,820	4,600
0.0400	5,430.0	4,090.0	8,200	5,120	3,800	6,900
0.0200	6,730.0	4,890.0	11,100	6,290	4,440	8,910
0.0100	8,090.0	5,600.0	14,700	7,500	5,020	11,200
0.0050	9,480.0	6,220.0	19,100	––	––	––
0.0020	11,400.0	6,910.0	26,300	10,300	6,100	17,500

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
1944	1,030	−−	1978	2,240	−−
1945	1,000	−−	1979	4,880	−−
1946	1,510	−−	1980	615	−−
1947	4,150	−−	1981	896	−−
1948	1,040	−−	1982	1,070	−−
1949	1,260	−−	1983	1,240	−−
1950	4,660	−−	1984	2,260	−−
1951	2,100	−−	1985	1,380	−−
1952	979	−−	1986	1,720	−−
1953	389	−−	1987	1,730	−−
1954	376	−−	1988	250	−−
1955	289	−−	1989	3,490	−−
1956	1,960	−−	1990	254	−−
1957	304	−−	1991	1,120	−−
1958	47	∗	1992	430	−−
1959	96	∗	1993	660	−−
1960	492	−−	1994	995	−−
1961	100	∗	1995	1,500	−−
1962	1,240	−−	1996	2,080	−−
1963	274	−−	1997	4,300	−−
1964	450	−−	1998	1,490	−−
1965	3,120	−−	1999	1,420	−−
1966	1,460	−−	2000	1,160	−−
1967	866	−−	2001	2,380	−−
1968	221	−−	2002	5,530	−−
1969	3,910	−−	2003	882	−−
1970	1,320	−−	2004	1,730	−−
1971	619	−−	2005	1,410	−−
1972	2,070	−−	2006	6,390	−−
1973	366	−−	2007	1,610	−−
1974	2,460	−−	2008	311	−−
1975	2,330	−−	2009	5,000	−−
1976	785	−−	2010	4,270	−−
1977	42	∗	2011	3,300	−−