

Annual Peak-Flow Frequency Analysis

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

Streamgauge number and name:

05302500 Little Chippewa River near Starbuck, Minn.

Peak-flow information:

Number of systematic peak flows in record	33
Systematic period begins	1979
Systematic period ends	2011
Length of systematic record	33
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	-0.15
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
2.2133	0.3485	0.154

Low-outlier information:

Number of low outliers	1
Low-outlier threshold	41

Final analysis results:

Moments of the common logarithms of the peak flows:

	Standard	
Mean	deviation	Skewness
2.2127	0.3499	-0.004

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	20.4	5.52	34.6	--	--	--
0.9900	25.0	8.23	40.0	--	--	--
0.9500	43.3	22.20	62.3	--	--	--
0.9000	58.1	35.00	80.6	--	--	--
0.8000	82.8	56.50	112.0	--	--	--
0.6667	115.0	83.40	154.0	--	--	--
0.5000	163.0	121.00	220.0	166	126	218
0.4292	189.0	141.00	256.0	--	--	--
0.2000	322.0	238.00	470.0	332	246	447
0.1000	458.0	330.00	753.0	479	341	671
0.0400	668.0	458.00	1,350.0	710	474	1,060
0.0200	852.0	559.00	2,060.0	915	577	1,450
0.0100	1,060.0	661.00	3,080.0	1,160	688	1,940
0.0050	1,300.0	764.00	4,560.0	--	--	--
0.0020	1,650.0	900.00	7,500.0	1,820	945	3,500

Peak-flow data used in the analysis:

Explanation of symbols and codes

-- none

* Less than low-outlier threshold

Water	Peak	Peak-flow
year	flow	code
1979	195	--
1980	147	--
1981	76	--
1982	140	--
1983	42	--
1984	72	--
1985	160	--
1986	140	--
1987	115	--
1988	10	*
1989	73	--
1990	41	--
1991	178	--
1992	147	--
1993	128	--
1994	172	--
1995	270	--
1996	255	--
1997	850	--
1998	244	--
1999	100	--
2000	70	--
2001	980	--
2002	213	--
2003	348	--
2004	107	--
2005	153	--
2006	202	--
2007	306	--
2008	134	--
2009	560	--
2010	405	--
2011	387	--