

Annual Peak-Flow Frequency Analysis

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

Streamgauge number and name:

05212700 Prairie River near Taconite, Minn.

Peak-flow information:

Number of systematic peak flows in record	27
Systematic period begins	1968
Systematic period ends	2011
Length of systematic record	44
Years without information	17
Number of historical peak flows in record	0

Frequency analysis options:

Method	Bulletin 17B
Skew option	Weighted
Generalized skew	-0.146
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
	3.0894	0.2881	-0.144

Outlier criteria and number of peak flows exceeding:

Low	231.0	0
High	6532.5	0

Bulletin 17B Final analysis results:

Moments of the common logarithms of the peak flows:

	Standard	
Mean	deviation	Skewness
3.0894	0.2881	-0.145

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	203	114	299	--	--	--
0.9900	245	144	349	--	--	--
0.9500	402	268	533	--	--	--
0.9000	520	368	669	--	--	--
0.8000	707	532	883	--	--	--
0.6667	936	736	1,160	--	--	--
0.5000	1,250	1,010	1,550	1,230	965	1,570
0.4292	1,400	1,140	1,760	--	--	--
0.2000	2,160	1,720	2,870	2,090	1,600	2,720
0.1000	2,840	2,220	4,000	2,730	2,020	3,690
0.0400	3,790	2,850	5,710	3,570	2,490	5,130
0.0200	4,550	3,340	7,170	4,200	2,780	6,350
0.0100	5,350	3,830	8,790	4,860	3,040	7,750
0.0050	6,200	4,340	10,600	--	--	--
0.0020	7,380	5,030	13,200	6,360	3,500	11,600

Peak-flow data used in the analysis:

Explanation of symbols and codes

-- none

Water	Peak	Peak-flow
year	flow	code
1968	836	--
1969	3,260	--
1970	1,990	--
1971	2,570	--
1972	1,540	--
1973	500	--
1974	1,910	--
1975	2,460	--
1976	875	--
1977	697	--
1978	1,050	--
1979	3,240	--
1980	550	--
1981	989	--
1982	1,900	--
1983	709	--
Gap in systematic record		
2001	2,620	--
2002	3,220	--
2003	357	--
2004	757	--
2005	1,350	--
2006	1,390	--
2007	771	--
2008	2,280	--
2009	814	--
2010	383	--
2011	1,440	--