

Annual Peak-Flow Frequency Analysis

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

Streamgauge number and name:

05078000 Clearwater River at Plummer, Minn.

Peak-flow information:

Number of systematic peak flows in record	73
Systematic period begins	1939
Systematic period ends	2011
Length of systematic record	73
Years without information	0
Number of historical peak flows in record	0

Frequency analysis options:

Method	Bulletin 17B
Skew option	Weighted
Generalized skew	-0.463
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:

	Standard	
Mean	deviation	Skewness
3.1617	0.2658	-0.197

Outlier criteria and number of peak flows exceeding:

Low	244.7	0
High	8602.6	0

Bulletin 17B Final analysis results:

Moments of the common logarithms of the peak flows:

	Standard	
Mean	deviation	Skewness
3.1617	0.2658	-0.281

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	255	188	324	--	--	--
0.9900	308	234	383	--	--	--
0.9500	506	410	599	--	--	--
0.9000	652	545	756	--	--	--
0.8000	876	755	996	--	--	--
0.6667	1,140	1,000	1,290	--	--	--
0.5000	1,490	1,330	1,680	1,480	1,280	1,700
0.4292	1,660	1,480	1,880	--	--	--
0.2000	2,440	2,150	2,840	2,430	2,100	2,820
0.1000	3,110	2,690	3,710	3,110	2,640	3,660
0.0400	3,980	3,380	4,890	3,990	3,260	4,880
0.0200	4,640	3,880	5,810	4,660	3,680	5,900
0.0100	5,310	4,380	6,760	5,340	4,060	7,040
0.0050	5,970	4,870	7,730	--	--	--
0.0020	6,870	5,520	9,070	6,970	4,810	10,100

Peak-flow data used in the analysis:

Explanation of symbols and codes

-- none

Water	Peak	Peak-flow	Water	Peak	Peak-flow
year	flow	code	year	flow	code
1939	380	--	1976	1,250	--
1940	840	--	1977	429	--
1941	756	--	1978	3,270	--
1942	722	--	1979	3,940	--
1943	800	--	1980	898	--
1944	1,160	--	1981	1,150	--
1945	952	--	1982	1,700	--
1946	1,030	--	1983	1,200	--
1947	1,420	--	1984	1,880	--
1948	929	--	1985	1,650	--
1949	1,870	--	1986	1,430	--
1950	3,630	--	1987	1,290	--
1951	1,110	--	1988	900	--
1952	1,440	--	1989	1,200	--
1953	834	--	1990	393	--
1954	1,640	--	1991	565	--
1955	1,800	--	1992	776	--
1956	2,240	--	1993	954	--
1957	3,570	--	1994	1,440	--
1958	822	--	1995	1,610	--
1959	702	--	1996	3,320	--
1960	710	--	1997	2,700	--
1961	461	--	1998	2,980	--
1962	3,640	--	1999	2,380	--
1963	966	--	2000	1,330	--
1964	1,640	--	2001	2,220	--
1965	3,620	--	2002	1,410	--
1966	2,000	--	2003	616	--
1967	2,470	--	2004	859	--
1968	3,000	--	2005	1,690	--
1969	3,630	--	2006	2,770	--
1970	2,080	--	2007	1,920	--
1971	1,520	--	2008	629	--
1972	2,550	--	2009	3,300	--
1973	1,270	--	2010	3,270	--
1974	2,540	--	2011	2,960	--
1975	2,960	--			