

Annual Peak-Flow Frequency Analysis

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

Streamgauge number and name:

05372995 South Fork Zumbro River at Rochester, Minn.

Peak-flow information:

Number of systematic peak flows in record	61
Systematic period begins	1951
Systematic period ends	2011
Length of systematic record	61
Years without information	0
Number of historical peak flows in record	0

Frequency analysis options:

Method	Bulletin 17B
Skew option	Weighted
Generalized skew	-0.24
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
3.5859	0.3528	0.314

Outlier criteria and number of peak flows exceeding:

Low	383.1	0
High	38762.8	0

Bulletin 17B Final analysis results:

Moments of the common logarithms of the peak flows:

	Standard	
Mean	deviation	Skewness
3.5859	0.3528	0.111

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	518	347	704	--	--	--
0.9900	622	429	829	--	--	--
0.9500	1,040	774	1,320	--	--	--
0.9000	1,380	1,060	1,700	--	--	--
0.8000	1,940	1,560	2,340	--	--	--
0.6667	2,680	2,220	3,190	--	--	--
0.5000	3,800	3,190	4,510	3,800	3,090	4,670
0.4292	4,390	3,700	5,240	--	--	--
0.2000	7,600	6,310	9,450	7,510	6,010	9,390
0.1000	11,000	8,910	14,300	10,600	8,280	13,600
0.0400	16,500	12,800	22,600	15,100	11,300	20,200
0.0200	21,400	16,300	30,600	18,700	13,500	26,000
0.0100	27,200	20,100	40,300	22,900	15,700	33,400
0.0050	34,000	24,500	52,100	--	--	--
0.0020	44,500	31,200	71,300	33,900	20,800	55,300

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
1951	15,000	--	1982	2,280	--
1952	8,670	--	1983	5,450	--
1953	3,700	--	1984	1,820	--
1954	5,420	--	1985	2,030	--
1955	2,140	--	1986	10,000	--
1956	2,400	--	1987	4,260	--
1957	1,050	--	1988	886	--
1958	8,180	--	1989	3,650	--
1959	3,560	--	1990	2,260	--
1960	3,900	--	1991	2,640	--
1961	10,900	--	1992	1,850	--
1962	18,000	--	1993	6,260	--
1963	2,660	--	1994	1,690	--
1964	998	--	1995	1,160	--
1965	19,600	--	1996	3,510	--
1966	7,510	--	1997	3,000	--
1967	5,610	--	1998	2,010	--
1968	1,570	--	1999	2,990	--
1969	5,060	--	2000	2,970	--
1970	2,810	--	2001	7,290	--
1971	3,660	--	2002	2,400	--
1972	1,820	--	2003	2,110	--
1973	8,590	--	2004	9,940	--
1974	10,400	--	2005	3,310	--
1975	2,630	--	2006	1,820	--
1976	5,200	--	2007	11,500	--
1977	990	--	2008	6,690	--
1978	30,500	--	2009	1,070	--
1979	2,570	--	2010	12,100	--
1980	4,240	--	2011	5,670	--
1981	6,610	--			