

Annual Peak-Flow Frequency Analysis

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

Streamgauge number and name:

04019500 East Swan River near Toivola, Minn.

Peak-flow information:

Number of systematic peak flows in record	16
Systematic period begins	1954
Systematic period ends	1971
Length of systematic record	18
Years without information	2
Number of historical peak flows in record	0

Frequency analysis options:

Method	Bulletin 17B
Skew option	Weighted
Generalized skew	-0.014
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
3.0696	0.1363	-0.234

Outlier criteria and number of peak flows exceeding:

Low	574.2	0
High	2399.6	0

Bulletin 17B Final analysis results:

Moments of the common logarithms of the peak flows:

	Standard	
Mean	deviation	Skewness
3.0696	0.1363	-0.093

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	509	345	637	--	--	--
0.9900	554	388	682	--	--	--
0.9500	695	530	822	--	--	--
0.9000	783	622	910	--	--	--
0.8000	903	749	1,030	--	--	--
0.6667	1,030	882	1,170	--	--	--
0.5000	1,180	1,030	1,350	1,140	983	1,340
0.4292	1,250	1,090	1,440	--	--	--
0.2000	1,530	1,340	1,850	1,500	1,270	1,780
0.1000	1,750	1,510	2,200	1,720	1,420	2,090
0.0400	2,010	1,700	2,660	1,990	1,580	2,520
0.0200	2,200	1,830	3,000	2,190	1,680	2,850
0.0100	2,380	1,950	3,350	2,380	1,770	3,210
0.0050	2,560	2,070	3,700	--	--	--
0.0020	2,800	2,220	4,180	2,840	1,940	4,140

Peak-flow data used in the analysis:

Explanation of symbols and codes

-- none

Water	Peak	Peak-flow
year	flow	code
1954	1,510	--
1955	1,260	--
1956	1,690	--
1957	1,370	--
1958	814	--
1959	802	--
1960	949	--
1961	1,150	--
1962	807	--

Gap in systematic record

1965	1,370	--
1966	1,080	--
1967	1,360	--
1968	661	--
1969	1,950	--
1970	1,150	--
1971	1,720	--