

## Annual Peak-Flow Frequency Analysis

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

### Streamgauge number and name:

05217000 Swan River near Warba, Minn.

### Peak-flow information:

Number of systematic peak flows in record	16
Systematic period begins	1950
Systematic period ends	1969
Length of systematic record	20
Years without information	4
Number of historical peak flows in record	1 1950

### Frequency analysis options:

Method	Expected moments algorithm (EMA)
Skew option	Weighted
Generalized skew	-0.17
Standard error of generalized skew	0.4266
Low-outlier method	Multiple Grubbs-Beck test

### EMA systematic record analysis results:

#### Moments of the common logarithms of the peak flows:

	Standard	
Mean	deviation	Skewness
2.8886	0.2114	1.406

#### Low-outlier information:

Number of low outliers	0
Low-outlier threshold	Not determined

**Final analysis results:**

**Moments of the common logarithms of the peak flows:**

	Standard	
Mean	deviation	Skewness
2.8903	0.2146	0.148

**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	233	78.5	342	--	--	--
0.9900	260	102.0	369	--	--	--
0.9500	352	196.0	469	--	--	--
0.9000	416	264.0	544	--	--	--
0.8000	511	361.0	660	--	--	--
0.6667	622	465.0	804	--	--	--
0.5000	767	591.0	1,010	764	610	957
0.4292	838	649.0	1,120	--	--	--
0.2000	1,170	899.0	1,710	1,160	889	1,510
0.1000	1,470	1,100.0	2,430	1,450	1,070	1,980
0.0400	1,890	1,350.0	3,820	1,840	1,270	2,670
0.0200	2,230	1,530.0	5,370	2,130	1,390	3,250
0.0100	2,590	1,710.0	7,530	2,440	1,520	3,920
0.0050	2,970	1,890.0	10,500	--	--	--
0.0020	3,520	2,110.0	16,300	3,170	1,760	5,720

**Peak-flow data used in the analysis:**

Explanation of symbols and codes

-- none

H Historic, outside of systematic record

Water Peak Peak-flow

year flow code

1950 3,300 H

Gap in systematic record

1954 1,000 --

1955 627 --

1956 853 --

1957 905 --

1958 390 --

1959 559 --

1960 721 --

1961 570 --

1962 714 --

1963 540 --

1964 570 --

1965 1,080 --

1966 936 --

1967 747 --

1968 429 --

1969 1,360 --