Annual Peak-Flow Frequency Analysis
For more information on the contents of this documentation, see Kessler and others (2013).

Streamgage number and name:

05284100 Mille Lacs Lake tributary near Wealthwood, Minn.

Peak-flow information:

Number of systematic peak flows in record	12
Systematic period begins	1961
Systematic period ends	1972
Length of systematic record	12
Years without information	0
Number of historical peak flows in record	0

Frequency analysis options:

Method	Expected moments algorithm (EMA)
Skew option	Weighted
Generalized skew	-0.27
Standard error of generalized skew	0.4266
Low-outlier method	Single Grubbs-Beck test

EMA systematic record analysis results:

Moments of the common logarithms of the peak flows:

Mean	Standard deviation	Skewness
1.1061	0.4324	-0.171

Low-outlier information:

Number of low outliers	1
Low-outlier threshold	3.8

Final analysis results:

Moments of the common logarithms of the peak flows:

Mean	Standard deviation	Skewness
1.1052	0.4344	-0.250

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	0.77	0.03	2.14	––	––	––
0.9900	1.04	0.05	2.64	––	––	––
0.9500	2.30	0.24	4.83	––	––	––
0.9000	3.45	0.67	6.77	––	––	––
0.8000	5.57	1.82	10.30	––	––	––
0.6667	8.58	3.71	15.50	––	––	––
0.5000	13.30	6.72	24.40	14.3	9.37	21.9
0.4292	15.80	8.32	29.80	––	––	––
0.2000	29.90	16.60	68.20	30.2	19.00	47.9
0.1000	44.60	24.40	131.00	43.9	26.50	72.8
0.0400	67.20	35.10	293.00	64.6	36.50	114.0
0.0200	86.80	43.20	524.00	82.4	44.40	153.0
0.0100	109.00	51.10	925.00	102.0	52.20	200.0
0.0050	133.00	58.70	1,540.00	––	––	––
0.0020	168.00	68.20	2,640.00	156.0	71.10	342.0

Peak-flow data used in the analysis:

Explanation of symbols and codes

−−	none
∗	Less than low-outlier threshold

Water year	Peak flow	Peak-flow code
1961	0.5	∗
1962	32.0	−−
1963	3.8	−−
1964	9.4	−−
1965	20.0	−−
1966	10.0	−−
1967	8.7	−−
1968	48.0	−−
1969	23.0	−−
1970	4.8	−−
1971	15.0	−−
1972	53.0	−−