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

Streamgage number and name:
    05247000 Gull River at Gull Lake Dam near Brainerd, Minn.

Peak-flow information:
Number of systematic peak flows in record	13
Systematic period begins	1982
Systematic period ends	1994
Length of systematic record	13
Years without information	0
Number of historical peak flows in record	0

Frequency analysis options:
Method	Expected moments algorithm (EMA)
Skew option	Streamgage
Low-outlier method	Multiple Grubbs-Beck test

EMA systematic record analysis results:

Moments of the common logarithms of the peak flows:

Mean	Standard deviation	Skewness
2.7044	0.0809	-0.445

Low-outlier information:
Number of low outliers	1
Low-outlier threshold	400

Final analysis results:

Moments of the common logarithms of the peak flows:

Mean	Standard deviation	Skewness
2.7044	0.0809	-0.445

Annual frequency curve at selected exceedance probabilities:

Exceedance probability	Peak estimate	Lower-95 level	Upper-95 level
0.9950	290	97.5	363
0.9900	309	122.0	374
0.9500	365	198.0	414
0.9000	396	236.0	442
0.8000	435	289.0	486
0.6667	473	387.0	534
0.5000	513	451.0	582
0.4292	530	469.0	602
0.2000	594	526.0	677
0.1000	636	559.0	800
0.0400	681	609.0	1,020
0.0200	709	633.0	1,070
0.0100	734	645.0	1,160
0.0050	757	649.0	1,290
0.0020	784	649.0	1,500

Peak-flow data used in the analysis:

Explanation of symbols and codes

K   Peak affected by regulation

∗   Less than low-outlier threshold

Water year	Peak flow	Peak-flow code
1982	568	−−
1983	615	K
1984	513	K
1985	600	K
1986	672	K
1987	485	K
1988	150	K ∗
1989	500	K
1990	504	K
1991	400	K
1992	400	K
1993	584	K
1994	486	K