

## Annual Peak-Flow Frequency Analysis

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

### Streamgage number and name:

05030000 Otter Tail River near Detroit Lakes, Minn.

### Peak-flow information:

Number of systematic peak flows in record	35
Systematic period begins	1937
Systematic period ends	1971
Length of systematic record	35
Years without information	0
Number of historical peak flows in record	0

### Frequency analysis options:

Method	Bulletin 17B
Skew option	Weighted
Generalized skew	-0.213
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
2.1983	0.2316	-0.651

#### Outlier criteria and number of peak flows exceeding:

Low	38.9	0
High	641.1	0

**Bulletin 17B Final analysis results:**

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

	Standard	
Mean	deviation	Skewness
2.1983	0.2316	-0.421

**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	32.4	21.1	43.6	--	--	--
0.9900	38.8	26.4	50.9	--	--	--
0.9500	61.9	46.5	76.2	--	--	--
0.9000	78.2	61.5	93.7	--	--	--
0.8000	102.0	84.2	120.0	--	--	--
0.6667	130.0	110.0	150.0	--	--	--
0.5000	164.0	141.0	191.0	169	142	202
0.4292	180.0	155.0	211.0	--	--	--
0.2000	249.0	212.0	304.0	255	214	305
0.1000	304.0	255.0	383.0	314	258	381
0.0400	370.0	304.0	484.0	386	307	487
0.0200	417.0	337.0	559.0	440	337	575
0.0100	462.0	369.0	633.0	494	364	671
0.0050	505.0	399.0	705.0	--	--	--
0.0020	560.0	436.0	800.0	623	418	930

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

Explanation of symbols and codes

-- none

Water	Peak	Peak-flow
year	flow	code
1937	54	--
1938	73	--
1939	90	--
1940	42	--
1941	68	--
1942	112	--
1943	371	--
1944	336	--
1945	198	--
1946	190	--
1947	212	--
1948	119	--
1949	133	--
1950	332	--
1951	190	--
1952	167	--
1953	218	--
1954	193	--
1955	195	--
1956	139	--
1957	133	--
1958	72	--
1959	136	--
1960	214	--
1961	151	--
1962	316	--
1963	157	--
1964	164	--
1965	264	--
1966	283	--
1967	267	--
1968	188	--
1969	207	--
1970	182	--
1971	84	--