

## Annual Peak-Flow Frequency Analysis

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

### Streamgauge number and name:

04024095 Bemadji River near Holyoke, Minn.

### Peak-flow information:

Number of systematic peak flows in record	40
Systematic period begins	1972
Systematic period ends	2011
Length of systematic record	40
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	-0.05
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:

	Standard	
Mean	deviation	Skewness
3.2186	0.2190	0.139

#### Low-outlier information:

Number of low outliers	1
Low-outlier threshold	630

**Final analysis results:**

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

	Standard		
Mean	deviation	Skewness	
3.2184	0.2195	0.050	

**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	461	236	624	--	--	--
0.9900	520	295	681	--	--	--
0.9500	725	512	891	--	--	--
0.9000	868	663	1,040	--	--	--
0.8000	1,080	877	1,280	--	--	--
0.6667	1,330	1,110	1,560	--	--	--
0.5000	1,650	1,390	1,950	1,670	1,420	1,960
0.4292	1,800	1,530	2,140	--	--	--
0.2000	2,530	2,120	3,140	2,570	2,140	3,080
0.1000	3,170	2,620	4,210	3,240	2,620	4,000
0.0400	4,040	3,230	6,060	4,190	3,220	5,450
0.0200	4,730	3,680	7,880	4,970	3,650	6,760
0.0100	5,460	4,110	10,100	5,830	4,090	8,300
0.0050	6,220	4,520	12,900	--	--	--
0.0020	7,300	5,050	17,600	8,130	5,120	12,900

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

Explanation of symbols and codes

-- none

\* Less than low-outlier threshold

Water	Peak	Peak-flow	Water	Peak	Peak-flow
year	flow	code	year	flow	code
1972	3,250	--	1992	1,180	--
1973	1,270	--	1993	1,200	--
1974	2,000	--	1994	1,620	--
1975	1,850	--	1995	1,200	--
1976	1,650	--	1996	1,880	--
1977	900	--	1997	1,675	--
1978	1,610	--	1998	830	--
1979	2,340	--	1999	2,980	--
1980	1,500	--	2000	1,180	--
1981	2,300	--	2001	3,120	--
1982	1,470	--	2002	2,410	--
1983	2,480	--	2003	1,880	--
1984	2,150	--	2004	1,060	--
1985	4,420	--	2005	1,660	--
1986	3,100	--	2006	1,230	--
1987	100	*	2007	946	--
1988	1,150	--	2008	1,700	--
1989	1,600	--	2009	630	--
1990	3,600	--	2010	939	--
1991	1,270	--	2011	5,300	--