

# STREAMS TRIBUTARY TO LAKE SUPERIOR

## 04024098 DEER CREEK NEAR HOLYOKE, MN

LOCATION.--Lat 4631'30", long 9223'20", in NE 1 / 4 SE 1 / 4 sec. 29, T.47 N., R.16 W., Carlton County, Hydrologic Unit 04010301, on left bank 179 ft west of State Highway No. 23, 0.9 mi upstream from mouth and 4.0 mi north of Holyoke.

DRAINAGE AREA.--7.70 mi<sup>2</sup> (revised).

PERIOD OF RECORD.--October 1976 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 786.14 ft above mean sea level.

REMARKS.--Records good, except those for estimated daily discharges, which are fair to poor.

## DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

### DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	2.6	2.6	e1.8	e2.2	20	22	2.3	21	2.5	1.4	.95
2	2.1	2.3	2.1	e1.9	e2.2	17	36	2.2	59	2.1	1.5	1.1
3	2.1	2.7	1.9	e1.9	e2.2	12	37	2.4	14	2.1	1.5	1.0
4	2.1	2.1	1.9	e1.9	e2.1	9.4	22	2.3	7.2	2.0	1.4	1.0
5	2.1	2.0	1.8	e2.0	e2.1	7.9	13	2.4	5.4	2.0	1.5	.99
6	2.1	1.8	1.8	e2.0	e2.1	e7.1	10	2.3	4.6	2.3	1.4	1.0
7	2.1	1.9	1.9	e2.0	e2.2	e6.6	23	2.4	4.1	2.4	1.5	1.2
8	2.1	1.8	1.9	e1.9	e2.2	e6.2	26	2.4	3.6	2.5	1.8	1.1
9	2.1	1.9	1.8	e1.9	e2.2	e5.8	13	2.4	3.6	2.0	1.6	1.1
10	2.0	1.8	1.8	e1.8	e2.3	e5.7	9.1	2.4	3.4	2.0	1.5	1.1
11	2.0	1.9	1.8	e1.8	e2.3	e5.5	8.2	2.5	4.3	1.9	1.4	1.2
12	2.2	2.1	1.8	e1.7	e2.3	e5.3	7.1	2.7	8.6	1.8	1.6	1.3
13	2.7	2.2	2.0	e1.7	e2.3	5.2	9.4	4.3	5.9	1.8	1.5	2.3
14	2.3	2.0	2.0	e1.7	e2.3	5.1	7.8	3.1	4.3	2.0	1.3	1.6

15	2.1	1.9	2.0	e1.8	e2.3	5.0	6.2	2.9	3.5	2.8	1.3	1.4
16	1.9	e1.9	1.9	e1.8	e2.3	4.9	5.4	3.5	3.3	1.9	1.4	1.2
17	1.9	e1.9	e2.1	e1.9	e6.0	4.8	4.7	3.2	3.1	1.8	2.5	1.3
18	1.8	e1.9	2.1	e1.9	e9.4	4.8	4.2	3.1	3.5	1.7	1.6	1.3
19	1.8	e1.8	1.9	e1.9	e9.6	4.8	4.0	3.2	3.3	2.7	1.4	1.3
20	1.8	e1.8	e1.9	e1.9	e9.5	4.9	3.7	3.0	2.4	2.2	1.4	1.4
21	1.8	e1.8	e1.8	e2.0	8.4	4.8	3.4	3.1	8.8	1.7	1.2	1.3
22	1.8	e1.8	e1.8	e2.0	9.5	4.9	3.3	3.2	5.5	1.6	1.4	1.3
23	1.8	e1.8	e1.9	e2.0	16	5.0	3.0	3.1	4.0	1.4	2.0	1.3
24	1.8	e1.8	e2.0	e2.0	17	5.0	3.0	3.2	3.4	1.4	1.5	1.3
25	1.9	e1.9	e1.9	e2.0	14	5.5	2.7	3.2	3.7	1.4	1.4	1.4
26	2.0	e2.3	e1.9	e2.0	27	6.7	2.6	3.2	4.0	1.5	1.2	1.9
27	1.8	2.7	e1.9	e2.1	72	8.7	2.4	3.2	3.6	1.5	1.4	1.8
28	1.8	2.8	e1.9	e2.1	26	21	2.4	3.7	3.4	1.4	1.5	1.5
29	1.8	2.8	e1.8	e2.1	---	19	2.2	3.2	3.0	1.4	1.5	1.6
30	2.3	e2.8	e1.8	e2.1	---	33	2.2	6.0	2.9	1.6	1.4	1.8
31	1.7	---	e1.8	e2.2	---	16	---	8.5	---	1.5	.99	---
TOTAL	61.8	62.8	59.5	59.8	260.0	277.6	299.0	98.6	261.7	58.9	45.99	40.04
MEAN	1.99	2.09	1.92	1.93	9.29	8.95	9.97	3.18	8.72	1.90	1.48	1.33
MAX	2.7	2.8	2.6	2.2	72	33	37	8.5	59	2.8	2.5	2.3
MIN	1.7	1.8	1.8	1.7	2.1	4.8	2.2	2.2	2.9	1.4	.99	.95
AC-FT	123	125	118	119	516	551	593	196	519	117	91	79
CFSM	.26	.27	.25	.25	1.21	1.16	1.29	.41	1.13	.25	.19	.17
IN.	.30	.30	.29	.29	1.26	1.34	1.44	.48	1.26	.28	.22	.19

e Estimated

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### **04024098 DEER CREEK NEAR HOLYOKE, MN**

# STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1976 - 1998, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	6.54	4.54	2.38	1.90	2.62	8.53	23.7	10.2	7.72	6.47	4.54	7.39
MAX	21.8	12.2	3.86	2.92	9.29	21.5	90.8	24.3	31.4	22.3	36.9	30.4
(WY)	1983	1983	1983	1992	1998	1995	1986	1991	1993	1991	1986	1986
MIN	1.69	1.59	1.31	.97	1.06	2.34	4.11	2.15	1.39	1.50	.89	1.24
(WY)	1988	1977	1977	1979	1979	1986	1977	1980	1995	1988	1982	1993

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1976 - 1998		
ANNUAL TOTAL	2208.4		1585.73				
ANNUAL MEAN	6.05		4.34		7.22		
HIGHEST ANNUAL MEAN					19.3		1986
LOWEST ANNUAL MEAN					3.65		1980
HIGHEST DAILY MEAN	115	Apr 6	72	Feb 27	553	Sep 6	1990
LOWEST DAILY MEAN	1.7	Oct 31	.95	Sep 1	.21	Jul 2	1976
ANNUAL SEVEN-DAY MINIMUM	1.8	Oct 18	1.0	Aug 31	.47	Aug 10	1982
INSTANTANEOUS PEAK FLOW			163	Jun 2	2000a	Sep 3	1985
INSTANTANEOUS PEAK STAGE			14.42	Jun 2	32.76b	Sep 3	1985
INSTANTANEOUS LOW FLOW			.49	Sep 3	.10	Nov 13	1996
ANNUAL RUNOFF (AC-FT)	4380		3150		5230		
ANNUAL RUNOFF (CFSM)	.79		.56		.94		
ANNUAL RUNOFF (INCHES)	10.67		7.66		12.75		
10 PERCENT EXCEEDS	10		8.6		14		

50 PERCENT EXCEEDS	2.6		2.1		2.5		
90 PERCENT EXCEEDS	1.8		1.4		1.5		

a From rating curve extended above 1000 ft<sup>3</sup>/s on basis of flow-thru-culvert computations.

b From floodmark.

