

UPPER MISSISSIPPI RIVER MAIN STEM--Continued

05243725 STRAIGHT RIVER NEAR PARK RAPIDS, MN

LOCATION.--Lat 46°52'30", long 95°03'56", in NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 11, T. 139 N., R. 35 W., Hubbard County, Hydrologic Unit 07010106, upstream from culvert on U.S. Highway 71 3.2 mi south of Park Rapids.

DRAINAGE AREA.--53.2 mi².

PERIOD OF RECORD.--Occasional low-flow measurements, water years 1970-71, 1973, 1975-76. October 1986 to current year (no winter records in 1987, 1990-91). May 1988 through August 1989, records of hourly water temperature (available in files of the Geological Survey).

GAGE.--Water-stage recorder. Datum of gage is 1,399.55 ft above sea level (levels by Minnesota Department of Natural Resources).

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

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	73	73	74	e76	e71	e64	102	76	78	76	69	77
2	70	72	74	e76	e69	e64	103	75	77	76	68	80
3	68	71	74	e76	e68	e64	102	75	76	73	73	82
4	67	70	73	e76	e69	e64	111	76	73	78	73	88
5	71	70	79	e76	e71	e64	109	82	78	85	73	92
6	78	70	79	e75	e71	e64	108	91	81	88	72	91
7	79	69	75	e75	e70	e65	108	94	79	86	73	90
8	77	69	73	e75	e68	e65	104	92	77	86	73	89
9	75	70	73	e74	e66	e65	102	87	77	86	76	86
10	74	75	71	e74	e63	e65	102	92	80	83	79	84
11	73	82	70	e74	e63	e64	103	104	78	80	84	83
12	74	83	70	e74	e63	e64	99	105	78	76	94	83
13	73	78	70	e75	e64	e64	94	110	76	77	102	83
14	73	78	69	e76	e66	e64	92	107	74	76	103	83
15	74	78	69	e77	e66	e64	89	103	72	78	99	83
16	87	78	69	e79	e66	e64	88	100	71	89	95	82
17	106	78	70	e80	e66	e64	87	97	70	92	91	80
18	104	79	e71	e81	e66	e65	84	94	69	89	89	79
19	96	81	e74	e81	e66	e66	84	89	70	84	86	79
20	89	80	e76	e82	e67	e67	84	86	69	79	85	79
21	85	78	e76	e82	e66	e68	84	84	69	76	83	78
22	81	76	e77	e82	e64	e69	83	81	70	74	80	77
23	78	77	e77	e82	e63	e70	83	80	81	77	82	76
24	76	77	e78	e82	e63	e72	81	79	80	74	81	76
25	78	77	e78	e82	e63	e74	80	77	78	74	79	77
26	76	75	e78	e82	e63	76	80	76	80	74	78	78
27	75	74	e78	e81	e64	80	81	75	82	72	76	78
28	74	73	e77	e80	e64	103	79	75	82	71	75	77
29	73	73	e77	e77	---	103	78	73	79	68	74	76
30	73	75	e76	e75	---	100	77	73	78	70	74	76
31	73	---	e76	e73	---	102	---	77	---	70	77	---
TOTAL	2423	2259	2301	2410	1849	2207	2761	2685	2282	2437	2516	2442
MEAN	78.2	75.3	74.2	77.7	66.0	71.2	92.0	86.6	76.1	78.6	81.2	81.4
MAX	106	83	79	82	71	103	111	110	82	92	103	92
MIN	67	69	69	73	63	64	77	73	69	68	68	76
AC-FT	4810	4480	4560	4780	3670	4380	5480	5330	4530	4830	4990	4840
CFSM	1.47	1.42	1.40	1.46	1.24	1.34	1.73	1.63	1.43	1.48	1.53	1.53
IN.	1.69	1.58	1.61	1.69	1.29	1.54	1.93	1.88	1.60	1.70	1.76	1.71

e Estimated

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STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1999, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	63.1	64.3	61.0	55.9	56.2	63.3	72.5	66.8	59.8	59.2	56.3	60.2
MAX	83.1	77.6	74.5	77.7	69.8	76.8	101	86.6	76.1	81.5	81.2	81.4
(WY)	1996	1998	1995	1999	1998	1995	1997	1999	1999	1997	1999	1999
MIN	42.2	47.4	46.0	41.9	44.8	50.9	56.1	46.2	41.9	39.5	35.9	38.7
(WY)	1993	1989	1989	1992	1992	1989	1991	1992	1992	1988	1990	1990

SUMMARY STATISTICS	FOR 1998 CALENDAR YEAR		FOR 1999 WATER YEAR		WATER YEARS 1987 - 1999	
ANNUAL TOTAL	25303		28572			
ANNUAL MEAN	69.3		78.3		62.9	
HIGHEST ANNUAL MEAN					78.3	
LOWEST ANNUAL MEAN					48.0	
HIGHEST DAILY MEAN	106		111		144	
LOWEST DAILY MEAN	55		63 ^a		28 ^a	
ANNUAL SEVEN-DAY MINIMUM	57		63		34	
INSTANTANEOUS PEAK FLOW			113		149	
INSTANTANEOUS PEAK STAGE			2.90 ^b		2.90 ^b	
INSTANTANEOUS LOW FLOW			44 ^c		25 ^{ac}	
ANNUAL RUNOFF (AC-FT)	50190		56670		45590	
ANNUAL RUNOFF (CFSM)	1.30		1.47		1.18	
ANNUAL RUNOFF (INCHES)	17.69		19.98		16.07	
10 PERCENT EXCEEDS	78		92		78	
50 PERCENT EXCEEDS	68		77		61	
90 PERCENT EXCEEDS	60		66		44	

a Estimated.
 b Backwater from ice.
 c Result of freezeup.

