

## RED RIVER OF THE NORTH BASIN--Continued

05079000 RED LAKE RIVER AT CROOKSTON, MN

LOCATION.--Lat 47°46'32", long 96°36'33", in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec. 30, T.150 N., R.46 W., Polk County, Hydrologic Unit 09020303, on right bank 100 ft upstream from Sargent Street bridge in Crookston, 0.3 mi downstream from Interstate Power Co.'s dam, 0.6 mi downstream from bridge on U.S. Highway 75, and 53 mi upstream from mouth.

DRAINAGE AREA.--5,270 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1901 to current year. Monthly discharge only for some periods, published in WSP 1308. Figures of daily discharge for Apr. 3-30, 1904, published in WSP 130, have been found unreliable and should not be used.

REVISED RECORDS.--WSP 1115: 1906, 1915-16, 1919-20, 1922, 1925, 1927, 1929. WSP 1308: 1916(M), 1919(M), 1928(M), 1930(M). (See also PERIOD OF RECORD).

GAGE.--Water-stage recorder. Datum of gage is 832.72 ft above sea level (NGVD of 1929). May 18, 1901 to June 30, 1909, nonrecording gage at bridge 300 ft upstream at same datum. July 1, 1909 to Sept. 25, 1911, nonrecording gage, Sept. 26, 1911 to Sept. 30, 1919, water-stage recorder, Oct. 1, 1919 to Sept. 30, 1930, nonrecording gage, at present site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Diurnal fluctuation prior to 1975 caused by power plant 1,000 ft upstream. Runoff from 1,950 mi<sup>2</sup> in the headwaters of Red Lake River is completely controlled by dam at outlet of Lower Red Lake. Flow partially affected by occasional regulation at Thief and Mud Lakes in Thief River basin (see station 05076000).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3050	1780	e1500	e1180	e970	e2300	1870	1900	1200	2550	1010	e740
2	2720	1780	e1800	e1180	e970	e2400	1850	1870	1190	2360	962	e760
3	2590	1770	e1800	e1150	e950	e2450	1930	1850	1150	2260	946	817
4	2470	1820	e1700	e1150	e950	e2450	2190	1830	1100	2140	946	884
5	2420	1850	e1500	e1150	e950	e2450	2250	1760	1110	2190	917	917
6	2260	1890	e1300	e1150	e950	e2400	2310	1740	1110	2300	918	929
7	2220	1860	1140	e1130	e950	e2400	2370	1700	1100	2160	942	952
8	2230	1880	1300	e1130	e950	e2400	2420	1470	1050	4200	946	973
9	2440	1910	1300	e1100	e940	e2400	2390	1440	1060	5720	943	998
10	2450	2270	1500	e1100	e940	e2350	2330	1420	1030	5260	923	990
11	2470	1940	1290	e1100	e930	e2300	2260	1480	971	4310	875	885
12	2460	1880	1410	e1100	e930	e2250	2220	1410	912	3330	860	831
13	2420	1940	1280	e1100	e930	e2200	2200	1410	732	2630	866	781
14	2380	1990	1220	e1080	e930	e2150	2180	1470	829	2260	891	747
15	2350	2000	e1180	e1050	e930	e2100	2180	1430	1060	1960	923	e700
16	2280	2050	e1130	e1050	e920	e2100	2200	1420	1330	1730	910	e660
17	2230	2040	e1080	e1030	e920	e2100	2260	1410	1390	1680	1000	e620
18	2180	2060	e1050	e1020	e920	e2050	2300	1350	1320	1590	1030	e600
19	2160	2090	e1050	e1020	e920	e2050	2200	1330	1250	1620	1020	e600
20	2010	2080	e1030	e1020	e920	e2050	2080	1310	1480	1560	1010	e600
21	1960	2090	e1000	e1000	e910	e2000	2070	1260	4730	1460	996	e600
22	1950	2130	e1000	e1000	e910	e2000	2040	1230	7200	1420	974	677
23	1940	2110	e1080	e1000	e910	e2000	1940	1220	7820	1350	975	765
24	1920	2150	e1150	e1000	e930	1820	1930	1240	6980	1280	940	844
25	1880	2130	e1200	e1000	e1050	1930	1950	1250	5950	1200	929	969
26	1850	2080	e1200	e990	e1200	2300	1910	1220	4980	1200	838	1120
27	1780	2160	e1200	e990	e1400	2310	1890	1250	4190	1190	797	1060
28	1740	2100	e1200	e980	e1800	2190	1900	1260	3540	1190	e780	1030
29	1740	1790	e1180	e980	e2100	2060	1880	1230	3140	1110	e760	1020
30	1790	1470	e1180	e980	---	1980	1910	1250	2810	1070	e750	975
31	1800	---	e1180	e980	---	1950	---	1210	---	1040	e740	---
TOTAL	68140	59090	39130	32890	29980	67890	63410	44620	73714	67320	28317	25044
MEAN	2198	1970	1262	1061	1034	2190	2114	1439	2457	2172	913	835
MAX	3050	2270	1800	1180	2100	2450	2420	1900	7820	5720	1030	1120
MIN	1740	1470	1000	980	910	1820	1850	1210	732	1040	740	600
AC-FT	135200	117200	77610	65240	59470	134700	125800	88500	146200	133500	56170	49670
CFSM	.42	.37	.24	.20	.20	.42	.40	.27	.47	.41	.17	.16
IN.	.48	.42	.28	.23	.21	.48	.45	.31	.52	.48	.20	.18

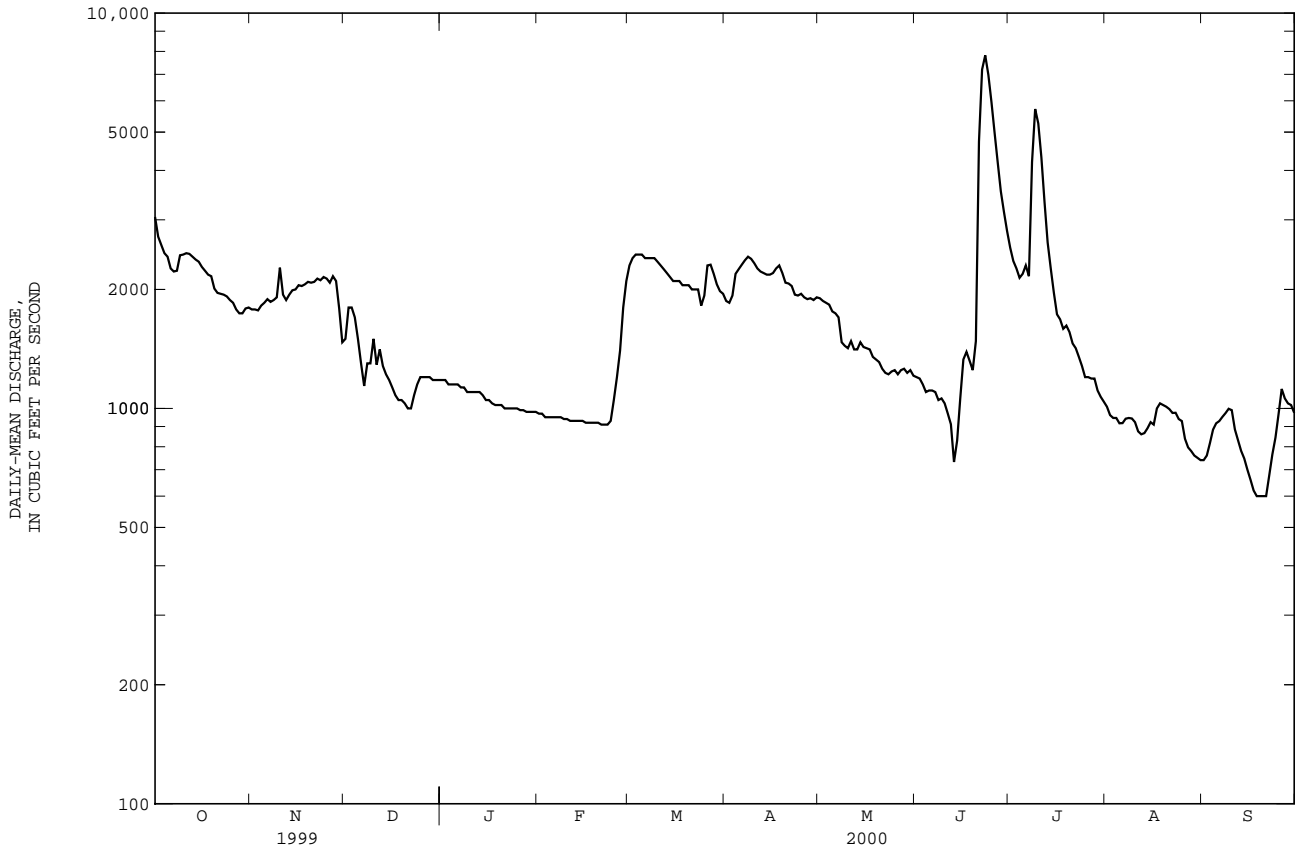
## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1901 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	856	713	589	523	508	1021	3099	2145	1705	1374	853	867
MAX	2836	3172	1900	1663	1778	4257	11870	15290	7205	6851	3868	5408
(WY)	1972	1972	1904	1951	1998	1995	1997	1950	1962	1975	1985	1999
MIN	8.02	10.1	5.34	15.6	17.8	24.9	232	154	80.4	26.2	12.3	8.87
(WY)	1937	1937	1937	1934	1937	1936	1981	1934	1934	1936	1934	1934

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SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR		FOR 2000 WATER YEAR		WATER YEARS 1901 - 2000	
ANNUAL TOTAL	1094960		599545		1184	
ANNUAL MEAN	3000		1638		3129	
HIGHEST ANNUAL MEAN					1950	
LOWEST ANNUAL MEAN					83.6	
HIGHEST DAILY MEAN	15200	Mar 31	7820	Jun 23	27500	Apr 18 1997
LOWEST DAILY MEAN	640	Mar 1	600	Sep 18	2.5	Sep 29 1936
ANNUAL SEVEN-DAY MINIMUM	640	Mar 1	622	Sep 16	3.9	Sep 28 1936
INSTANTANEOUS PEAK FLOW			7930	Jun 23	28400	Apr 12 1969
INSTANTANEOUS PEAK STAGE			14.26	Jun 23	28.40 <sup>a</sup>	Apr 17 1997
INSTANTANEOUS LOW FLOW					.00 <sup>b</sup>	Jul 13 1960
ANNUAL RUNOFF (AC-FT)	2172000		1189000		857800	
ANNUAL RUNOFF (CFSM)	.57		.31		.22	
ANNUAL RUNOFF (INCHES)	7.73		4.23		3.05	
10 PERCENT EXCEEDS	6010		2390		2610	
50 PERCENT EXCEEDS	2150		1370		718	
90 PERCENT EXCEEDS	680		917		119	

<sup>a</sup> From highwater mark, backwater from ice.  
<sup>b</sup> From regulation by power plant upstream.  
<sup>e</sup> Estimated.



WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1962-68, 1972-76, 1978-95, 1997, 2000.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000

DATE	TIME	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	PH WATER FIELD (STAND- ARD UNITS) (00400)	TEMPER- ATURE WATER (DEG C) (00010)	TUR- BID- ITY (NTU) (00076)	OXYGEN, DIS- SOLVED (MG/L) (00300)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SED. SUSP. SIEVE DIAM. % FINER THAN (70331)
SEP 11...	1035	860	408	8.4	18.1	35	8.8	14	96