

RED RIVER OF THE NORTH BASIN

05094000 SOUTH BRANCH TWO RIVERS AT LAKE BRONSON, MN

LOCATION.--Lat 4843'50", long 9639'50", in SW 1 / 4 SW 1 / 4 sec. 30, T.161 N., R.46 W., Kittson County, Hydrologic Unit 09020312, on left bank 70 ft upstream from culvert on U.S. Highway 59 at Lake Bronson and 3.4 mi downstream from dam at outlet of Bronson Lake.

DRAINAGE AREA.--422 mi² (revised).

PERIOD OF RECORD.--September 1928 to November 1936, April to September 1937, April 1941 to October 1943, April to December 1944, April 1945 to September 1947, October 1953 to September 1981, April 1985 to current year. Monthly discharge only for some periods, published in WSP 1308. October 1981 to March 1985, annual maximums only. Published as South Fork Two Rivers at Bronson prior to 1941.

REVISED RECORDS.--WSP 1308: 1929(M), 1931(M), 1936(M), 1944(M), 1947(M).

GAGE.--Water-stage recorder. Datum of gage is 928.53 ft above mean sea level (Minnesota Department of Transportation bench mark). Prior to Nov. 23, 1953, nonrecording gage at bridge 100 ft downstream at datum 2.00 ft higher. Nov 23, 1953 to Oct. 5, 1963, water-stage recorder at same site at datum 2.00 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow partly regulated since 1937 at Bronson Lake; usable capacity, 3,700 acre-ft.

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	5.4	44	21	17	e9.2	1040	469	138	64	483	42	7.8
2	6.0	44	22	16	e9.3	1080	266	8.4	64	445	38	7.1
3	9.0	40	22	e15	e9.3	e1200	216	8.6	62	438	35	6.9
4	11	38	21	e15	10	1400	235	8.5	62	414	33	6.4
5	13	35	e20	e14	11	1500	227	8.5	51	356	32	6.0
6	14	34	20	e14	12	e1200	218	10	12	239	28	5.6
7	16	20	19	e13	12	e800	219	14	12	176	18	5.0
8	45	13	19	e13	12	e500	235	18	5.2	382	17	4.9

9	69	31	18	e12	12	e170	280	21	8.4	480	17	4.8
10	81	48	17	e12	11	e110	279	23	12	356	11	4.6
11	4.1	56	17	e11	11	e70	178	36	16	303	1.3	4.8
12	164	e60	16	e10	10	e50	181	40	15	274	1.3	4.5
13	198	62	16	e10	9.6	e70	200	43	14	172	1.2	4.6
14	195	60	15	e10	11	e20	374	27	13	159	1.0	4.7
15	428	56	14	e10	18	e20	836	73	20	201	19	4.4
16	433	e48	14	e11	14	e20	846	144	24	186	3.2	4.3
17	358	43	20	e10	17	e30	524	955	32	148	2.5	4.3
18	327	39	26	e10	e22	43	380	1050	124	122	2.7	2.6
19	212	37	26	e10	e50	48	352	932	131	258	3.4	1.5
20	121	35	26	e10	e35	50	249	929	49	507	2.8	1.1
21	131	e32	26	e9.8	e23	58	109	887	282	243	3.1	.80
22	129	e31	24	e9.8	e18	98	110	524	110	276	3.8	.71
23	69	e30	22	e9.8	e15	112	111	274	109	344	4.4	.67
24	49	32	20	e10	13	109	110	166	74	243	4.2	.65
25	57	13	18	e10	14	113	107	168	268	142	4.6	.51
26	59	11	17	e9.8	365	243	99	138	609	141	6.1	.49
27	51	16	16	e9.8	784	445	56	58	516	90	7.8	.48
28	50	18	14	e9.8	1070	957	36	92	616	33	8.5	.65
29	48	19	13	e9.8	---	1090	8.2	144	716	38	7.0	.62
30	46	21	13	e9.6	---	916	76	128	606	45	6.3	.59
31	44	---	14	e9.4	---	607	---	87	---	45	7.3	---
TOTAL	3442.5	1066	586	350.6	2607.4	14169	7586.2	7153.0	4696.6	7739	372.5	102.07
MEAN	111	35.5	18.9	11.3	93.1	457	253	231	157	250	12.0	3.40
MAX	433	62	26	17	1070	1500	846	1050	716	507	42	7.8
MIN	4.1	11	13	9.4	9.2	20	8.2	8.4	5.2	33	1.0	.48
AC-FT	6830	2110	1160	695	5170	28100	15050	14190	9320	15350	739	202
CFSM	.26	.08	.04	.03	.22	1.08	.60	.55	.37	.59	.03	.01
IN.	.30	.09	.05	.03	.23	1.25	.67	.63	.41	.68	.03	.01

e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 1998, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	21.1	13.4	5.09	3.06	5.10	77.2	425	219	161	112	48.0	43.6
MAX	153	97.0	34.5	12.1	93.1	689	1977	1500	1336	1136	1349	525
(WY)	1958	1995	1992	1992	1998	1995	1966	1996	1970	1956	1993	1957
MIN	.40	.38	.13	.12	.12	.66	.54	.98	1.43	.44	.089	.000
(WY)	1991	1990	1987	1987	1987	1934	1991	1991	1980	1988	1988	1937

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR	FOR 1998 WATER YEAR	WATER YEARS 1929 - 1998			
ANNUAL TOTAL	68846.88	49870.87				
ANNUAL MEAN	189	137		95.1a		
HIGHEST ANNUAL MEAN				312		1966
LOWEST ANNUAL MEAN				2.89		1934
HIGHEST DAILY MEAN	4100	Apr 20	1500	Mar 5	5290	Apr 5 1966
LOWEST DAILY MEAN	.16	Jan 19	.48	Sep 27	.00b	Jul 25 1937
ANNUAL SEVEN-DAY MINIMUM	.17	Jan 15	.57	Sep 24	.00	Aug 2 1937
INSTANTANEOUS PEAK FLOW			1510	Mar 4	5410	Apr 5 1966
INSTANTANEOUS PEAK STAGE			9.20	Mar 4	18.23	Apr 5 1966
ANNUAL RUNOFF (AC-FT)	136600		98920		68920	
ANNUAL RUNOFF (CFSM)	.45		.32		.23	
ANNUAL RUNOFF (INCHES)	6.07		4.40		3.06	
10 PERCENT EXCEEDS	457		430		230	

50 PERCENT EXCEEDS	18		30		5.0		
90 PERCENT EXCEEDS	.81		4.8		.80		

- a Median of annual mean discharges is 59 ft³/s.
- b Many days, several years.

