

RAINY RIVER BASIN--Continued

05127000 KAWISHIWI RIVER NEAR WINTON, MN

LOCATION.--Lat 47°56'05", long 91°45'50", in NE¹/₄NW¹/₄ sec. 20, T.63 N., R.11 W., Lake County, Hydrologic Unit 09030001, Superior National Forest, at power plant of Minnesota Power Co., just upstream from Fall Lake, and 1.8 mi east of Winton.

DRAINAGE AREA.--1,229 mi².

PERIOD OF RECORD.--June 1905 to June 1907, October 1912 to September 1919 (fragmentary), September 1923 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WDR MN-77-1: Drainage area.

REMARKS.--No estimated daily discharges. Records good. Daily discharge computed from power plant records. Flow regulated by power plant and by Camp Six, Bald Eagle, Gabbro, Little Gabbro, Birch, White Iron, South Farm, and Garden Lakes.

COOPERATION.--Records collected by Minnesota Power Co., under general supervision of the Geological Survey, in connection with a Federal Energy Regulatory Commission project.

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	2380	1410	642	601	407	306	618	715	1160	2180	569	450		
2	2430	1410	660	518	378	306	530	899	1260	2060	126	454		
3	2480	1410	538	535	354	306	640	988	1410	1840	124	656		
4	2750	1410	628	498	354	306	707	1640	1410	1830	124	787		
5	2430	1410	612	472	354	306	707	1630	1140	1840	305	798		
6	2440	1400	615	510	354	306	707	1610	900	1840	449	855		
7	2530	1400	632	537	354	306	707	1290	901	1560	449	1040		
8	2700	1400	707	422	242	436	738	1710	831	1410	456	1150		
9	2690	1200	704	543	207	734	796	2340	753	1410	459	1150		
10	2570	897	704	391	173	796	824	2870	690	1410	541	1150		
11	2330	898	704	508	238	796	821	3380	654	1410	795	1150		
12	2180	899	704	344	304	769	671	3550	654	1410	794	1150		
13	2340	899	613	358	306	705	206	3580	655	1260	738	1150		
14	2440	898	705	358	306	705	218	3520	646	898	468	1150		
15	2440	899	566	371	306	705	359	3380	696	899	367	1150		
16	2440	899	505	406	306	705	359	3380	706	900	402	1150		
17	2440	904	544	406	306	680	362	3010	821	1050	402	1150		
18	2430	907	591	407	306	435	433	2480	881	1160	402	1150		
19	2430	900	372	407	306	271	445	2480	881	1020	403	1000		
20	2270	900	703	1640	306	466	615	2470	880	866	403	897		
21	1940	899	535	407	306	605	707	2460	1570	785	403	897		
22	1610	890	546	407	306	605	706	2540	1760	705	430	872		
23	1610	880	521	407	306	605	706	2000	1610	702	453	797		
24	1580	880	615	407	306	432	538	1430	1620	702	454	797		
25	1070	534	529	407	306	513	507	1160	1620	715	454	543		
26	881	628	582	407	306	708	507	1160	1870	882	454	291		
27	882	613	685	407	306	707	529	1160	2030	901	454	295		
28	882	592	606	407	306	707	666	1160	2090	901	563	306		
29	895	635	572	407	306	647	704	1160	2200	901	783	163		
30	900	696	517	407	---	466	704	1160	2190	879	437	319		
31	1060	---	536	407	---	520	---	1160	---	824	329	---		
TOTAL	62450	29597	18693	14709	8921	16860	17737	63472	36489	37150	13990	24867		
MEAN	2015	987	603	474	308	544	591	2047	1216	1198	451	829		
MAX	2750	1410	707	1640	407	796	824	3580	2200	2180	795	1150		
MIN	881	534	372	344	173	271	206	715	646	702	124	163		
AC-FT	123900	58710	37080	29180	17690	33440	35180	125900	72380	73690	27750	49320		
CFSM	1.64	.80	.49	.39	.25	.44	.48	1.67	.99	.98	.37	.67		
IN	1.89	.90	.57	.45	.27	.51	.54	1.92	1.10	1.12	.42	.75		
+	12.9	-36.9	-100	-124	-65.5	-122	442	-22.7	19.0	-49.2	37.9	4.41		
MEAN †	2027	950	503	350	242	422	1033	2025	1235	1149	489	833		
CFSM †	1.65	.77	.41	.28	.20	.34	.84	1.65	1.00	.93	.40	.68		
IN †	1.90	.86	.47	.32	.22	.39	.94	1.90	1.16	1.07	.46	.76		
CAL. YR. 99	TOTAL	489005	MEAN	1340	MAX	5720	MIN	136	MEAN †	1338	CFSM †	1.09	IN †	14.78
WTR. YR. 00	TOTAL	334935	MEAN	942	MAX	3580	MIN	124	MEAN †	941	CFSM †	.77	IN †	10.40

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STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1905 - 2000, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	898	762	596	455	350	380	1209	3101	1911	1179	683	740
MAX	4277	3572	1422	862	770	844	5020	9278	5661	3382	3775	3149
(WY)	1947	1971	1983	1978	1927	1945	1945	1950	1968	1999	1988	1928
MIN	66.5	8.97	76.1	80.3	74.5	103	19.3	111	519	217	51.7	38.1
(WY)	1924	1924	1977	1977	1977	1924	1924	1924	1980	1961	1919	1919

SUMMARY STATISTICS	FOR 1999 CALENDAR YEAR	FOR 2000 WATER YEAR	WATER YEARS 1905 - 2000
ANNUAL TOTAL	489005	344935	
ANNUAL MEAN	1340	942	1032
HIGHEST ANNUAL MEAN			1967
LOWEST ANNUAL MEAN			240
HIGHEST DAILY MEAN	5720	Jul 16	3580
LOWEST DAILY MEAN	136	Mar 9	124
ANNUAL SEVEN-DAY MINIMUM	224	Mar 7	254
ANNUAL RUNOFF (AC-FT)	969900		684200
ANNUAL RUNOFF (CFSM)	1.09		.77
ANNUAL RUNOFF (INCHES)	14.80		10.44
10 PERCENT EXCEEDS	2770		2180
50 PERCENT EXCEEDS	898		706
90 PERCENT EXCEEDS	339		306

+ Change in contents, equivalent in cubic feet per second, in Camp Six, Bald Eagle, Gabbro, Little Gabbro, Birch, White Iron, Farm, South Farm, and Garden Lakes.

‡ Adjusted for change in reservoir contents.

^a Many days, several years.

