

LAKE OF THE WOODS BASIN

05127000 KAWISHIWI RIVER NEAR WINTON, MN

LOCATION.--Lat 47° 56'05", long 91° 45'50", in NE¼NW¼ 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 Geological Survey, in connection with a Federal Power Commission project.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
JUL	AUG	SEP							
1	285	1520	1970	907	512	590	879	3220	1840
1700	281	141							
2	323	1520	1920	889	591	621	878	3040	1950
1920	282	141							
3	163	1490	1570	887	683	621	877	2880	2030
1910	213	141							
4	145	1380	851	887	683	621	875	2840	1710
1910	286	141							
5	328	1120	734	886	683	621	874	2080	1390
1900	253	141							
6	159	1330	878	749	683	924	874	2090	1400
1900	299	141							
7	352	1460	885	755	683	535	873	1880	1330
1750	304	141							
8	470	1510	885	755	517	409	885	2170	1150
1600	265	141							
9	386	2200	842	755	512	410	1250	3320	1150
1210	235	141							
10	282	2180	353	755	507	410	1820	3520	1150

883	204	257							
11	228	1140	690	755	512	529	2050	3470	1150
883	158	317							
12	321	1150	883	755	559	591	2010	3420	1160
884	149	149							
13	469	1150	882	755	494	595	1970	3080	1150
884	195	140							
14	469	1150	883	747	494	681	2000	2600	1150
884	255	140							
15	469	887	883	887	494	503	2060	2680	1070
884	144	140							
16	469	879	897	746	494	504	2440	2680	885
863	304	144							
17	601	1510	911	746	494	504	2550	2670	885
553	182	192							
18	881	1500	911	747	473	503	2640	2660	886
499	174	210							
19	881	1510	911	802	502	446	2720	2910	886
327	143	192							
20	641	1520	912	883	502	422	2840	3310	886
328	143	140							
21	515	2260	913	883	631	422	2940	3620	886
328	304	117							
22	800	2240	912	824	859	422	3060	3680	886
229	425	64							
23	800	2210	913	848	792	422	3160	2870	886
187	366	33							
24	800	1630	912	886	769	421	3270	3320	979
247	140	56							
25	800	1630	913	828	698	421	3380	3260	1150
282	248	56							
26	510	1610	913	755	455	421	3480	3210	1150
282	218	57							
27	510	1610	911	810	402	488	3430	2740	1150
282	179	57							
28	510	1990	911	772	402	874	3230	2070	1150
282	132	190							
29	510	1980	911	759	---	764	3310	1820	1150
282	133	426							
30	886	1970	910	731	---	881	3340	1830	1150
281	133	425							
31	1520	---	912	511	---	880	---	1830	---
281	133	---							
TOTAL	16483	47236	29682	24655	16080	17456	65965	86770	35745
26635	6880	4771							
MEAN	532	1575	957	795	574	563	2199	2799	1192
859	222	159							
MAX	1520	2260	1970	907	859	924	3480	3680	2030
1920	425	426							
MIN	145	879	353	511	402	409	873	1820	885

187	132	33									
+	-90.6	-18.3	-55.2	-171	-203	-116	472	43.7	31.2	-	
19.8	-31.2	-65.6									
MEAN	441	1556	902	624	371	447	2671	2843	1223		
839	191	93.4									
CFSM	.36	1.27	.73	.51	.30	.36	2.17	2.31	1.00		
.68	.16	.08									
IN		.42	1.42	.84	.59	.31	.42	2.42	2.66		
1.12	.78	.18	.09								
CAL. YR.	96			TOTAL	589739	MEAN	1611	MAX	8430	MIN	143
MEAN	1596	CFSM	1.30	IN	17.64						
WTR. YR	97			TOTAL	378358	MEAN	1037	MAX	3680	MIN	33
MEAN	1018	CFSM	0.83	IN	11.25						

- + 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.

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1905 - 1997, BY WATER YEAR (WY)

	JUN	JUL	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
MEAN	897	762	AUG	SEP	455	351	378	1195	3138	1944
1162	688	742		594	862	770	844	5020	9278	5661
MAX	4277	3572	1422	862	770	844	5020	9278	5661	
2748	3775	3149	(
(WY)	1947	1971	1983	1978	1927	1945	1945	1950	1968	
1944	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 1996 CALENDAR YEAR FOR 1997 WATER YEAR WATER YEARS 1905 - 1997

	ANNUAL TOTAL	589739	378358	
	ANNUAL MEAN	1611	1037	1036
	HIGHEST ANNUAL MEAN			
1967	1950			
	LOWEST ANNUAL MEAN			
240	1924			
	HIGHEST DAILY MEAN	8430	May 19	3680
May 18	1950			May 22
	LOWEST DAILY MEAN	143	Sep 14	33
Aug 24	1905			Sep 23
	ANNUAL SEVEN-DAY MIN	221	Sep 30	63
Oct 13	1923			Sep 21
	ANNUAL RUNOFF (AC-FT)	1170000		750500
				750800

ANNUAL RUNOFF (CFSM)	1.31	.84	.84
ANNUAL RUNOFF (INCHES)	17.85	11.45	11.46
10 PERCENT EXCEEDS	4660	2570	2440
50 PERCENT EXCEEDS	872	848	597
90 PERCENT EXCEEDS	370	177	194

- a Many days, several years.