

RED RIVER OF THE NORTH BASIN

05046000 OTTER TAIL RIVER BELOW ORWELL DAM, NEAR FERGUS FALLS, MN

LOCATION.--Lat 4612'35", long 9611'05", in NE 1 / 4 sec. 34, T.132 N., R.44 W., Otter Tail County, Hydrologic Unit 09020103, on left bank 0.7 mi downstream from Orwell Dam, 6.1 mi downstream from Dayton Hollow Dam, 8 mi southwest of Fergus Falls, and 11.1 mi downstream from Pelican River.

DRAINAGE AREA.--1,740 mi².

PERIOD OF RECORD.--October 1930 to current year. Prior to October 1952, published as Otter Tail River below Pelican River, near Fergus Falls. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 785: 1934(M). WSP 1208: 1947(M). WSP 1308: 1931(M).

GAGE.--Water-stage recorder. Datum of gage is 1,029.65 ft above sea level, adjustment of 1912 (levels by U.S. Army Corps of Engineers). Oct. 11, 1930 to Nov. 17, 1933, at same site at datum 2.00 ft higher; Nov. 18, 1933 to Mar. 21, 1953, at site 6.1 mi upstream at datum 40.30 ft higher.

REMARKS.--Records good. Flow regulated by Orwell Lake (station 05045950) beginning Mar. 21, 1953 and power plant upstream.

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	502	478	548	518	501	767	871	802	768	790	1230	709
2	497	484	580	519	504	765	871	799	756	1160	1200	704
3	463	483	580	521	505	761	905	796	763	1210	1210	696
4	419	481	625	516	560	674	948	771	771	1220	1170	690
5	424	483	654	467	599	606	941	729	749	1220	870	685
6	425	553	647	440	554	606	936	731	729	1210	833	681
7	425	591	646	452	513	606	889	727	714	1190	1010	673
8	431	566	641	452	513	610	846	696	695	1100	1000	645
9	440	566	597	461	513	612	846	666	681	783	993	602
10	481	564	564	468	513	612	846	669	657	788	1000	555

11	514	563	567	464	514	608	846	670	659	1130	1010	493
12	516	545	567	490	518	606	844	754	664	1100	991	500
13	522	513	567	505	518	609	843	1040	662	778	974	503
14	593	510	567	462	518	612	840	1090	660	834	957	508
15	643	511	567	458	516	612	840	1030	716	918	946	513
16	641	508	567	455	513	657	838	1020	750	1240	930	390
17	616	507	567	458	533	694	835	1020	708	1230	790	366
18	630	507	567	461	598	746	833	1050	647	1230	787	534
19	629	495	567	465	623	783	833	1060	618	1240	552	534
20	590	485	569	556	662	784	785	1050	487	1240	534	328
21	556	487	567	616	721	784	747	1020	205	1230	737	113
22	560	489	567	612	714	779	765	1000	69	1130	812	101
23	561	489	567	611	649	777	766	979	189	748	811	296
24	558	489	567	604	601	776	792	957	581	1180	809	406
25	556	490	567	595	601	771	807	935	551	1220	802	418
26	556	495	566	595	690	740	807	911	681	1210	797	458
27	552	496	562	529	751	685	807	885	1170	1200	758	458
28	553	499	563	495	771	693	804	850	1120	1230	727	458
29	527	502	562	496	---	697	800	829	722	1230	723	458
30	475	502	562	496	---	781	797	801	744	1220	719	458
31	477	---	543	497	---	868	---	786	---	1220	714	---
TOTAL	16332	15331	17947	15734	16286	21681	25128	27123	19886	34429	27396	14933
MEAN	527	511	579	508	582	699	838	875	663	1111	884	498
MAX	643	591	654	616	771	868	948	1090	1170	1240	1230	709
MIN	419	478	543	440	501	606	747	666	69	748	534	101
AC-FT	32390	30410	35600	31210	32300	43000	49840	53800	39440	68290	54340	29620
CFSM	.30	.29	.33	.29	.33	.40	.48	.50	.38	.64	.51	.29
IN.	.35	.33	.38	.34	.35	.46	.54	.58	.43	.74	.59	.32

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 1998, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
MEAN	242	250	241	233	238	322	485	590	571	427	292	243
MAX	973	831	706	603	647	724	1199	1427	1425	1246	1080	1026
(WY)	1994	1986	1987	1986	1994	1994	1997	1986	1986	1953	1985	1993
MIN	9.15	8.42	8.10	15.1	10.8	23.5	39.5	14.1	14.2	12.8	11.5	7.99
(WY)	1977	1977	1977	1937	1935	1937	1934	1977	1934	1936	1934	1934

SUMMARY STATISTICS	FOR 1997 CALENDAR YEAR		FOR 1998 WATER YEAR		WATER YEARS 1931 - 1998		
ANNUAL TOTAL	275222		252206				
ANNUAL MEAN	754		691		345		
HIGHEST ANNUAL MEAN					842		1986
LOWEST ANNUAL MEAN					20.4		1934
HIGHEST DAILY MEAN	1500	May 23	1240	Jul 16, 19, 20	1670	Jun 20	1953
LOWEST DAILY MEAN	145	Sep 11	69	Jun 22	1.6	Feb 7	1937
ANNUAL SEVEN-DAY MINIMUM	426	Jan 1	303	Sep 20	5.9	Sep 15	1934
INSTANTANEOUS PEAK FLOW			1270	Jul 2	1710	Jun 17	1953
INSTANTANEOUS PEAK STAGE			4.32	Jul 2	5.60	Jun 17	1953
INSTANTANEOUS LOW FLOW			69a	Jun 22	.70	Aug 5	1970
ANNUAL RUNOFF (AC-FT)	545900		500300		249800		
ANNUAL RUNOFF (CFSM)	.43		.40		.20		
ANNUAL RUNOFF (INCHES)	5.88		5.39		2.69		
10 PERCENT EXCEEDS	1370		1020		755		

50 PERCENT EXCEEDS	624		643		272		
90 PERCENT EXCEEDS	485		472		34		

a Minimum daily, due to dam construction and improvements.

