

**RED RIVER OF THE NORTH BASIN**

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

LOCATION.--Lat 46° 12'35", long 96° 11'05", in NE¼ 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 except those for estimated daily discharges, which are fair. Flow regulated by Orwell Lake (station 05045950) beginning Mar. 21, 1953 and power plant upstream.

**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	309	324	316	391	504	533	946	1370	1330
819	774	675							
2	310	319	316	388	490	528	1150	1360	1280
918	771	672							
3	345	316	262	401	483	518	1110	1360	1210
975	771	704							
4	389	316	287	437	483	517	856	1360	1210
903	775	728							
5	310	277	477	460	486	510	671	1360	1210
903	775	723							
6	231	251	451	457	471	509	716	1360	1210
903	776	720							
7	219	253	515	450	471	496	755	1360	1220
902	777	710							
8	161	283	516	439	491	497	780	1370	1220
899	777	664							
9	132	302	481	451	477	480	795	1370	1130

896	777	618							
10	127	301	446	647	522	473	808	1370	1060
892	777	339							
11	128	301	446	682	567	476	914	1370	1070
854	773	145							
12	131	272	446	584	606	492	1170	1370	1100
821	771	430							
13	131	209	447	520	564	519	1260	1380	1140
821	771	702							
14	138	183	446	483	591	559	1340	1380	1140
822	735	696							
15	172	184	446	506	623	584	1390	1380	1130
824	699	621							
16	227	185	447	635	620	572	1480	1380	1030
822	697	577							
17	260	186	441	605	594	558	1460	1380	968
826	693	578							
18	257	227	440	606	541	580	1460	1380	972
827	693	545							
19	251	292	410	562	552	593	1450	1380	967
827	693	502							
20	225	316	377	535	536	606	1440	1380	1010
827	693	501							
21	210	316	377	497	534	640	1430	1420	1030
827	691	505							
22	226	316	377	528	526	652	1430	1480	1020
827	689	541							
23	244	316	345	516	523	630	1420	1500	1010
827	697	561							
24	239	316	322	510	518	590	1410	1500	1000
827	698	501							
25	208	316	312	600	515	620	1410	1500	916
832	680	501							
26	180	316	311	530	536	624	1390	1490	807
832	649	501							
27	179	316	351	518	549	609	1390	1490	785
831	665	501							
28	179	316	391	546	540	649	1390	1480	821
830	681	502							
29	183	316	393	572	---	709	1380	1470	817
831	681	502							
30	266	316	391	587	---	658	1380	1400	815
798	678	502							
31	324	---	391	525	---	726	---	1330	---
773	675	---							
TOTAL	6891	8457	12374	16168	14913	17707	35981	43480	31628
26316	22452	16967							
MEAN	222	282	399	522	533	571	1199	1403	1054

849	724	566							
MAX	389	324	516	682	623	726	1480	1500	1330
975	777	728							
MIN	127	183	262	388	471	473	671	1330	785
773	649	145							
AC-FT	13670	16770	24540	32070	29580	35120	71370	86240	62730
52200	44530	33650							
CFSM	.13	.16	.23	.30	.31	.33	.69	.81	.61
.49	.42	.33							

**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 1997, BY WATER YEAR (WY)**

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
JUL	AUG	SEP							
MEAN	238	246	236	229	233	316	480	585	570
416	283	239							
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 1996 CALENDAR YEAR FOR 1997 WATER YEAR WATER YEARS 1931 - 1997*

ANNUAL TOTAL		191265		253334	
ANNUAL MEAN		523		694	340
HIGHEST ANNUAL MEAN					
842		1986			
LOWEST ANNUAL MEAN					
20.4		1934			
HIGHEST DAILY MEAN		1260	May 26	1500a	May 23
Jun 20	1953				
LOWEST DAILY MEAN		127	Oct 10	127	Oct 10
Feb 7	1937				1.6
ANNUAL SEVEN-DAY MINIMUM		135	Oct 8	135	Oct 8
Sep 15	1934				5.9
INSTANTANEOUS PEAK FLOW				1500	May 22
Jun 17	1953				1710
INSTANTANEOUS PEAK STAGE				4.63	May 22
Jun 17	1953				5.60
INSTANTANEOUS LOW FLOW				127	Oct 10
Aug 5	1970				.70
ANNUAL RUNOFF (AC-FT)		379400		502500	246000
ANNUAL RUNOFF (CFSM)		.30		.40	.20
10 PERCENT EXCEEDS		1070		1370	743
50 PERCENT EXCEEDS		420		606	266
90 PERCENT EXCEEDS		213		275	33

- a Affected in part by regulation.