Water-Data Report 2009

05132000 BIG FORK RIVER AT BIG FALLS, MN

Rainy Basin
Big Fork Subbasin

LOCATION.--Lat 48°11′45″, long 93°48′25″ referenced to North American Datum of 1927, in SW ¼ SE ¼ sec.35, T.155 N., R.25 W., Koochiching County, MN, Hydrologic Unit 09030006, on left bank at town of Big Falls, 700 ft downstream from falls, 0.3 mi downstream from bridge on U.S. Highway 71, and 4.8 mi upstream from Sturgeon River.

DRAINAGE AREA.--1,480 mi^2.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--August to November 1909, April to November 1910, April 1911 to September 1912 (gage heights and discharge measurements only), June 1928 to September 1979, October 1979 to September 1982 (annual maximum only), October 1982 to September 1993, October 1993 to September 1994 (annual maximum only) and October 1997 to current year.

REVISED RECORDS.--WSP 1308:1935 (M). Unpublished, 2009: 1988(M).

GAGE.--Water-stage recorder. Datum of gage is 1,144.71 ft above sea level (NGVD of 1929). Prior to June 10, 1911, nonrecording gage at railroad bridge about 0.4 mi upstream at different datum. June 10, 1911 to Sept. 30, 1912, and June 22, 1928 to Dec. 17, 1937, nonrecording gage at site 200 ft upstream at same datum.

REMARKS.--Records good to fair except those for estimated daily-mean discharges, which are poor. Prior to 1971, a powerplant, located 0.3 mi upstream, caused some diurnal fluctuation at low flows.

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DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2008 TO SEPTEMBER 2009
DAILY MEAN VALUES
[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	267	633	e504	e315	e235	e195	e1,590	3,380	1,340	281	186	150
2	261	617	e502	e312	e234	e188	e1,410	3,350	1,280	271	193	145
3	255	606	e491	e310	e232	e190	e1,240	3,330	1,200	252	196	139
4	252	592	e484	e308	e227	e185	e1,100	3,210	1,120	235	194	137
5	245	712	e482	e294	e219	e193	e1,000	3,020	1,080	214	192	134
6	239	1,060	e482	e285	e210	e185	e895	2,880	1,020	197	184	133
7	246	1,510	e482	e285	e210	e188	e819	2,750	976	182	175	135
8	256	1,800	e472	e285	e206	e185	e787	2,620	924	169	168	136
9	266	2,020	e458	e284	e210	e190	e851	2,520	898	159	165	143
10	274	2,080	e458	e284	e214	e190	e1,010	2,410	877	152	158	142
11	312	1,920	e446	e284	e214	e185	e1,260	2,290	859	147	154	142
12	463	1,670	e426	e284	e214	e185	e1,740	2,210	828	141	148	158
13	821	1,510	e420	e282	e223	e185	e2,820	2,470	812	137	141	158
14	1,020	1,440	e418	e272	e219	e193	e4,500	2,700	838	140	135	149
15	1,170	1,390	e409	e267	e219	e201	e6,000	2,740	882	166	187	150
16	1,190	1,340	e390	e264	e219	e201	5,860	2,830	797	162	160	156
17	1,160	1,210	e382	e264	e210	e212	6,000	3,070	700	164	157	156
18	1,130	975	e376	e263	e210	e232	6,040	2,910	633	164	172	152
19	1,030	805	e369	e264	e213	e319	5,760	2,710	603	167	194	146
20	950	e600	e360	e264	e208	e400	5,320	2,460	597	170	183	143
21	880	e635	e357	e264	e208	e415	4,870	2,270	565	186	195	141
22	820	e628	e357	e264	e206	e410	4,450	2,110	519	180	203	141
23	771	e628	e357	e264	e203	e426	4,080	1,990	484	183	205	141
24	737	e621	e357	e263	e203	e549	3,810	1,860	444	201	204	141
25	721	e580	e357	e261	e198	e859	3,750	1,740	406	204	197	143
26	716	e567	e357	e257	e195	e1,420	3,660	1,690	380	199	186	145
27	741	e557	e355	e253	e193	e2,080	3,590	1,660	354	195	176	148
28	735	e545	e350	e247	e193	e2,420	3,470	1,610	333	191	168	154
29	727	e528	e342	e244	---	e2,320	3,350	1,540	316	179	164	153
30	697	e517	e332	e237	---	e2,080	3,330	1,440	294	170	167	152
31	659	---	e325	e236	---	e1,820	---	1,360	---	169	157	---
Total	20,011	30,296	12,657	8,460	5,945	19,001	94,362	75,130	22,359	5,727	5,464	4,363
Mean	646	1,010	408	273	212	613	3,145	2,424	745	185	176	145
Max	1,190	2,080	504	315	235	2,420	6,040	3,380	1,340	281	205	158
Min	239	517	325	236	193	185	787	1,360	294	137	135	133
Ac-ft	39,690	60,090	25,110	16,780	11,790	37,690	187,200	149,000	44,350	11,360	10,840	8,650
Cfsm	0.44	0.68	0.28	0.18	0.14	0.41	2.13	1.64	0.50	0.12	0.12	0.10
In.	0.50	0.76	0.32	0.21	0.15	0.48	2.37	1.89	0.56	0.14	0.14	0.11

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1909 - 2009, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	654	568	298	183	144	256	1,922	1,973	1,169	623	393	543
Max	2,247	2,034	685	408	335	1,928	5,186	7,496	2,890	2,321	1,799	2,989
(WY)	(1970)	(1972)	(1970)	(2006)	(1969)	(1945)	(1966)	(1950)	(1974)	(1944)	(1978)	(1937)
Min	38.3	44.5	31.6	22.2	22.9	32.9	175	138	180	46.0	26.7	22.4
(WY)	(1932)	(1935)	(1935)	(1935)	(1935)	(1940)	(1931)	(1931)	(1934)	(1931)	(1934)	(1934)

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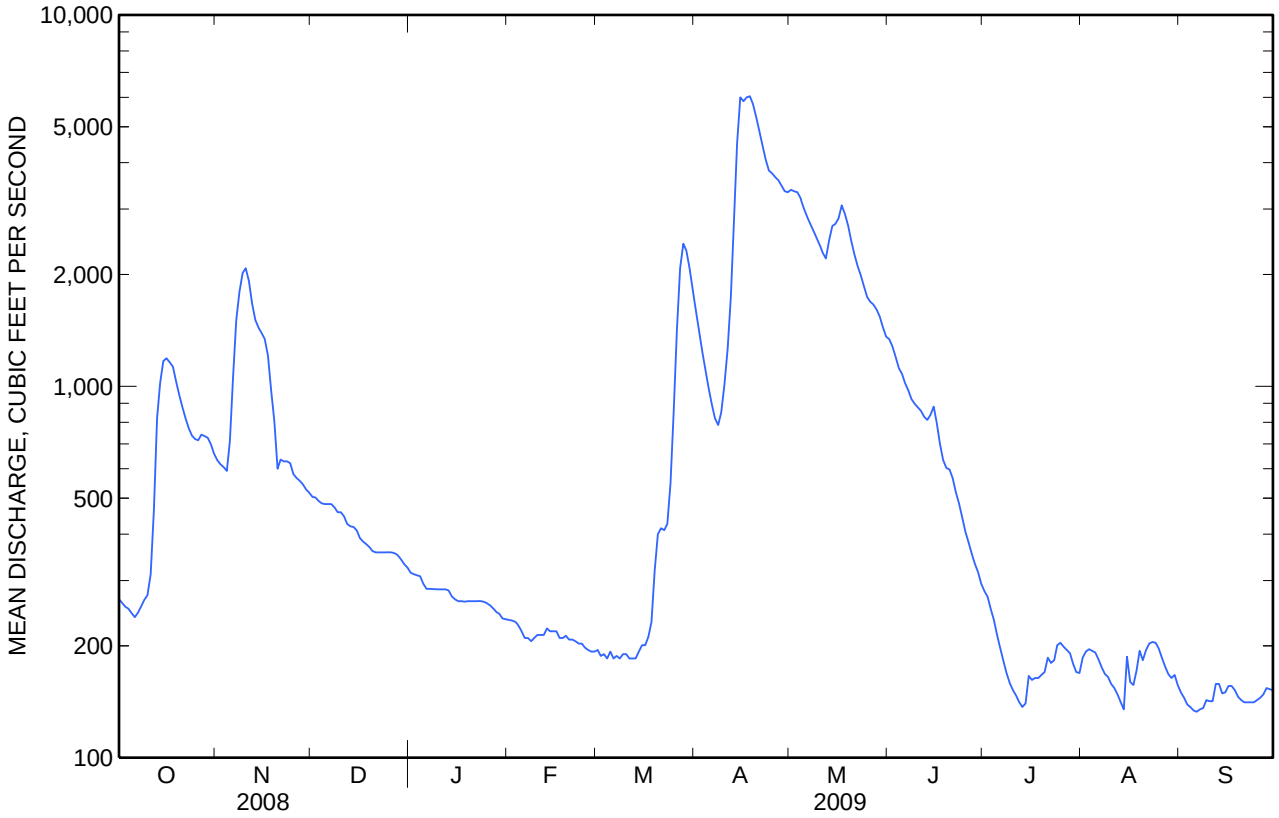
SUMMARY STATISTICS

	Calendar Year 2008		Water Year 2009		Water Years 1909 - 2009	
Annual total	248,990		303,775			
Annual mean	680		832		727	
Highest annual mean					1,362	1950
Lowest annual mean					92.0	1931
Highest daily mean	3,910	Apr 22	6,040	Apr 18	14,800	May 9, 1950
Lowest daily mean	73	Mar 11	133	Sep 6	14	Jan 10, 1940
Annual seven-day minimum	73	Mar 11	137	Sep 3	18	Jan 22, 1935
Maximum peak flow			[a]6,220	Apr 15	14,800	May 8, 1950
Maximum peak stage			[b]10.99	Mar 27	17.08	May 8, 1950
Instantaneous low flow			[c]131	Aug 14	7.0	Aug 7, 1939
Annual runoff (ac-ft)	493,900		602,500		527,000	
Annual runoff (cfsm)	0.460		0.562		0.492	
Annual runoff (inches)	6.26		7.64		6.68	
10 percent exceeds	2,030		2,410		1,800	
50 percent exceeds	291		319		330	
90 percent exceeds	86		156		83	

[a] Gage-height, 9.71 ft.

[b] Backwater from ice.

[c] Also occurred Sept 6th.