05061500 SOUTH BRANCH BUFFALO RIVER AT SABIN, MN

Upper Red Basin
Buffalo Subbasin

LOCATION.--Lat 46°46′20″, long 96°37′40″ referenced to North American Datum of 1927, in SW ¼ SW ¼ sec.9, T.138 N., R.47 W., Clay County, MN, Hydrologic Unit 09020106, gage shelter near left downstream end of County Road 67 bridge, 0.3 mile (0.5 km) downstream from Stony Creek and 1 mile (1.6 km) east of Sabin. A dam is located 7 miles downstream of gage.

DRAINAGE AREA.--454 mi^2.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--March 1945 to current year. Water year 1981, annual maximum only; March 1982 to September 1985, no winter records.

REVISED RECORDS.--WSP 1308: 1949(M). WRIR 97-4249: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 902.39 ft above sea level (NGVD of 1929, levels by Soil Conservation Service). Prior to April 17, 1948, non-recording gage at site 1 mi downstream at different datum. Aug. 17, 1948 to Oct. 4, 1989, non-recording gage at present site and datum.

REMARKS.--Records good to fair except those for estimated daily discharges, which are poor.

05061500 SOUTH BRANCH BUFFALO RIVER AT SABIN, MN—Continued

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	23	438	e35	e15	e15	e51	848	276	145	284	28	33
2	23	326	e33	e15	e15	e50	722	294	114	205	29	30
3	22	253	e31	e15	e15	e49	618	273	96	155	30	28
4	24	213	e29	e15	e15	e48	539	237	81	122	29	27
5	21	197	e27	e15	e15	e49	498	210	70	100	29	28
6	28	250	e25	e15	e16	e50	474	194	63	84	28	25
7	56	395	e24	e15	e16	e50	451	183	67	73	27	22
8	177	668	e23	e15	e17	e50	482	171	77	64	29	21
9	289	1,000	e22	e15	e18	e51	693	150	83	59	34	28
10	425	975	e21	e15	e21	e51	1,130	135	90	55	35	36
11	638	831	e21	e15	e24	e51	1,640	125	89	51	33	49
12	e1,200	639	e20	e14	e30	e53	1,810	127	78	46	32	70
13	1,830	451	e19	e14	e35	e55	1,630	162	67	41	29	70
14	2,570	340	e18	e13	e38	e61	1,330	272	67	38	26	55
15	2,760	307	e17	e14	e40	e71	1,090	376	83	48	25	46
16	2,310	282	e17	e15	e43	e106	920	365	88	58	36	39
17	1,700	239	e16	e16	e45	e267	787	286	259	114	84	33
18	1,260	197	e15	e16	e46	e852	661	209	1,910	111	175	36
19	1,000	e178	e15	e15	e47	e1,550	571	158	3,340	77	291	35
20	828	e157	e15	e16	e47	e2,420	504	129	3,100	59	407	30
21	661	e130	e15	e16	e48	e3,060	447	112	2,490	86	467	27
22	495	e102	e15	e16	e49	3,650	397	110	1,850	128	418	31
23	386	e96	e15	e15	e50	4,700	352	116	1,450	154	270	33
24	358	e86	e15	e15	e51	6,540	312	109	1,270	183	142	36
25	398	e79	e15	e15	e51	7,040	285	104	1,090	e145	96	33
26	516	e67	e15	e15	e51	5,220	269	167	924	e114	76	29
27	714	e56	e16	e15	e50	3,290	260	314	752	e80	64	26
28	830	e49	e16	e15	e51	2,160	263	421	580	e53	54	25
29	798	e42	e15	e15	---	1,650	269	393	496	e32	48	24
30	694	e38	e15	e15	---	1,290	260	279	405	29	41	24
31	565	---	e15	e15	---	1,030	---	191	---	27	36	---
Total	23,599	9,081	610	465	959	45,615	20,512	6,648	21,274	2,875	3,148	1,029
Mean	761	303	19.7	15.0	34.2	1,471	684	214	709	92.7	102	34.3
Max	2,760	1,000	35	16	51	7,040	1,810	421	3,340	284	467	70
Min	21	38	15	13	15	48	260	104	63	27	25	21
Ac-ft	46,810	18,010	1,210	922	1,900	90,480	40,690	13,190	42,200	5,700	6,240	2,040
Cfsm	1.68	0.67	0.04	0.03	0.08	3.24	1.51	0.47	1.56	0.20	0.22	0.08
In.	1.93	0.74	0.05	0.04	0.08	3.74	1.68	0.54	1.74	0.24	0.26	0.08

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 2009, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	36.3	31.2	9.77	4.52	8.26	135	299	102	127	84.9	19.6	24.2
Max	761	303	66.8	55.5	205	1,471	1,683	580	1,068	1,112	207	266
(WY)	(2009)	(2009)	(1999)	(2006)	(1998)	(2009)	(1997)	(1962)	(1962)	(1975)	(2005)	(2004)
Min	0.02	2.05	0.01	0.00	0.00	0.00	27.9	8.28	1.30	0.00	0.00	0.00
(WY)	(1977)	(1977)	(1961)	(1946)	(1946)	(1951)	(1973)	(1980)	(1976)	(1988)	(1976)	(1976)

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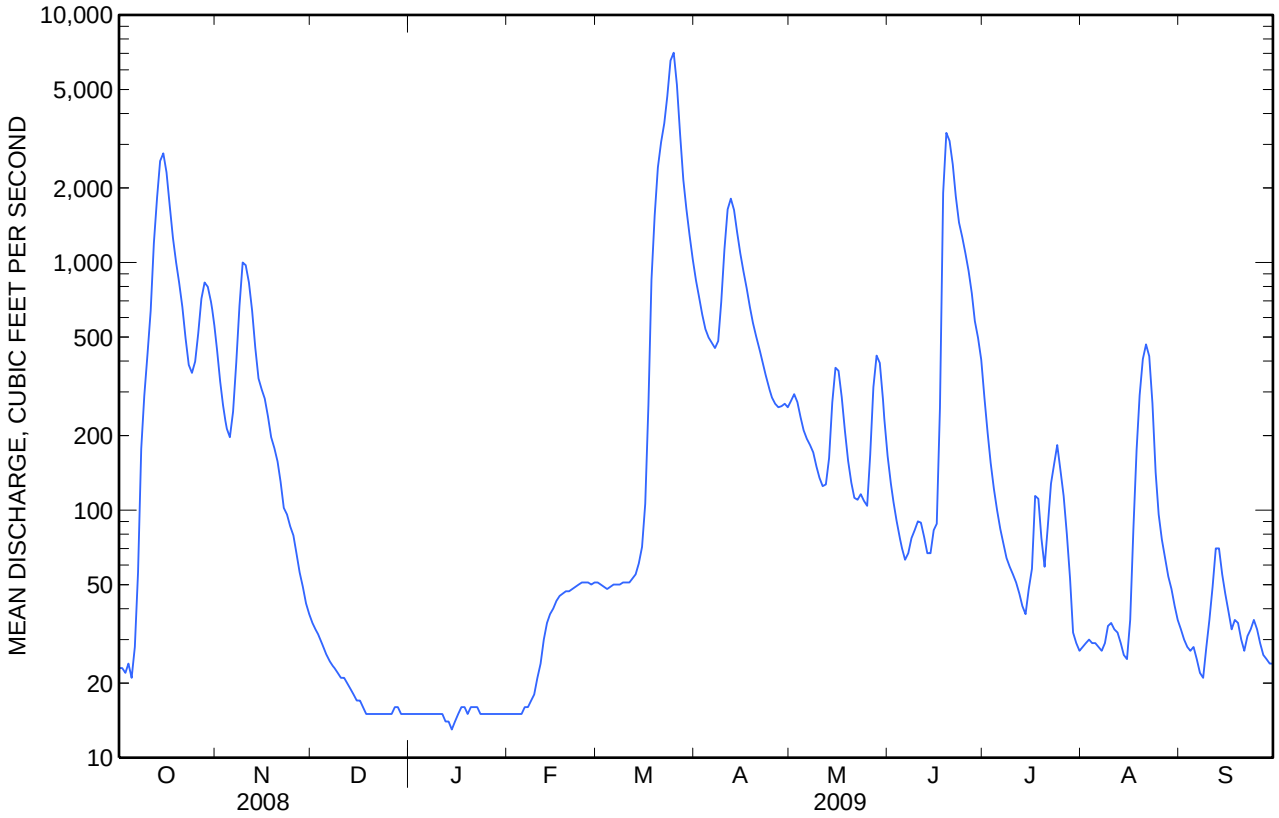
SUMMARY STATISTICS

	Calendar Year 2008		Water Year 2009		Water Years 1945 - 2009	
Annual total	71,569.9		135,815			
Annual mean	196		372		[a]74.8	
Highest annual mean					372	2009
Lowest annual mean					12.2	1977
Highest daily mean	2,760	Oct 15	7,040	Mar 25	8,200	Jul 1, 1975
Lowest daily mean	6.1	Feb 19	[b]13	Jan 14	[c]0.00	Dec 13, 1945
Annual seven-day minimum	6.8	Feb 14	14	Jan 9	0.00	Dec 13, 1945
Maximum peak flow			7,280	Mar 25	8,500	Jul 2, 1975
Maximum peak stage			19.08	Mar 25	19.90	Jul 2, 1975
Instantaneous low flow			[b]13	Jan 14	[c]0.00	Dec 13, 1945
Annual runoff (ac-ft)	142,000		269,400		54,170	
Annual runoff (cfsm)	0.431		0.820		0.165	
Annual runoff (inches)	5.86		11.13		2.24	
10 percent exceeds	600		985		141	
50 percent exceeds	52		67		10	
90 percent exceeds	8.0		15		0.20	

[a] Median of annual mean discharges is 56 ft³/s.

[b] Estimated daily-mean discharge, backwater from ice.

[c] Many days, several years.



05061500 SOUTH BRANCH BUFFALO RIVER AT SABIN, MN—Continued

WATER-QUALITY RECORDS

REMARKS.--This site is part of a statewide sediment study. The objectives of this study are to describe sediment concentrations and load and turbidity as a function of streamflow and season at selected stream sites. Secondly to describe relations between mean cross-sectional suspended sediment concentrations and point measurements of water transparency. Also to provide training about sediment transport processes and sediment sampling techniques to Minnesota Pollution Control Agency's (MPCA) staff.

COOPERATION.--The Minnesota Pollution Control Agency (MPCA) is a cooperator on this project.

WATER-QUALITY DATA
WATER YEAR OCTOBER 2008 TO SEPTEMBER 2009

Part 1 of 3

Date	Time	Medium name	Temperature, air, deg C (00020)	Instantaneous discharge, ft³/s (00061)	Specif. conductance, wat unf lab, µS/cm @ 25 degC (90095)	Specific conductance, wat unf µS/cm @ 25 degC (00095)	Temperature, water, deg C (00010)	Transparency wat unf transparency tube, cm (65225)	Turbdty white light, det ang 90+/-30 degrees NTU (63675)	Turbdty white light, det ang 90+/-30 corrctd NTRU (63676)
Oct										
15...	0915	Surface water	--	2,640	--	--	8.8	--	--	--
15...	0916	Surface water	--	2,640	--	535	8.8	20	28	27
Mar										
22...	1623	Surface water	11.7	3,650	--	--	.7	--	--	--
22...	1656	Surface water	11.7	3,650	328	--	.7	--	--	--
22...	1658	Surface water	11.7	3,650	330	--	.7	--	--	--
22...	1701	Surface water	11.7	3,650	--	335	.7	12	68	72
25...	1400	Surface water	--	7,050	--	347	1.5	10	100	120
25...	1401	Surface water	--	7,050	--	347	1.5	9	100	120
25...	1409	Surface water	--	7,050	340	--	1.5	--	--	--
25...	1430	Surface water	--	7,050	349	--	1.5	--	--	--
Apr										
13...	1259	Surface water	13.1	--	--	474	9.1	--	26	27
13...	1340	Surface water	--	--	--	--	--	--	--	--
13...	1349	Surface water	--	--	--	--	--	--	--	--
13...	1445	Surface water	--	--	495	--	--	--	--	--
Jun										
18...	1901	Surface water	--	--	338	--	--	--	--	--
18...	1903	Surface water	--	--	--	--	--	--	--	--
18...	1904	Surface water	23.2	--	--	332	21.1	9	130	160
18...	1930	Surface water	23.2	--	343	--	--	--	--	--
Jul										
14...	1150	Surface water	19.0	6.0	--	769	19.4	12	50	58
14...	1210	Surface water	19.0	6.0	731	--	19.4	--	--	--
14...	1215	Surface water	--	--	--	--	--	--	--	--
14...	1220	Surface water	--	--	634	--	--	--	--	--
23...	1215	Surface water	--	--	--	--	22.9	--	--	--
28...	1000	Surface water	--	--	--	--	21.3	--	--	--
30...	0930	Surface water	--	--	--	--	19.2	--	--	--
Aug										
19...	0900	Surface water	--	--	--	--	--	--	--	--
19...	1804	Surface water	--	325	607	--	--	--	--	--
19...	1806	Surface water	--	325	600	--	--	--	--	--
19...	1810	Surface water	--	325	--	--	--	--	--	--
19...	1906	Surface water	--	334	614	--	--	--	--	--
19...	1930	Surface water	17.9	334	--	593	19.4	11	56	64

05061500 SOUTH BRANCH BUFFALO RIVER AT SABIN, MN—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2008 TO SEPTEMBER 2009

Part 2 of 3

Date	Sampler type, code (84164)	Suspnd. sedimnt sieve diametr percent <0.0625 mm (70331)	Sus-pended sedi-ment concen-tration mg/L (80154)
Oct			
15...	Sampler US D-74	90	24
15...	Weighted-bottle	--	--
Mar			
22...	Sampler US D-74	99	126
22...	Sampler US D-74	--	54
22...	Sampler US D-74	--	57
22...	Weighted-bottle	--	--
25...	Weighted-bottle	--	--
25...	Weighted-bottle	--	--
25...	Weighted-bottle	--	129
25...	Weighted-bottle	--	98
Apr			
13...	Weighted-bottle	--	--
13...	Sampler US D-74	--	18
13...	Sampler US D-74	93	28
13...	Sampler US D-74	--	25
Jun			
18...	Sampler US D-74	--	115
18...	Sampler US D-74	99	101
18...	Weighted-bottle	--	--
18...	Sampler US D-74	--	115
Jul			
14...	Weighted-bottle	--	--
14...	Sampler US D-74	--	98
14...	Sampler US DH-59	92	120
14...	Sampler US D-74	--	152
23...	Sampler US D-74	92	59
28...	Sampler US D-74	95	109
30...	Sampler US D-74	82	147
Aug			
19...	Sampler US D-74	99	73
19...	Sampler US D-74	--	78
19...	Sampler US D-74	--	79
19...	Sampler US D-74	98	66
19...	Sampler US D-74	--	69
19...	Weighted-bottle	--	--

05061500 SOUTH BRANCH BUFFALO RIVER AT SABIN, MN—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2008 TO SEPTEMBER 2009

Part 3 of 3

Date	Time	Medium name	Specif. conductance, wat unf lab, µS/cm @ 25 degC (90095)	Sampler type, code (84164)	Suspended sediment concentration mg/L (80154)	Data base number	Medium code
Sep							
15...	1235	Surface water	628	Sampler US D-	115	01	WS