Water-Data Report 2009

05131500 LITTLE FORK RIVER AT LITTLEFORK, MN

Rainy Basin
Little Fork Subbasin

LOCATION.--Lat 48°23′45″, long 93°32′57″ referenced to North American Datum of 1927, in NE ¼ SE ¼ sec.9, T.68 N., R.25 W., Koochiching County, MN, Hydrologic Unit 09030005, on right bank at town of Littlefork, 0.9 mi upstream from bridge on State Highway 217, 2.8 mi upstream from Beaver Creek, and 19 mi upstream from mouth.

DRAINAGE AREA.--1,680 mi^2.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--June to November 1909, April to November 1910, April 1911 to June 1917, September 1917, October 1917 to March 1919 (gage heights only), June 1928 to current year.

REVISED RECORDS.--WSP 955: Drainage area. WSP 1508: 1913, 1916, 1928-32, 1934. WRD MN-74: 1963. Unpublished, 2009: 1975(M).

GAGE.--Water-stage recorder. Datum of gage is 1,083.59 ft above sea level (NGVD of 1929). June 23, 1909 to March 4, 1917, nonrecording gage, and July 21, 1937 to October 23, 1979, water-stage recorder at site 1.2 mi downstream at datum 10.53 ft lower; March 5 to September 30, 1917, and June 22, 1928 to July 20, 1937, non-recording gage at site 1.18 mi downstream at datum 10.53 ft lower.

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

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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	294	522	e370	e145	e141	e137	e3,110	5,030	986	325	141	661
2	277	507	e340	e145	e141	e135	e2,920	4,910	953	299	135	622
3	259	490	e300	e144	e141	e129	e2,740	4,670	910	278	131	544
4	246	489	e270	e142	e143	e125	e2,610	4,410	856	257	125	461
5	228	507	e237	e140	e142	e123	e2,440	4,120	844	242	135	387
6	209	914	e208	e139	e143	e124	e2,330	3,820	790	227	192	333
7	196	1,790	e190	e139	e141	e121	e2,270	3,650	726	198	207	290
8	189	2,260	e181	e140	e141	e119	e2,290	3,550	669	176	204	255
9	195	2,370	e176	e141	e141	e121	e2,760	3,390	632	160	190	241
10	198	2,210	e173	e141	e145	e120	e3,640	3,120	636	146	169	215
11	202	1,950	e168	e141	e143	e119	e4,970	2,840	648	136	151	190
12	282	1,750	e164	e141	e146	e121	e6,950	2,580	647	120	136	177
13	777	1,620	e161	e140	e144	e122	e8,290	2,750	638	110	126	161
14	1,250	1,590	e161	e137	e143	e124	8,980	3,160	625	105	116	152
15	1,350	1,520	e155	e137	e142	e125	8,280	3,270	603	115	138	143
16	1,260	1,420	e153	e137	e140	e126	8,490	3,540	591	132	198	130
17	1,140	1,310	e151	e137	e139	e125	8,870	4,430	559	137	265	125
18	1,040	e920	e151	e139	e141	e135	9,150	4,350	528	123	263	117
19	943	e840	e151	e142	e142	e185	8,930	4,060	494	119	240	112
20	855	e760	e151	e146	e139	e265	8,230	3,640	490	118	224	112
21	773	e660	e150	e146	e138	e440	7,360	2,900	486	118	260	108
22	707	e600	e150	e146	e138	e676	6,480	2,260	447	118	307	106
23	659	e600	e150	e144	e137	e1,030	5,690	1,960	397	118	538	106
24	629	e580	e150	e144	e138	e1,620	5,100	1,710	388	118	872	105
25	597	e520	e150	e143	e139	e2,350	4,890	1,500	441	115	887	105
26	588	e480	e150	e143	e139	e3,210	4,890	1,410	496	120	783	102
27	574	e470	e150	e143	e139	e4,280	4,810	1,450	502	130	664	103
28	553	e460	e150	e141	e138	e4,340	4,940	1,400	461	126	548	114
29	544	e450	e149	e140	---	e4,040	4,980	1,280	401	120	453	116
30	553	e420	e146	e140	---	e3,660	4,870	1,150	364	123	400	111
31	542	---	e145	e140	---	e3,360	---	1,040	---	122	531	---
Total	18,109	30,979	5,651	4,383	3,944	31,707	162,260	93,350	18,208	4,851	9,729	6,504
Mean	584	1,033	182	141	141	1,023	5,409	3,011	607	156	314	217
Max	1,350	2,370	370	146	146	4,340	9,150	5,030	986	325	887	661
Min	189	420	145	137	137	119	2,270	1,040	364	105	116	102
Ac-ft	35,920	61,450	11,210	8,690	7,820	62,890	321,800	185,200	36,120	9,620	19,300	12,900
Cfsm	0.35	0.61	0.11	0.08	0.08	0.61	3.22	1.79	0.36	0.09	0.19	0.13
In.	0.40	0.69	0.13	0.10	0.09	0.70	3.59	2.07	0.40	0.11	0.22	0.14

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	891	743	329	156	117	286	3,233	2,823	1,734	956	544	710
Max	4,450	3,044	1,186	477	270	3,022	8,421	12,190	5,490	3,643	2,679	5,189
(WY)	(1996)	(1972)	(2002)	(1966)	(1969)	(1945)	(1966)	(1950)	(1944)	(1944)	(1988)	(1977)
Min	43.4	60.8	52.6	43.5	36.5	50.2	292	173	182	75.4	34.3	29.2
(WY)	(1977)	(1977)	(1977)	(1931)	(2007)	(1940)	(1977)	(1977)	(1988)	(1988)	(1936)	(1976)

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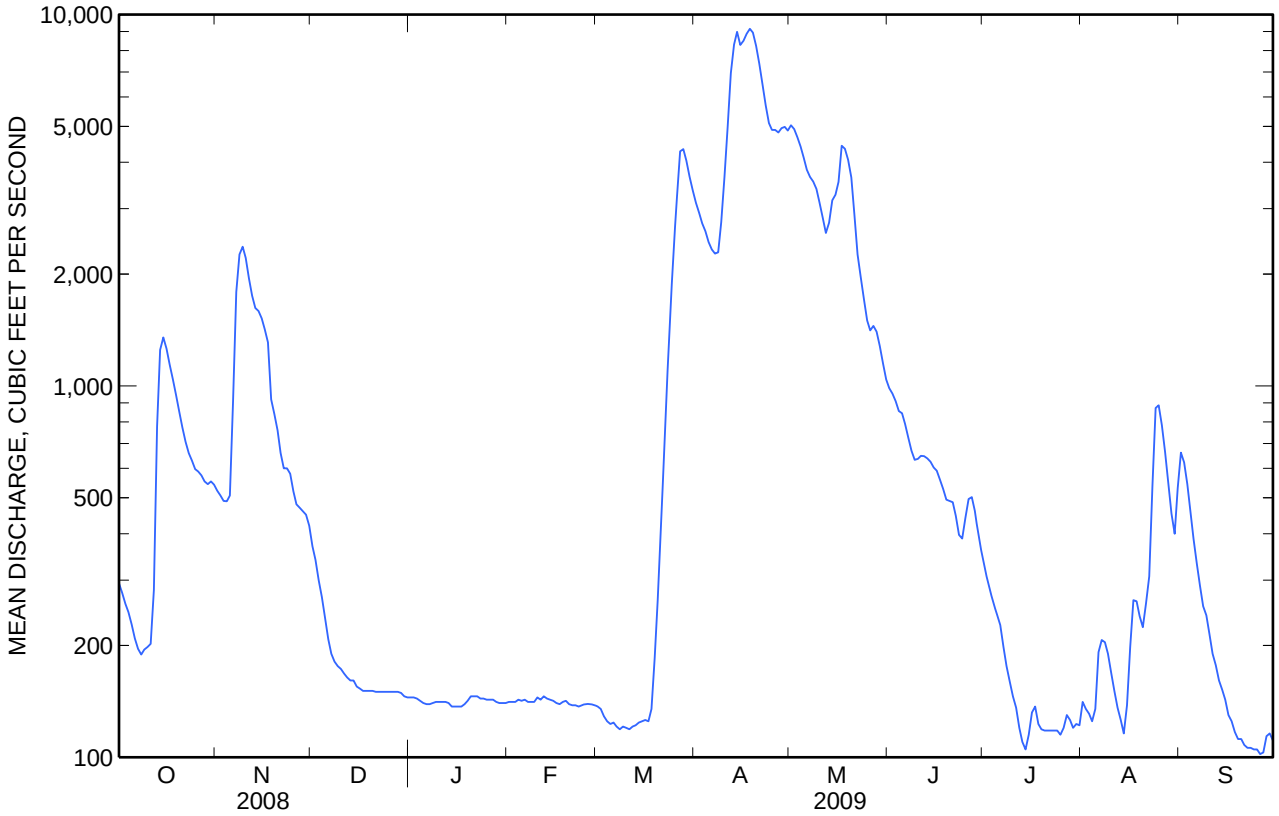
SUMMARY STATISTICS

	Calendar Year 2008		Water Year 2009		Water Years 1909 - 2009	
Annual total	405,692		389,675			
Annual mean	1,108		1,068		1,056	
Highest annual mean					1,912	1966
Lowest annual mean					306	1931
Highest daily mean	11,400	Apr 26	9,150	Apr 18	25,000	Apr 18, 1916
Lowest daily mean	66	Sep 1	102	Sep 26	21	Aug 26, 1936
Annual seven-day minimum	72	Aug 31	105	Sep 21	22	Aug 21, 1936
Maximum peak flow			[a]9,220	Apr 18	25,000	Apr 18, 1916
Maximum peak stage			[b]13.50	Apr 13	[c]37.00	Apr 18, 1916
Instantaneous low flow			91	Sep 27	21	Aug 26, 1936
Annual runoff (ac-ft)	804,700		772,900		765,300	
Annual runoff (cfsm)	0.660		0.635		0.629	
Annual runoff (inches)	8.98		8.63		8.54	
10 percent exceeds	3,910		3,590		2,800	
50 percent exceeds	248		259		370	
90 percent exceeds	77		123		86	

[a] Gage height, 12.20 ft.

[b] Backwater from ice.

[c] Also occurred May 11, 1950, site and datum then in use.



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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 2

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										
31...	1202	Surface water	9.6	515	--	--	5.0	--	--	--
31...	1211	Surface water	9.6	515	--	--	5.0	--	--	--
31...	1215	Surface water	9.6	515	--	160	5.0	44	10	10
31...	1226	Surface water	9.6	515	--	--	5.0	--	--	--
Apr										
15...	1034	Surface water	10.5	--	--	98	1.7	5	120	140
15...	1200	Surface water	--	--	112	--	--	--	--	--
15...	1203	Surface water	--	--	--	--	--	--	--	--
15...	1408	Surface water	--	--	113	--	--	--	--	--
Jun										
30...	1515	Surface water	11.5	370	217	--	--	--	--	--
30...	1532	Surface water	--	--	--	--	--	--	--	--
30...	1605	Surface water	11.6	370	--	223	17.5	59	9.5	9.4
30...	1620	Surface water	--	--	218	--	--	--	--	--
Jul										
15...	1510	Surface water	--	--	274	--	--	--	--	--
15...	1513	Surface water	16.6	--	--	267	19.7	48	13	13
15...	1530	Surface water	--	--	--	--	--	--	--	--
15...	1557	Surface water	--	--	272	--	--	--	--	--
Aug										
26...	1650	Surface water	--	755	286	--	--	--	--	--
26...	1655	Surface water	--	755	--	--	--	--	--	--
26...	1656	Surface water	25.2	755	--	293	22.4	24	29	30
26...	1749	Surface water	--	755	--	--	--	--	--	--
26...	1801	Surface water	25.2	755	--	293	22.4	24	29	30
Sep										
10...	1115	Surface water	--	--	196	--	--	--	--	--

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WATER-QUALITY DATA
WATER YEAR OCTOBER 2008 TO SEPTEMBER 2009

Part 2 of 2

Date	Sampler type, code (84164)	Suspnd. sedimnt sieve diametr percent <0.0625 mm (70331)	Sus-pended sedi-ment concen-tration mg/L (80154)
Oct			
31...	Sampler US D-74	93	9
31...	Weighted-bottle	25	34
31...	Weighted-bottle	--	--
31...	Sampler US D-74	97	10
Apr			
15...	Weighted-bottle	--	--
15...	Sampler US D-74	--	177
15...	Sampler US D-74	89	181
15...	Sampler US D-74	--	177
Jun			
30...	Sampler US D-74	--	9
30...	Sampler US DH-48	89	12
30...	Grab sample	--	--
30...	Sampler US D-74	--	10
Jul			
15...	Sampler US D-74	--	10
15...	Grab sample	--	--
15...	Sampler US DH-48	95	35
15...	Sampler US D-74	--	10
Aug			
26...	Sampler US D-74	--	28
26...	Sampler US D-74	100	60
26...	Sampler US D-74	99	38
26...	Sampler US D-74	--	--
26...	Weighted-bottle	--	--
Sep			
10...	Sampler US D-74	--	23