Water-Data Report 2008

06077200 SMITH RIVER BELOW EAGLE CREEK, NEAR FORT LOGAN, MT

Upper Missouri Basin
Smith Subbasin

LOCATION.--Lat 46°49′41″, long 111°11′29″ referenced to North American Datum of 1927, in SW ¼ NW ¼ SE ¼ sec.2, T.12 S., R.4 E., Meagher County, MT, Hydrologic Unit 10030103, on right bank at downstream side of private bridge, 0.6 mi downstream from Eagle Creek, 11.3 mi north of Fort Logan, and at river mile 80.8.

DRAINAGE AREA.--1,088 mi^2.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1996 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 4,350 ft, referenced to the National Geodetic Vertical Datum of 1929.

REMARKS.--Records are good except those for estimated daily discharges, which are poor. Flow is slightly regulated by the Smith River Reservoir (station number 06075000). Diversion for irrigation of about 19,300 acres occurs upstream from station. U.S. Geological Survey satellite telemeter is located at the station.

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DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008
DAILY MEAN VALUES
[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	96	103	e70	e80	e80	e110	96	208	700	490	110	125
2	92	90	e70	e90	e75	e100	93	180	748	557	102	128
3	90	98	e85	e95	e75	e100	93	171	799	587	110	125
4	91	111	e110	e100	e70	e95	99	205	801	525	105	121
5	106	105	e100	e95	e70	e95	104	222	953	494	97	116
6	113	91	e90	e90	e75	e95	97	282	889	460	95	131
7	108	112	e85	e85	e85	e100	97	322	815	416	94	149
8	104	107	e80	e80	e80	e105	101	323	791	381	95	155
9	104	106	e75	e85	e70	e110	99	303	770	356	100	144
10	101	105	e75	e85	e75	e120	99	274	862	336	97	137
11	98	104	e75	e90	e80	e130	98	274	890	312	97	138
12	99	92	e80	e90	e90	e140	99	293	1,070	301	98	132
13	99	105	e80	e95	e85	e150	107	299	1,140	288	100	128
14	100	73	e80	e85	e80	146	134	312	1,310	271	92	130
15	100	97	e80	e80	e80	e130	160	303	1,420	249	94	129
16	100	130	e85	e70	e85	e120	151	337	1,380	239	93	122
17	110	119	e90	e75	e85	e115	136	445	1,260	233	93	116
18	111	115	e95	e75	e85	e120	147	570	1,140	219	86	115
19	106	117	e100	e75	e85	e125	151	753	1,030	207	89	116
20	104	107	e95	e65	e85	124	e100	751	955	191	91	123
21	103	e85	e85	e50	e90	116	e110	813	902	173	99	122
22	101	e70	e80	e55	e90	105	e130	779	887	153	108	123
23	102	e65	e90	e60	e90	106	141	799	887	174	102	129
24	102	e75	e90	e60	e90	111	133	838	825	162	99	130
25	102	e90	e90	e65	e90	102	134	1,090	761	158	96	135
26	109	e85	e90	e75	e90	103	130	1,040	717	156	91	131
27	105	e90	e85	e80	e95	102	134	918	662	142	90	128
28	108	e85	e85	e65	e95	89	167	815	600	135	91	126
29	112	e80	e85	e60	e100	104	226	794	532	127	88	125
30	113	e75	e85	e70	---	e85	245	775	500	120	85	121
31	101	---	e80	e80	---	e90	---	713	---	114	90	---
Total	3,190	2,887	2,645	2,405	2,425	3,443	3,811	16,201	26,996	8,726	2,977	3,850
Mean	103	96.2	85.3	77.6	83.6	111	127	523	900	281	96.0	128
Max	113	130	110	100	100	150	245	1,090	1,420	587	110	155
Min	90	65	70	50	70	85	93	171	500	114	85	115
Ac-ft	6,330	5,730	5,250	4,770	4,810	6,830	7,560	32,130	53,550	17,310	5,900	7,640

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 2008, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	123	119	101	108	100	168	256	486	621	235	105	105
Max	213	185	167	249	145	309	468	1,119	1,893	607	276	219
(WY)	(1998)	(1999)	(1998)	(1997)	(1997)	(2007)	(2006)	(1997)	(1997)	(1998)	(1997)	(1997)
Min	67.0	73.6	65.8	66.9	65.8	71.5	127	249	152	83.6	43.7	53.6
(WY)	(2002)	(2002)	(2004)	(2002)	(2002)	(2002)	(2008)	(2002)	(2001)	(2003)	(2000)	(2001)

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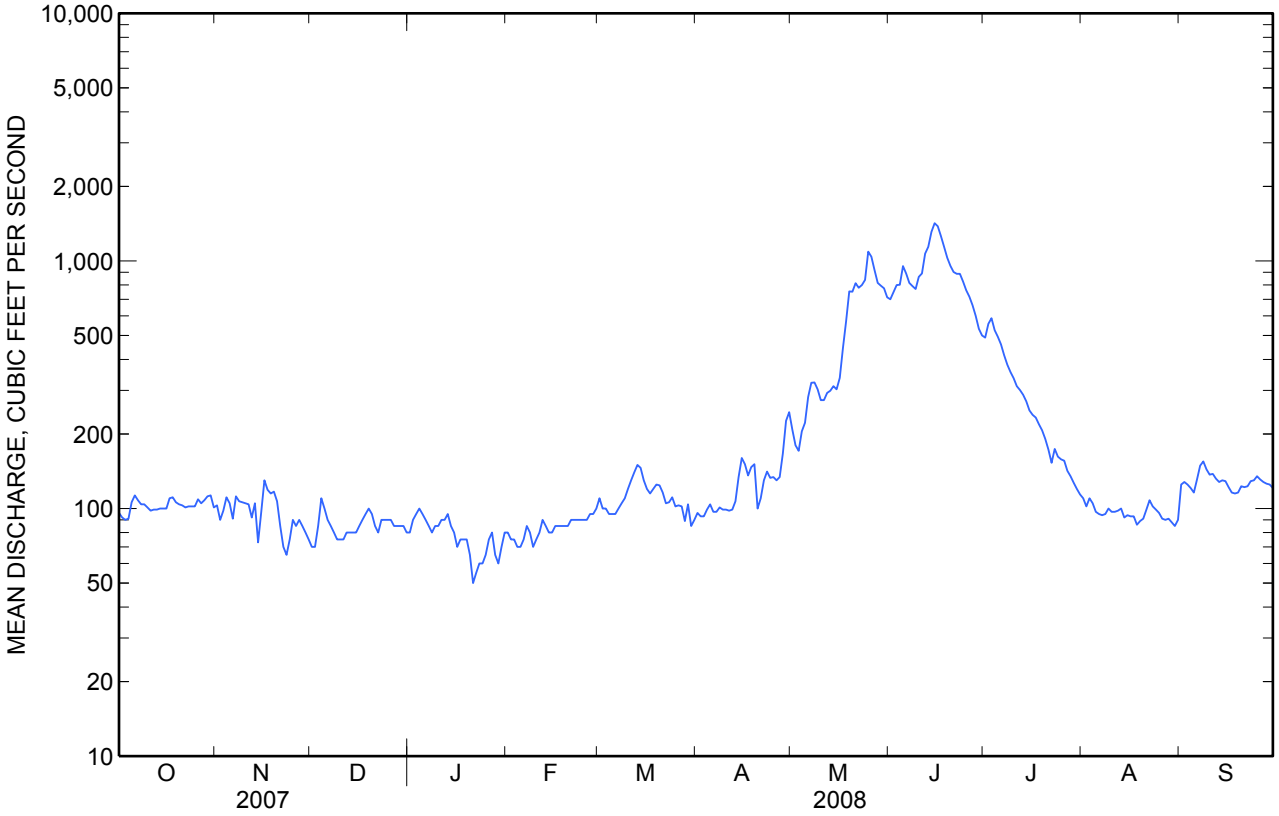
SUMMARY STATISTICS

	Calendar Year 2007		Water Year 2008		Water Years 1997 - 2008	
Annual total	63,357		79,556			
Annual mean	174		217		211	
Highest annual mean					458	1997
Lowest annual mean					109	2001
Highest daily mean	877	Mar 13	1,420	Jun 15	3,510	Jun 12, 1997
Lowest daily mean	43	Aug 31	50	Jan 21	30	Jan 5, 2004
Annual seven-day minimum	45	Aug 29	61	Jan 19	32	Aug 25, 2000
Maximum peak flow			1,450	Jun 15	[a]3,900	Jun 12, 1997
Maximum peak stage			5.54	Jun 15	[b]9.30	Jan 1, 1997
Instantaneous low flow					[c]28	Aug 26, 2000
Annual runoff (ac-ft)	125,700		157,800		152,700	
10 percent exceeds	450		726		468	
50 percent exceeds	95		105		122	
90 percent exceeds	58		80		69	

[a]Gage height, 7.00 ft.
[b]Backwater from ice.
[c]Gage height, 2.65 ft.



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WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Water year 2002 to current year.

INSTRUMENTATION.--Water temperature recorder was installed Nov. 4, 1997.

REMARKS.--Seasonal daily water temperature records are rated fair. Several unpublished observations of specific conductance and water temperature were made during the year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Maximum, 28.0°C, July 18, 2007; minimum 0.0°C, many days during winter months.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: During seasonal period of operation (April through September), maximum, 24.5°C, July 26; minimum 0.0°C, Apr. 1-3 and 19-22.

TEMPERATURE, WATER, DEGREES CELSIUS
SEASON APRIL 2008 TO SEPTEMBER 2008

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		April			May			June	
1	4.0	0.0	2.0	7.0	2.0	4.0	13.0	9.0	11.5
2	4.5	0.0	2.0	8.0	3.5	5.5	12.5	9.5	11.0
3	6.0	0.0	3.0	11.5	3.0	7.0	11.0	7.5	9.0
4	6.0	2.5	4.5	10.5	4.5	7.5	10.0	8.0	9.0
5	5.0	2.0	3.5	11.5	4.5	8.5	12.0	7.5	9.5
6	6.5	1.0	3.5	10.5	6.0	8.5	12.0	9.0	10.5
7	7.0	2.0	4.5	8.0	5.5	6.5	10.5	7.0	9.0
8	8.5	3.5	5.5	9.5	4.5	6.5	9.0	6.5	7.5
9	7.5	2.5	4.5	7.5	5.5	6.5	10.5	6.0	8.5
10	7.5	2.5	5.0	9.0	3.5	6.5	10.5	8.0	9.0
11	8.0	2.5	5.0	9.0	6.0	7.5	8.0	4.5	6.0
12	10.0	2.5	6.0	7.0	4.0	5.0	6.5	4.5	5.5
13	11.5	4.0	7.5	10.0	3.5	6.0	11.0	5.0	7.5
14	11.0	5.5	8.0	9.0	6.5	8.0	13.0	6.5	9.5
15	8.5	5.0	6.5	11.5	6.5	9.0	13.5	7.0	10.5
16	6.0	3.0	4.5	14.5	7.0	10.5	14.5	8.5	11.5
17	9.5	2.5	5.5	13.5	7.5	10.5	14.5	9.5	12.5
18	8.0	4.0	6.0	12.0	7.5	10.0	15.0	10.0	12.5
19	5.5	0.0	2.0	11.0	7.0	9.0	15.0	10.0	12.5
20	0.5	0.0	0.0	11.0	7.0	9.0	16.0	10.0	13.0
21	0.5	0.0	0.0	10.5	5.5	7.5	17.0	11.5	14.5
22	4.0	0.0	1.5	6.5	5.0	6.0	17.0	13.5	15.5
23	4.5	1.5	3.0	8.0	5.5	6.5	17.0	12.5	15.0
24	8.0	2.0	4.5	8.0	6.5	7.0	17.0	12.5	15.0
25	6.0	3.0	4.5	8.5	6.0	7.0	16.5	11.5	14.5
26	9.5	2.5	5.5	9.5	6.5	8.0	15.5	12.5	14.0
27	12.0	3.0	7.0	10.5	6.5	8.5	16.0	11.5	13.5
28	12.0	5.0	8.0	11.5	7.0	9.0	17.5	11.5	14.5
29	10.5	4.0	7.0	11.0	8.0	9.5	19.5	13.0	16.0
30	7.0	4.0	5.0	10.5	7.5	9.5	19.5	15.0	17.0
31	---	---	---	14.0	8.0	11.0	---	---	---
Month	12.0	0.0	4.5	14.5	2.0	8.0	19.5	4.5	11.5

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TEMPERATURE, WATER, DEGREES CELSIUS
SEASON APRIL 2008 TO SEPTEMBER 2008

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		July			August			September	
1	18.0	15.5	17.0	22.5	13.5	18.0	10.5	8.5	9.5
2	16.5	14.5	15.5	23.0	16.0	19.0	13.0	8.0	10.5
3	19.5	13.0	16.0	21.0	14.5	18.0	14.0	9.0	11.5
4	20.0	16.0	17.5	22.0	14.0	17.5	14.5	10.0	12.0
5	17.5	15.0	16.5	22.5	14.0	18.0	13.5	9.0	11.5
6	18.5	13.0	15.5	23.5	14.0	18.5	14.5	10.5	12.0
7	19.0	13.5	16.5	23.0	16.0	19.5	13.0	10.5	11.5
8	19.5	14.0	16.5	22.5	16.5	19.5	14.5	8.5	11.5
9	20.0	13.5	17.0	22.0	15.5	19.0	14.0	9.0	11.5
10	20.0	14.0	17.5	21.5	15.0	18.5	12.5	10.0	11.0
11	18.0	13.0	16.0	21.0	13.5	17.5	15.0	8.5	11.5
12	19.0	12.0	15.5	21.0	12.0	16.5	16.0	8.5	12.0
13	20.0	13.0	16.5	19.5	12.5	16.0	13.5	9.5	11.5
14	20.5	13.5	17.0	20.0	14.0	17.0	14.5	7.5	11.0
15	17.5	13.5	16.0	22.0	13.5	17.5	16.0	8.5	12.0
16	19.5	14.5	17.0	22.5	13.5	17.5	16.0	9.0	12.5
17	20.5	14.0	17.5	22.5	14.0	18.0	16.0	9.0	12.0
18	19.5	15.0	17.0	23.5	15.0	19.0	15.5	9.0	12.0
19	20.0	13.0	16.5	22.0	15.0	18.5	16.0	9.5	12.5
20	19.5	13.0	16.0	20.0	15.5	18.0	15.5	10.0	13.0
21	21.5	14.0	18.0	17.5	13.5	16.0	13.5	11.0	12.5
22	21.0	17.5	19.5	18.5	11.0	14.0	12.0	9.5	10.5
23	22.0	15.5	18.5	20.0	11.0	15.5	12.0	7.5	9.5
24	23.0	16.5	19.5	21.0	12.0	16.0	12.0	7.0	9.5
25	23.0	15.0	19.0	20.5	13.0	17.0	10.5	7.0	9.0
26	24.5	17.0	20.5	19.0	14.5	16.0	13.0	7.0	9.5
27	23.5	16.5	20.0	15.5	12.0	13.5	12.0	8.0	10.0
28	22.0	16.0	19.0	16.5	10.0	13.0	13.0	8.0	10.5
29	22.5	14.5	18.5	20.0	11.5	15.5	13.0	7.0	10.0
30	22.0	16.0	18.5	18.0	12.5	15.0	13.5	7.0	10.0
31	21.5	13.0	17.0	15.5	10.5	12.5	---	---	---
Month	24.5	12.0	17.5	23.5	10.0	17.0	16.0	7.0	11.0