

Water-Data Report 2012

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

Upper Missouri Basin  
Smith Subbasin

LOCATION.--Lat 46°49'41", long 111°11'32" referenced to North American Datum of 1983, 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<sup>2</sup>.

**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 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.

## 06077200 SMITH RIVER BELOW EAGLE CREEK, NEAR FORT LOGAN, MT—Continued

**DISCHARGE, CUBIC FEET PER SECOND**  
**WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012**  
**DAILY MEAN VALUES**

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	158	177	e150	e130	e140	e140	371	691	463	236	78	71
2	154	146	e140	e130	e130	e140	339	639	487	256	75	78
3	157	165	e130	e150	e130	e150	303	596	623	243	80	75
4	156	180	e110	e150	e130	e170	304	601	619	227	82	72
5	161	181	e90	e160	e130	e200	315	663	701	219	77	73
6	194	150	e100	e150	e120	e180	302	645	1,250	213	73	72
7	195	e120	e120	e140	e120	e170	281	602	1,150	203	70	76
8	205	e140	e110	e140	e120	e160	269	572	939	193	62	76
9	190	e160	e120	e160	e130	e180	269	581	854	176	63	73
10	184	e170	e110	e150	e120	e200	267	674	830	168	69	68
11	182	e180	e110	e130	e110	220	277	674	924	153	75	67
12	184	178	e110	e130	e110	227	359	619	842	150	73	72
13	181	177	e120	e140	e130	220	394	585	884	144	66	76
14	180	176	e130	e160	e120	203	367	582	868	151	64	78
15	185	e140	e130	e150	e110	193	348	622	786	178	64	79
16	191	e110	e150	e140	e110	218	326	680	714	183	70	81
17	194	e140	e170	e130	e120	240	315	720	660	201	73	79
18	186	e130	e160	e120	e120	248	312	775	619	160	70	81
19	181	e110	e150	e110	e130	237	305	729	584	139	71	81
20	187	e100	e150	e110	e120	192	295	680	529	128	71	82
21	187	e130	e130	e130	e130	200	310	642	484	133	70	82
22	189	e150	e110	e140	e140	238	337	738	415	123	74	83
23	187	e180	e100	e130	e130	272	399	762	379	113	76	85
24	196	e170	e120	e120	e130	251	491	690	362	107	72	89
25	211	e150	e130	e130	e140	248	613	622	350	99	70	95
26	197	e140	e120	e130	e140	266	693	592	315	94	73	99
27	196	e160	e130	e120	e130	291	849	604	294	94	75	99
28	180	e170	e150	e130	e130	282	798	600	278	100	74	97
29	190	e180	e140	e150	e140	266	726	560	255	99	71	97
30	177	e170	e140	e150	---	262	691	509	242	93	71	98
31	184	---	e120	e150	---	311	---	442	---	84	71	---
<b>Total</b>	5,699	4,630	3,950	4,260	3,660	6,775	12,225	19,691	18,700	4,860	2,223	2,434
<b>Mean</b>	184	154	127	137	126	219	408	635	623	157	71.7	81.1
<b>Max</b>	211	181	170	160	140	311	849	775	1,250	256	82	99
<b>Min</b>	154	100	90	110	110	140	267	442	242	84	62	67
<b>Ac-ft</b>	11,300	9,180	7,830	8,450	7,260	13,440	24,250	39,060	37,090	9,640	4,410	4,830

**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 2012, BY WATER YEAR (WY)**

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
<b>Mean</b>	132	128	106	113	106	173	278	588	792	277	114	114
<b>Max</b>	213	185	167	249	170	309	468	1,404	2,439	709	276	219
<b>(WY)</b>	(1998)	(1999)	(1998)	(1997)	(2011)	(2007)	(2006)	(2011)	(2011)	(2011)	(1997)	(1997)
<b>Min</b>	67.0	73.6	65.8	66.9	65.8	71.5	127	249	152	83.6	43.7	53.6
<b>(WY)</b>	(2002)	(2002)	(2004)	(2002)	(2002)	(2002)	(2008)	(2002)	(2001)	(2003)	(2000)	(2001)

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SUMMARY STATISTICS

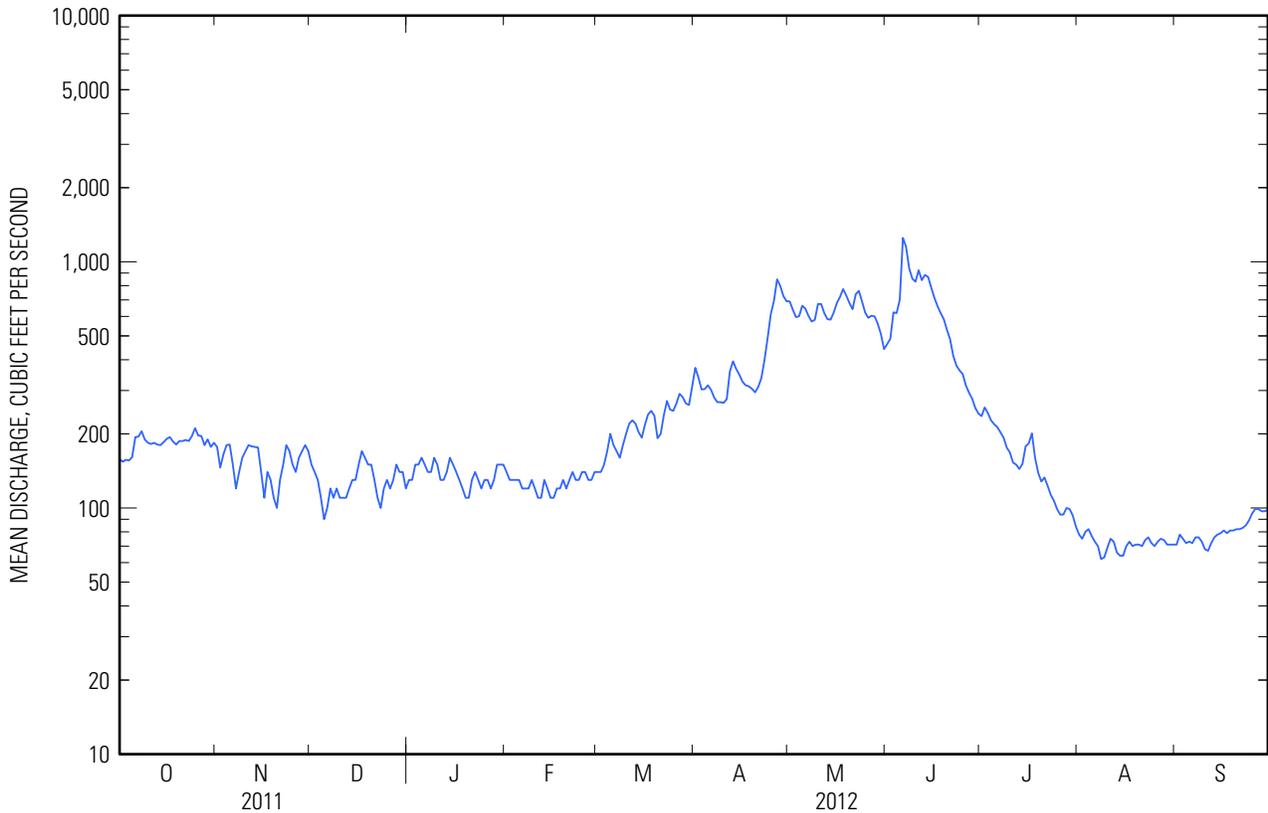
	Calendar Year 2011		Water Year 2012		Water Years 1997 - 2012	
<b>Annual total</b>	189,117		89,107			
<b>Annual mean</b>	518		243		244	
<b>Highest annual mean</b>					523	2011
<b>Lowest annual mean</b>					109	2001
<b>Highest daily mean</b>	3,820	Jun 10	1,250	Jun 6	3,820	Jun 10, 2011
<b>Lowest daily mean</b>	90	Dec 5	62	Aug 8	30	Jan 5, 2004
<b>Annual seven-day minimum</b>	109	Dec 4	67	Aug 8	32	Aug 25, 2000
<b>Maximum peak flow</b>			1,380	Jun 6	<sup>b</sup> 4,030 Jun 9, 2011	
<b>Maximum peak stage</b>			5.54	Jun 6	<sup>c</sup> 9.30 Jan 1, 1997	
<b>Instantaneous low flow</b>			<sup>a</sup> 62	Aug 8	<sup>d</sup> 28 Aug 26, 2000	
<b>Annual runoff (ac-ft)</b>	375,100		176,700		176,500	
<b>10 percent exceeds</b>	1,690		620		518	
<b>50 percent exceeds</b>	187		156		135	
<b>90 percent exceeds</b>	140		76		70	

<sup>a</sup>Gage height, 2.84 ft.

<sup>b</sup>Gage height, 7.65 ft.

<sup>c</sup>Backwater from ice.

<sup>d</sup>Gage height, 2.65 ft.



## 06077200 SMITH RIVER BELOW EAGLE CREEK, NEAR FORT LOGAN, MT—Continued

## 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 (Oct, April-Sept.) daily water temperature records are rated fair to poor. 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: Maximum, 24.9°C, Jul. 31; minimum 0.8°C, Oct. 28.

TEMPERATURE, WATER, DEGREES CELSIUS  
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
	October			November			December			January		
1	14.2	9.2	11.5	---	---	---	---	---	---	---	---	---
2	12.9	9.8	11.4	---	---	---	---	---	---	---	---	---
3	13.8	9.0	11.3	---	---	---	---	---	---	---	---	---
4	13.7	10.7	12.1	---	---	---	---	---	---	---	---	---
5	13.3	11.0	12.2	---	---	---	---	---	---	---	---	---
6	12.1	9.3	10.9	---	---	---	---	---	---	---	---	---
7	9.4	8.2	8.8	---	---	---	---	---	---	---	---	---
8	9.6	7.3	8.4	---	---	---	---	---	---	---	---	---
9	10.0	5.7	7.8	---	---	---	---	---	---	---	---	---
10	8.5	5.4	7.2	---	---	---	---	---	---	---	---	---
11	9.7	7.6	8.5	---	---	---	---	---	---	---	---	---
12	8.5	6.6	7.6	---	---	---	---	---	---	---	---	---
13	9.1	6.2	7.3	---	---	---	---	---	---	---	---	---
14	6.9	5.5	6.2	---	---	---	---	---	---	---	---	---
15	7.3	5.7	6.3	---	---	---	---	---	---	---	---	---
16	6.1	4.7	5.4	---	---	---	---	---	---	---	---	---
17	7.1	4.4	5.7	---	---	---	---	---	---	---	---	---
18	6.8	2.8	4.8	---	---	---	---	---	---	---	---	---
19	5.6	2.6	4.4	---	---	---	---	---	---	---	---	---
20	6.2	3.8	5.0	---	---	---	---	---	---	---	---	---
21	8.2	6.0	6.8	---	---	---	---	---	---	---	---	---
22	8.6	6.3	7.3	---	---	---	---	---	---	---	---	---
23	9.2	6.5	7.8	---	---	---	---	---	---	---	---	---
24	8.3	6.1	7.5	---	---	---	---	---	---	---	---	---
25	6.1	3.6	4.6	---	---	---	---	---	---	---	---	---
26	4.4	1.7	3.0	---	---	---	---	---	---	---	---	---
27	4.8	2.2	3.2	---	---	---	---	---	---	---	---	---
28	2.8	0.8	1.8	---	---	---	---	---	---	---	---	---
29	4.8	1.7	3.1	---	---	---	---	---	---	---	---	---
30	5.4	1.6	3.4	---	---	---	---	---	---	---	---	---
31	6.3	3.7	4.6	---	---	---	---	---	---	---	---	---
Month	14.2	0.8	7.0	---	---	---	---	---	---	---	---	---

## 06077200 SMITH RIVER BELOW EAGLE CREEK, NEAR FORT LOGAN, MT—Continued

**TEMPERATURE, WATER, DEGREES CELSIUS**  
**WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012**

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
	February			March			April			May		
1	---	---	---	---	---	---	7.5	4.9	6.1	9.2	4.9	6.9
2	---	---	---	---	---	---	7.1	2.6	4.8	7.6	4.2	6.0
3	---	---	---	---	---	---	7.7	2.0	4.9	6.4	3.4	5.2
4	---	---	---	---	---	---	8.6	3.7	6.0	9.8	4.5	7.2
5	---	---	---	---	---	---	6.7	3.7	5.2	9.3	6.4	7.6
6	---	---	---	---	---	---	4.8	3.0	4.0	7.6	4.6	6.1
7	---	---	---	---	---	---	5.5	1.8	3.6	10.0	3.7	6.8
8	---	---	---	---	---	---	7.8	2.3	5.0	11.9	5.8	8.9
9	---	---	---	---	---	---	8.7	3.3	5.9	13.1	7.4	10.3
10	---	---	---	---	---	---	9.7	4.3	7.0	11.9	7.3	9.0
11	---	---	---	---	---	---	10.8	5.4	8.0	9.7	3.9	6.9
12	---	---	---	---	---	---	9.2	5.1	7.2	11.1	5.0	8.1
13	---	---	---	---	---	---	8.1	3.0	5.6	12.4	6.1	9.4
14	---	---	---	---	---	---	8.6	4.0	6.5	13.3	7.2	10.4
15	---	---	---	---	---	---	6.9	4.3	5.3	14.5	8.5	11.6
16	---	---	---	---	---	---	7.8	3.4	5.4	13.9	9.4	12.0
17	---	---	---	---	---	---	9.4	5.4	7.3	12.8	9.7	11.1
18	---	---	---	---	---	---	9.3	5.8	7.4	11.1	8.6	9.8
19	---	---	---	---	---	---	9.8	5.4	7.5	10.2	6.2	8.5
20	---	---	---	---	---	---	9.2	6.1	7.7	11.7	6.2	9.0
21	---	---	---	---	---	---	10.3	7.3	8.6	12.9	9.3	11.2
22	---	---	---	---	---	---	12.4	5.7	9.0	12.2	9.5	10.8
23	---	---	---	---	---	---	11.7	7.6	9.9	10.4	7.2	8.9
24	---	---	---	---	---	---	11.9	7.9	10.2	9.2	7.0	8.1
25	---	---	---	---	---	---	12.2	7.5	10	7.4	5.7	6.5
26	---	---	---	---	---	---	10.9	7.9	9.6	6.4	4.6	5.5
27	---	---	---	---	---	---	10.2	4.0	6.5	5.9	3.2	4.7
28	---	---	---	---	---	---	4.8	2.6	3.8	6.5	4.4	5.3
29	---	---	---	---	---	---	7.5	3.6	5.3	9.8	5.1	7.5
30	---	---	---	---	---	---	7.2	4.4	5.8	10.6	7.8	9.4
31	---	---	---	---	---	---	---	---	---	9.6	7.0	8.8
<b>Month</b>	---	---	---	---	---	---	12.4	1.8	6.6	14.5	3.2	8.3

## 06077200 SMITH RIVER BELOW EAGLE CREEK, NEAR FORT LOGAN, MT—Continued

**TEMPERATURE, WATER, DEGREES CELSIUS**  
**WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012**

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
	June			July			August			September		
<b>1</b>	11.9	8.5	10.2	21.1	15.0	18.1	24.4	16.3	20.0	18.5	14.0	15.9
<b>2</b>	13.0	9.1	11.1	21.9	14.9	18.3	21.1	14.8	17.9	18.4	10.8	14.4
<b>3</b>	14.1	8.9	11.5	22.4	16.4	19.2	20.3	13.7	16.7	18.2	10.2	14.1
<b>4</b>	16.9	10.7	13.6	20.6	14.1	17.5	22.2	12.6	17.1	18.1	11.4	14.5
<b>5</b>	16.9	12.9	14.9	17.8	14.2	15.5	23.3	13.4	18.1	17.7	9.8	13.6
<b>6</b>	14.2	9.6	10.9	19.6	12.6	16.0	21.8	14.9	18.4	16.9	11.1	13.7
<b>7</b>	13.2	8.0	10.5	20.2	14.1	16.8	23.5	14.8	19.0	18.2	9.7	13.6
<b>8</b>	13.5	9.9	11.8	21.6	14.8	18.2	22.5	14.3	18.3	17.5	9.4	13.4
<b>9</b>	12.0	9.0	10.6	23.6	15.7	19.6	23.6	15.2	19.1	16.6	9.9	13.3
<b>10</b>	10.2	7.0	7.9	21.8	17.4	19.6	19.9	16.5	17.5	16.7	10.9	13.6
<b>11</b>	11.9	6.5	8.9	22.1	15.5	18.8	23.0	15.3	18.6	15.7	9.4	12.3
<b>12</b>	13.9	8.3	11.2	23.4	15.4	19.4	23.4	14.8	18.9	15.0	7.5	11.0
<b>13</b>	13.0	10.2	11.7	20.7	16.8	19.0	23.9	15.4	19.4	15.4	6.8	10.8
<b>14</b>	13.8	8.7	11.2	20.9	17.1	18.7	22.1	14.3	18.2	14.5	7.6	11.0
<b>15</b>	14.4	9.6	12.0	21.0	17.0	19.0	17.3	13.4	15.2	14.8	8.6	11.6
<b>16</b>	13.0	9.4	11.5	22.6	15.5	18.2	21.7	12.0	16.2	14.1	9.1	11.4
<b>17</b>	14.5	10.4	12.3	22.0	15.9	18.8	21.7	12.9	17.1	15.4	7.7	11.3
<b>18</b>	14.0	9.6	11.9	24.1	16.7	20.4	22.2	12.7	17.2	15.7	8.0	11.7
<b>19</b>	12.2	9.4	10.3	23.5	17.1	20.4	20.3	13.1	16.8	15.9	9.0	12.2
<b>20</b>	13.1	9.1	10.9	23.4	16.7	19.5	21.8	13.4	17.3	15.4	8.8	12.0
<b>21</b>	16.3	9.8	12.9	24.7	16.9	20.6	21.1	14.4	17.5	16.0	8.5	12.1
<b>22</b>	17.5	12.5	14.8	24.2	17.0	20.4	21.8	14.6	17.9	16.0	8.9	12.3
<b>23</b>	20.0	13.6	16.6	24.1	16.9	20.2	21.2	13.2	17.1	14.3	9.3	11.7
<b>24</b>	21.4	16.0	18.6	23.1	16.4	19.6	19.1	13.0	15.9	14.5	8.5	11.4
<b>25</b>	20.6	16.4	18.6	23.1	14.7	18.7	18.8	9.7	14.1	13.4	8.4	11.0
<b>26</b>	19.6	16.1	17.9	22.5	15.2	18.8	18.9	10.2	14.4	14.0	9.4	11.5
<b>27</b>	17.7	11.9	15.0	21.9	15.1	18.0	21.0	12.8	16.5	15.0	9.3	12.0
<b>28</b>	18.8	11.6	15.4	23.7	15.6	19.1	22.1	14.0	17.8	14.9	8.4	11.5
<b>29</b>	19.2	13.8	16.6	23.9	16.1	19.9	20.0	13.9	16.8	13.8	9.5	11.3
<b>30</b>	21.0	13.7	17.3	24.1	16.3	20.1	19.8	11.8	15.6	14.3	8.4	11.1
<b>31</b>	---	---	---	24.9	16.1	20.2	17.4	11.7	14.6	---	---	---
<b>Month</b>	21.4	6.5	13.0	24.9	12.6	18.9	24.4	9.7	17.3	18.5	6.8	12.4