

Water-Data Report 2007

**06120500 MUSSELSHELL RIVER AT HARLOWTON, MT**

Musselshell Basin  
Upper Musselshell Subbasin

LOCATION.--Lat 46°25'48", long 109°50'24" referenced to North American Datum of 1927, in SW ¼ NW ¼ NW ¼ sec.27, T.8 N., R.15 E., Wheatland County, MT, Hydrologic Unit 10040201, on right bank, downstream of bridge on U.S. Highway 191, 1.0 mi southwest of Harlowton, 9.6 mi upstream from American Fork, and at river mile 327.8.

DRAINAGE AREA.--1,125 mi<sup>2</sup>.

**SURFACE-WATER RECORDS**

PERIOD OF RECORD.--July 1907 to November 1929; March 1930 to December 1932; April to August 1933; February 1934 to current year, seasonal record only for water year 2007. Monthly discharge only for some periods, published in Water Supply Paper (WSP) 1309.

REVISED RECORDS.-- Water Supply Paper (WSP) 1309: 1912, 1915 (maximum discharge), 1918, 1925. WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 4,171.46 ft, referenced to the National Geodetic Vertical Datum of 1929 (levels by Morrison and Maierle, Inc.). Prior to Dec. 8, 1937, nonrecording gages at site 1.2 mi downstream at different elevations. Dec. 8, 1937 to Aug. 26, 1955, nonrecording gage at previous bridge 50 ft downstream at elevation 2.0 ft higher. Aug. 27, 1955 to Apr. 9, 2003, water-stage recorder 350 ft downstream at same elevation.

REMARKS.--Seasonal records are good except those for estimated daily discharges, which are poor. Some regulation occurs by Bair and Martinsdale Reservoirs. Diversions for irrigation of about 21,900 acres occur upstream from station of which about 21,400 acres are flood irrigated. U.S. Geological Survey satellite telemeter is located at the station. Several unpublished observations of water temperature and specific conductance were made during the year.

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**DISCHARGE, CUBIC FEET PER SECOND**  
**WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007**  
**DAILY MEAN VALUES**  
[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	30					e47	45	134	163	75	41	4.0
2	30					e48	53	126	155	79	38	3.7
3	31					e50	53	127	154	78	35	3.5
4	35					e60	49	127	157	69	35	3.2
5	38					e70	52	110	152	64	36	3.8
6	40					e80	51	99	171	59	36	4.3
7	54					e100	49	100	226	114	33	5.5
8	62					e140	48	87	254	136	29	5.9
9	66					e130	53	102	212	93	22	6.9
10	66					e110	56	107	181	69	18	8.1
11	61					86	57	88	156	64	17	7.6
12	59					74	53	105	121	62	18	6.6
13	57					168	51	116	94	59	16	6.4
14	56					183	48	142	98	58	13	6.5
15	57					83	46	167	107	61	11	6.7
16	63					58	46	142	89	58	11	6.6
17	77					52	46	128	80	56	17	6.3
18	75					47	47	117	86	55	16	6.2
19	73					50	53	118	77	55	16	6.7
20	72					46	63	140	68	53	12	7.5
21	73					43	50	192	73	46	10	8.9
22	83					39	44	211	78	46	10	8.6
23	75					39	45	192	79	46	12	9.1
24	71					41	69	148	90	45	12	9.8
25	68					40	100	115	90	47	13	10
26	67					42	101	112	88	64	12	11
27	65					51	108	103	91	57	8.0	11
28	64					71	110	117	84	52	6.5	11
29	63					64	115	157	79	46	5.7	12
30	66					55	137	183	77	45	5.0	13
31	62					48	---	177	---	43	4.4	---
<b>Total</b>	1,859					2,215	1,898	4,089	3,630	1,954	568.6	220.4
<b>Mean</b>	60.0					71.5	63.3	132	121	63.0	18.3	7.35
<b>Max</b>	83					183	137	211	254	136	41	13
<b>Min</b>	30					39	44	87	68	43	4.4	3.2
<b>Ac-ft</b>	3,690					4,390	3,760	8,110	7,200	3,880	1,130	437

**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1907 - 2007, BY WATER YEAR (WY) \***

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
<b>Mean</b>	72.6	76.7	66.5	58.4	64.8	110	171	396	492	158	74.4	61.6
<b>Max</b>	226	176	206	250	190	500	632	1,957	2,467	751	292	290
<b>(WY)</b>	(1919)	(1942)	(1976)	(1918)	(1996)	(1918)	(1943)	(1917)	(1917)	(1975)	(1993)	(1993)
<b>Min</b>	0.00	0.00	0.00	0.00	10.0	20.4	22.1	11.8	27.9	0.84	0.00	0.00
<b>(WY)</b>	(1932)	(1932)	(1932)	(1932)	(1936)	(1935)	(1931)	(1931)	(1930)	(1936)	(1931)	(1931)

\* During periods of operation (July 1907 to November 1929; March 1930 to December 1932; April to August 1933; February 1934 to current year, seasonal records only for 2007).

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SUMMARY STATISTICS

	2007 Season		Water Years 1907 - 2007*	
<b>Annual mean</b>			153	
<b>Highest annual mean</b>			483	1917
<b>Lowest annual mean</b>			21.1	1935
<b>Highest daily mean</b>	254	Jun 8	6,200	Jun 20, 1975
<b>Lowest daily mean</b>	3.2	Sep 4	0.00	Aug 4, 1910
<b>Annual seven-day minimum</b>			0.00	Aug 4, 1910
<b>Maximum peak flow</b>	886	Jul 7	7,270	Jun 20, 1975
<b>Maximum peak stage</b>	5.04	Jul 7	<sup>b</sup> 10.01	Jun 20, 1975
<b>Instantaneous low flow</b>	<sup>a</sup> 3.0	Sep 4	0.01	Aug 29, 2001
<b>Annual runoff (ac-ft)</b>			110,900	
<b>10 percent exceeds</b>			349	
<b>50 percent exceeds</b>			74	
<b>90 percent exceeds</b>			25	

\* During periods of operation (July 1907 to November 1929; March 1930 to December 1932; April to August 1933; February 1934 to current year, seasonal records only for 2007).

<sup>a</sup> Gage height, 2.35 ft.

<sup>b</sup> Previous site and same datum.

