

Water-Data Report 2009

**06309000 YELLOWSTONE RIVER AT MILES CITY, MT**

Lower Yellowstone Basin  
Lower Yellowstone-Sunday Subbasin

LOCATION.--Lat 46°25'18", long 105°51'38" referenced to North American Datum of 1927, in NE ¼ SW ¼ NW ¼ sec.28, T.8 N., R.47 E., Custer County, MT, Hydrologic Unit 10100001, on left bank at upstream side of bridge on State Highway 22 at Miles City, 0.8 mi downstream from Tongue River, and at river mile 184.2.

DRAINAGE AREA.--48,253 mi<sup>2</sup>.

**SURFACE-WATER RECORDS**

PERIOD OF RECORD.--September 1922 to September 1923, August 1928 to current year. Monthly discharge only for some periods, published in Water Supply Paper (WSP) 1309.

REVISED RECORDS.-- WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 2,333.3 ft, referenced to the National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to May 6, 1929, nonrecording gages 1.2 mi downstream at different elevations. May 6, 1929, to Sept. 30, 1931, nonrecording gage, and Oct. 1, 1931, to Nov. 10, 1937, water-stage recorder 300 ft upstream from present site at same elevation. Nov. 11, 1937, to Sept. 30, 1946, water-stage recorder 1.2 mi downstream at different elevation. Oct. 1, 1946, to Mar. 15, 1979, water-stage recorder at site 300 ft upstream at present elevation. Mar. 16, 1979, to Sept. 21, 1979, nonrecording gage at present site and elevation. Sept. 22, 1979, recording gage established at same site and elevation.

REMARKS.--Records are good except those for estimated daily discharges, which are poor. Some regulation occurs by reservoirs on tributary streams. Diversions for irrigation include about 1,100,000 acres upstream from station (does not include flood irrigation). Several unpublished observations of water temperature and specific conductance were obtained during the year. U.S. Army Corps of Engineers satellite telemeter is located at the station.

## 06309000 YELLOWSTONE RIVER AT MILES CITY, MT—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	7,490	7,600	7,090	e6,200	e5,100	e5,300	7,070	14,000	42,500	38,400	13,200	7,510
2	7,360	7,490	7,250	e6,200	e5,600	e5,100	7,170	13,300	44,100	37,900	12,400	7,570
3	7,270	7,390	7,260	e6,300	e5,800	e5,700	7,190	13,000	44,800	38,100	11,800	7,550
4	7,190	7,380	7,040	e6,300	e5,600	e6,200	7,300	12,800	43,400	39,200	11,200	7,830
5	7,310	7,410	7,100	e5,000	e5,700	e6,400	7,440	12,500	38,200	38,500	10,700	7,730
6	7,490	7,600	6,740	e5,100	e5,800	e6,600	7,710	12,400	36,100	37,400	10,400	7,830
7	7,440	7,680	6,470	e5,400	e5,800	e6,500	7,580	12,700	37,000	35,900	10,900	7,630
8	7,330	7,700	6,760	e5,600	e5,900	e6,400	7,310	13,100	39,700	34,700	12,800	7,580
9	7,390	7,680	6,830	e5,500	e5,900	e6,100	7,280	13,600	41,100	33,900	13,400	7,510
10	7,550	7,630	6,870	e6,000	e5,800	e6,000	7,600	14,200	38,700	32,800	13,800	7,490
11	8,000	7,720	6,860	e6,500	e5,800	e5,800	8,580	14,200	37,000	31,100	12,900	7,410
12	8,590	7,870	6,810	e6,600	e5,700	e5,400	9,250	13,700	35,800	28,900	12,000	7,320
13	8,780	8,090	e6,820	e6,600	e5,700	e5,300	9,340	13,600	34,600	27,800	11,200	7,290
14	9,000	8,150	e6,500	e6,600	e5,600	e5,200	9,660	14,100	33,800	27,700	10,800	7,240
15	8,840	7,760	e5,200	e6,100	e5,600	e5,300	10,200	15,200	34,300	26,400	10,600	7,200
16	8,800	7,700	e5,200	e6,200	e5,600	e6,100	10,700	15,100	36,200	24,900	10,400	7,200
17	9,010	7,910	e4,500	e6,000	e5,500	e7,000	10,900	14,600	38,800	23,300	10,200	7,120
18	9,200	7,840	e4,100	e6,000	e5,500	e7,100	10,600	14,800	40,600	21,800	9,890	7,000
19	9,130	7,680	e4,400	e6,100	e5,600	e7,100	10,300	15,600	42,700	20,200	9,760	6,970
20	9,160	7,640	e4,800	e6,000	e5,600	e7,200	10,100	19,400	44,700	18,100	9,540	6,900
21	9,290	7,430	e4,900	e6,000	e5,600	7,520	10,100	27,300	45,600	16,700	9,010	6,830
22	9,090	7,420	e5,100	e5,800	e5,500	7,130	10,300	36,700	45,900	16,100	8,640	6,800
23	8,990	7,410	e5,300	e5,800	e5,400	6,890	10,900	39,100	48,600	15,500	8,540	6,880
24	8,790	7,370	e5,400	e5,800	e5,400	6,800	12,300	35,600	51,400	14,400	8,380	6,940
25	8,590	7,330	e5,500	e5,800	e5,600	7,060	14,000	35,900	48,000	13,600	8,210	7,050
26	8,090	7,240	e5,500	e5,200	e5,700	7,230	15,800	37,800	43,600	13,200	8,060	7,020
27	7,940	7,100	e5,500	e4,800	e5,700	7,120	15,300	39,200	42,600	13,300	7,950	6,950
28	7,920	7,030	e5,700	e4,500	e5,800	7,000	14,300	39,800	43,000	13,200	8,120	6,790
29	7,910	7,030	e5,800	e4,400	---	6,850	14,000	38,700	42,200	13,100	7,810	6,810
30	7,870	7,130	e5,900	e4,600	---	6,860	14,400	38,800	39,800	13,800	7,600	6,950
31	7,620	---	e6,000	e4,700	---	6,880	---	40,500	---	13,900	7,510	---
<b>Total</b>	254,430	226,410	185,200	177,700	157,900	199,140	304,680	691,300	1,234,800	773,800	317,720	216,900
<b>Mean</b>	8,207	7,547	5,974	5,732	5,639	6,424	10,160	22,300	41,160	24,960	10,250	7,230
<b>Max</b>	9,290	8,150	7,260	6,600	5,900	7,520	15,800	40,500	51,400	39,200	13,800	7,830
<b>Min</b>	7,190	7,030	4,100	4,400	5,100	5,100	7,070	12,400	33,800	13,100	7,510	6,790
<b>Ac-ft</b>	504,700	449,100	367,300	352,500	313,200	395,000	604,300	1,371,000	2,449,000	1,535,000	630,200	430,200

**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1922 - 2009, BY WATER YEAR (WY)\***

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
<b>Mean</b>	7,585	7,014	5,697	5,266	6,068	8,047	8,116	17,230	34,220	19,800	7,967	7,048
<b>Max</b>	12,970	10,850	9,342	8,897	16,160	18,560	15,210	29,100	61,860	46,310	16,540	13,710
<b>(WY)</b>	(1972)	(1973)	(1983)	(1968)	(1971)	(1929)	(1943)	(1978)	(1997)	(1967)	(1997)	(1941)
<b>Min</b>	3,857	3,976	2,921	2,034	2,344	3,027	2,729	7,334	13,030	3,988	2,615	2,964
<b>(WY)</b>	(2004)	(1932)	(1933)	(1937)	(1932)	(2002)	(1961)	(1961)	(1934)	(1934)	(1961)	(1934)

\*During periods of operation (1922-23, 1928 to current year).

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SUMMARY STATISTICS

	Calendar Year 2008		Water Year 2009		Water Years 1922 - 2009*	
Annual total	4,536,110		4,739,980			
Annual mean	12,390		12,990		11,180	
Highest annual mean					17,470	1997
Lowest annual mean					6,141	1934
Highest daily mean	57,400	Jun 28	51,400	Jun 24	92,400	May 30, 1923
Lowest daily mean	4,100	Dec 18	4,100	Dec 18	996	Dec 14, 1932
Annual seven-day minimum	4,340	Jan 20	4,710	Dec 16	1,220	Dec 12, 1932
Maximum peak flow			52,200	Jun 24	<sup>a</sup> 102,000	May 22, 1978
Maximum peak stage			10.97	Jun 24	<sup>b</sup> 21.70	Mar 20, 1944
Instantaneous low flow					1,800	Mar 7, 1995
Annual runoff (ac-ft)	8,997,000		9,402,000		8,098,000	
10 percent exceeds	34,900		37,000		25,000	
50 percent exceeds	7,330		7,600		7,370	
90 percent exceeds	4,620		5,600		4,040	

	Water Years 1922 - 1961**		Water Years 1967 - 2009***	
Annual mean	10,710		11,440	
Highest annual mean	16,660		17,470	1997
Lowest annual mean	6,141		6,176	2001
Highest daily mean	92,400	May 30, 1923	82,300	Jun 15, 1997
Lowest daily mean	996	Dec 14, 1932	1,640	Nov 25, 1977
Annual seven-day minimum	1,220	Dec 12, 1932	2,030	Jan 3, 2004
Maximum peak flow	96,300	Jun 19, 1944	<sup>a</sup> 102,000	May 22, 1978
Maximum peak stage	<sup>b</sup> 21.70	Mar 20, 1944	<sup>b</sup> 20.78	Mar 15, 1979
Annual runoff (ac-ft)	7,756,000		8,289,000	
10 percent exceeds	25,200			
50 percent exceeds	6,620			
90 percent exceeds	3,500			

\*During periods of operation (1922-23, 1928 to current year).

\*\*Prior to construction of Yellowtail Dam, during periods of operation (1922-23, 1928-61).

\*\*\*After completion of Yellowtail Dam.

<sup>a</sup>Gage height, 16.50 ft.

<sup>b</sup>Backwater from ice jam.

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