

Water-Data Report 2013

06294500 BIGHORN RIVER ABOVE TULLOCK CREEK, NEAR BIGHORN, MT

Big Horn Basin
Lower Bighorn Subbasin

LOCATION.--Lat 46°07'28", long 107°28'08" referenced to North American Datum of 1983, in SE ¼ SE ¼ NE ¼ sec.3, T.4 N., R.34 E., Treasure County, MT, Hydrologic Unit 10080015, on right bank 1.9 mi upstream from Tullock Creek, 3.6 mi southwest of Bighorn, 4.5 mi southeast of Custer, and at river mile 3.0.

DRAINAGE AREA.--22,414 mi². Area at site used Oct. 7, 1955, to Sept. 30, 1981, 22,885 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1981 to current year. Previously published as "06294700 Bighorn River at Bighorn, MT" from 1956-81, and as "06294700 Bighorn River near Custer" from 1945-55. Flows are equivalent at all sites.

GAGE.--Water-stage recorder. Elevation of gage is 2,700 ft, referenced to the North American Vertical Datum of 1988. May 11, 1945 to Dec. 6, 1945, nonrecording gage, and Dec. 7, 1945 to Oct. 6, 1955, water-stage recorder located 1.7 mi upstream at different elevation. Oct. 7, 1955 to Sept. 30, 1981, located at site 2.3 mi downstream at different elevation.

REMARKS.--Records are good except for estimated daily discharges, which are poor. Since November 1965, flow has been regulated by Bighorn Lake (usable capacity, 1,312,000 acre-ft). Major regulation prior to November 1965 occurred from 14 reservoirs in Wyoming and one in Montana with a combined usable capacity of about 1,400,000 acre-ft. Diversion for irrigation of about 445,200 acres occurs upstream from the station. U.S. Army Corps of Engineers 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 Several unpublished observations of water temperature and specific conductance were made during the year.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 2012 TO SEPTEMBER 2013
DAILY MEAN VALUES
[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	1,730	1,760	2,130	e2,000	e2,000	2,070	2,050	1,840	4,360	2,130	1,860	2,130
2	1,740	1,760	2,140	e2,000	2,050	2,080	2,070	1,820	4,540	2,070	2,030	2,120
3	1,720	1,760	2,160	e2,000	2,040	2,130	2,070	1,900	3,560	2,000	2,250	2,140
4	1,750	1,760	2,090	e2,000	2,050	2,140	2,050	1,920	3,020	1,960	2,280	2,090
5	1,880	1,770	1,960	e2,000	2,050	2,090	2,040	1,890	2,880	2,040	2,290	2,090
6	1,910	1,760	1,980	e2,000	2,050	2,090	2,040	1,880	2,770	2,070	2,250	2,140
7	1,880	1,760	2,000	e2,000	2,060	2,080	2,040	1,930	2,700	2,040	2,210	2,180
8	1,880	1,760	2,030	e2,000	2,070	2,080	2,120	1,880	2,620	2,170	2,210	2,310
9	1,890	1,760	2,050	e2,000	2,060	2,090	2,070	1,840	2,560	2,160	2,240	2,350
10	1,860	1,800	2,050	e2,000	2,070	2,090	2,050	1,880	2,550	2,130	2,460	2,320
11	1,790	1,790	2,070	e2,000	2,050	2,120	2,040	1,880	2,510	2,110	2,400	2,320
12	1,750	1,760	2,150	e2,000	2,050	2,100	2,040	1,870	2,570	2,200	2,380	2,310
13	1,740	1,740	2,180	e2,000	2,050	2,110	2,040	1,870	2,690	2,110	2,310	2,260
14	1,790	1,810	2,050	e2,000	2,050	2,120	2,100	1,800	2,960	2,110	2,280	2,440
15	1,740	1,900	1,970	e2,000	2,030	2,130	2,100	1,750	2,900	2,110	2,290	2,440
16	1,730	1,900	2,000	e2,000	2,050	2,170	2,100	1,750	2,780	1,990	2,290	2,380
17	1,740	1,910	1,980	2,010	2,070	2,190	2,100	1,910	2,730	1,980	2,250	2,380
18	1,780	1,930	2,000	2,010	2,080	2,200	2,100	2,000	2,600	2,020	2,250	2,370
19	1,780	1,940	2,000	2,020	2,070	2,150	2,080	2,340	2,480	1,990	2,220	2,270
20	1,780	1,940	e2,000	2,030	2,070	2,080	2,080	2,850	2,400	2,010	2,120	2,230
21	1,770	1,950	e2,000	2,040	2,050	2,070	2,080	3,010	2,370	2,000	2,030	2,210
22	1,760	1,950	2,020	e2,000	2,030	2,070	2,090	3,190	2,350	2,030	2,040	2,190
23	1,790	1,950	2,000	2,050	2,050	2,050	2,050	3,050	2,410	1,990	2,060	2,170
24	1,760	1,970	e2,000	2,050	2,070	2,040	2,060	2,770	2,370	1,980	2,040	2,180
25	1,750	2,000	e2,000	2,050	2,050	2,020	2,010	2,650	2,260	2,040	2,070	2,300
26	1,750	2,010	e2,000	2,050	2,060	2,010	2,070	2,630	2,210	2,070	2,080	2,480
27	1,740	2,010	e2,000	2,060	2,060	2,010	2,040	2,570	2,170	2,080	2,040	2,390
28	1,740	2,040	e2,000	2,080	2,060	2,010	1,980	2,560	2,150	2,120	2,050	2,460
29	1,750	2,060	e2,000	2,040	---	2,020	1,930	2,550	2,150	2,110	2,080	2,370
30	1,760	2,090	e2,000	e2,000	---	2,030	1,890	2,960	2,140	2,060	2,080	2,300
31	1,760	---	e2,000	e2,000	---	2,040	---	3,640	---	2,010	2,130	---
Total	55,190	56,300	63,010	62,490	57,500	64,680	61,580	70,380	80,760	63,890	67,570	68,320
Mean	1,780	1,877	2,033	2,016	2,054	2,086	2,053	2,270	2,692	2,061	2,180	2,277
Max	1,910	2,090	2,180	2,080	2,080	2,200	2,120	3,640	4,540	2,200	2,460	2,480
Min	1,720	1,740	1,960	2,000	2,000	2,010	1,890	1,750	2,140	1,960	1,860	2,090
Ac-ft	109,500	111,700	125,000	123,900	114,100	128,300	122,100	139,600	160,200	126,700	134,000	135,500

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 2013, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	3,097	3,149	3,026	2,927	3,063	3,483	3,404	4,296	6,834	5,169	2,817	2,777
Max	5,546	5,599	4,907	5,478	5,314	6,580	7,881	11,530	17,270	19,090	7,010	4,952
(WY)	(1972)	(1974)	(1968)	(1968)	(1971)	(1972)	(1997)	(2011)	(2011)	(1967)	(2011)	(1973)
Min	1,103	1,223	1,280	1,382	1,544	908	1,063	1,304	1,050	707	868	1,009
(WY)	(2003)	(1978)	(1961)	(1961)	(2003)	(1966)	(1966)	(1966)	(1966)	(1960)	(1961)	(1966)

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SUMMARY STATISTICS

	Calendar Year 2012		Water Year 2013		Water Years 1945 - 2013	
Annual total	912,850		771,670			
Annual mean	2,494		2,114		3,655	
Highest annual mean					6,147 2011	
Lowest annual mean					1,474 2003	
Highest daily mean	7,220	Apr 11	4,540	Jun 2	50,000	May 20, 1978
Lowest daily mean	1,720	Sep 26	1,720	Oct 3	400	Apr 4, 1967
Annual seven-day minimum	1,750	Oct 24	1,750	Oct 24	528	May 6, 1961
Maximum peak flow			^a 4,850	Jun 2	^c 59,200	May 20, 1978
Maximum peak stage			^b 8.07	Jan 4	^d 14.21	Apr 2, 1965
Instantaneous low flow					^e 275	Nov 15, 1959
Annual runoff (ac-ft)	1,811,000		1,531,000		2,648,000	
10 percent exceeds	3,470		2,420		6,180	
50 percent exceeds	2,090		2,050		3,030	
90 percent exceeds	1,780		1,790		1,650	

	Water Years 1946 – 1961*		Water Years 1967 – 2013**	
Annual mean	3,358		3,650	
Highest annual mean	5,051	1947	6,147	2011
Lowest annual mean	1,623	1961	1,474	2003
Highest daily mean	25,700	Jun 23, 1947	50,000	May 20, 1978
Lowest daily mean	462	May 12, 1962	400	Apr 4, 1967
Annual seven-day minimum	528	May 6, 1961	843	Nov 18, 1977
Maximum peak flow	^f 26,200	Jun 24, 1947	^c 59,200	May 20, 1978
Maximum peak stage	10.65	May 24, 1947	14.15	May 20, 1978
Instantaneous low flow	^e 275	Nov 15, 1959		
Annual runoff (ac-ft)	2,578,000		2,669,000	
10 percent exceeds	6,200		6,170	
50 percent exceeds	2,810		3,150	
90 percent exceeds	1,500		1,710	

*Prior to construction of Yellowtail Dam.

**After completion of Yellowtail Dam.

^aGage height, 3.17 ft.^bBackwater from ice.^cGage height, 14.15 ft, at different site and datum.^dIce jam, at different site and datum.^eAbout, result of freezeup.^fGage height, 8.79 ft, at different site and datum.

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