

Water-Data Report 2011

06090300 MISSOURI RIVER NEAR GREAT FALLS, MT

Upper Missouri Basin
Upper Missouri-Dearborn Subbasin

LOCATION.--Lat 47°35'04", long 111°03'35" referenced to North American Datum of 1927, in SW ¼ SE ¼ SW ¼ sec.11, T.21 N., R.5 E., Cascade County, MT, Hydrologic Unit 10030102, on left bank 700 ft downstream from Morony Dam, 12.6 mi northeast of Great Falls, and at river mile 2,105.4.

DRAINAGE AREA.--23,292 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--May to July 1953 in Water Supply Paper 1320-B, October 1956 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,807.21 ft, referenced to the National Geodetic Vertical Datum of 1929. Prior to July 27, 1977, nonrecording gage at same site at elevation 2.00 ft higher. July 27, 1977 to May 26, 1987, at site 600 ft upstream at elevation 2.00 ft higher. October 1971 to July 27, 1977, discharges were obtained from the Montana Power Company at Rainbow Dam 7.05 mi upstream. Prior to October 1971, Foxboro meters were used for determining discharge through powerplant. Water-stage recorder on Morony Reservoir was used for determining head on taintor gates with elevation of gage at sea level (level by Montana Power Company).

REMARKS.--Records are good except for estimated daily discharges, which are fair. Flow is regulated by Clark Canyon Reservoir (station number 06015300), Canyon Ferry Lake (station number 06058500), and 18 smaller irrigation reservoirs and powerplants upstream. Diversions for irrigation include about 750,400 acres upstream from the station. 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 Several unpublished observations of water temperature and specific conductance were made during the year.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 2010 TO SEPTEMBER 2011
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	5,850	6,310	e6,800	e5,200	4,160	7,570	6,820	9,460	27,700	29,900	7,070	7,580
2	6,140	6,470	7,140	e5,400	5,240	7,690	6,920	9,700	27,500	31,000	7,660	7,460
3	6,120	6,280	7,230	5,680	5,910	7,060	7,100	9,390	27,600	30,000	7,370	7,390
4	5,870	6,350	7,120	6,110	6,780	7,160	7,200	9,690	27,600	28,500	6,550	7,130
5	5,980	6,460	6,960	6,880	8,190	6,840	7,280	10,500	27,400	28,600	7,380	7,380
6	5,920	6,630	5,980	7,440	7,940	6,790	6,930	10,800	27,100	28,200	7,360	7,400
7	5,790	6,700	6,360	7,930	7,570	6,690	7,140	11,000	28,000	28,100	7,070	7,240
8	5,600	6,900	7,840	8,390	7,020	5,890	7,320	11,600	30,300	27,700	6,910	6,920
9	5,730	6,850	7,660	7,900	6,350	6,470	7,370	12,500	34,400	27,200	7,660	6,890
10	5,730	6,780	7,120	7,180	6,410	6,900	7,490	14,300	37,100	27,100	7,390	7,080
11	6,010	6,830	6,940	6,860	7,000	7,490	7,500	17,000	37,900	26,300	7,370	6,860
12	6,020	6,540	6,930	5,700	7,650	8,210	7,510	17,600	36,000	25,800	6,990	6,900
13	5,960	6,040	7,100	6,090	7,970	8,940	7,510	18,300	33,900	23,900	6,700	6,860
14	6,110	6,070	7,110	e6,200	8,290	7,790	7,790	18,700	32,200	21,700	7,150	6,700
15	6,240	6,460	7,130	e6,800	8,300	7,490	7,660	19,900	30,600	20,400	7,220	6,650
16	5,960	6,600	7,240	7,140	8,600	7,350	7,780	20,400	30,000	18,300	7,380	6,860
17	5,680	6,110	7,120	7,680	8,250	7,510	7,950	20,500	29,600	17,200	7,390	7,040
18	5,590	6,550	6,890	e8,000	7,320	7,260	7,960	20,200	28,900	17,000	7,240	6,850
19	5,430	6,300	6,170	8,180	5,130	7,290	8,110	20,000	27,900	16,400	6,970	6,800
20	5,690	6,430	4,910	7,540	4,740	7,500	8,140	20,600	27,200	15,600	7,150	7,040
21	5,780	e6,000	e5,200	7,190	4,340	7,300	8,700	21,500	26,600	14,800	6,980	6,560
22	5,670	e5,500	e6,000	7,330	5,980	7,400	9,100	23,200	26,300	13,900	7,110	6,650
23	5,710	e5,500	e7,800	7,310	7,950	7,060	8,710	25,200	25,900	11,600	7,140	6,630
24	5,700	e5,000	e7,800	7,210	7,450	7,200	8,750	25,800	26,400	11,700	7,170	6,790
25	6,000	4,950	7,050	7,440	6,460	7,080	8,660	26,300	27,400	11,800	7,350	6,680
26	6,200	e6,600	7,960	7,180	5,590	6,770	8,650	27,900	29,500	12,000	7,360	6,960
27	6,280	e7,200	7,750	7,460	6,070	7,060	9,010	28,300	29,700	10,000	7,190	6,440
28	6,350	e8,200	8,190	7,360	6,550	7,010	9,010	27,600	29,000	8,750	7,290	6,720
29	6,300	8,410	7,610	7,340	---	6,770	9,370	25,900	28,600	7,960	7,260	6,390
30	6,060	7,240	6,840	7,030	---	7,030	9,450	25,300	28,800	7,580	7,430	6,250
31	6,290	---	5,220	5,190	---	6,740	---	26,000	---	7,270	7,430	---
Total	183,760	194,260	215,170	216,340	189,210	223,310	238,890	585,140	887,100	606,260	223,690	207,100
Mean	5,928	6,475	6,941	6,979	6,758	7,204	7,963	18,880	29,570	19,560	7,216	6,903
Max	6,350	8,410	8,190	8,390	8,600	8,940	9,450	28,300	37,900	31,000	7,660	7,580
Min	5,430	4,950	4,910	5,190	4,160	5,890	6,820	9,390	25,900	7,270	6,550	6,250
Ac-ft	364,500	385,300	426,800	429,100	375,300	442,900	473,800	1,161,000	1,760,000	1,203,000	443,700	410,800

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1957 - 2011, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	5,686	6,011	6,011	6,156	6,327	6,598	7,282	10,820	13,770	8,681	5,881	5,520
Max	11,940	10,430	11,520	8,232	9,252	10,820	13,200	24,780	30,160	23,560	9,946	9,992
(WY)	(1966)	(1966)	(1960)	(1971)	(1997)	(1968)	(1976)	(1976)	(1964)	(1975)	(1993)	(1984)
Min	3,829	3,950	3,773	3,869	4,030	4,021	3,526	4,454	3,758	3,817	3,719	3,109
(WY)	(1989)	(1993)	(2002)	(2002)	(2002)	(1961)	(1961)	(1961)	(1977)	(1977)	(1988)	(1959)

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SUMMARY STATISTICS

	Calendar Year 2010		Water Year 2011		Water Years 1957 - 2011	
Annual total	2,903,660		3,970,230			
Annual mean	7,955		10,880		7,395	
Highest annual mean					11,490	1975
Lowest annual mean					4,349	2001
Highest daily mean	26,700	Jun 22	37,900	Jun 11	63,400	Jun 10, 1964
Lowest daily mean	3,970	Jan 25	4,160	Feb 1	1,760	Apr 16, 1961
Annual seven-day minimum	4,900	Jan 23	5,650	Oct 17	2,740	Sep 5, 1959
Maximum peak flow			38,800	Jun 11	^a 72,000	Jun 10, 1964
Maximum peak stage			8.10	Jun 11	^b 9.02	May 24, 1981
Instantaneous low flow					^c 1.0	Apr 16, 1962
Annual runoff (ac-ft)	5,759,000		7,875,000		5,358,000	
10 percent exceeds	13,200		27,200		11,700	
50 percent exceeds	6,310		7,280		6,200	
90 percent exceeds	5,380		5,960		4,230	

^aFrom hydrographic comparison with nearby stations.

^bSite and datum then in use.

^cAbout, powerplant shutdown.

