Water-Data Report 2012

06025500 BIG HOLE RIVER NEAR MELROSE, MT

Missouri Headwaters Basin
Big Hole Subbasin

LOCATION.--Lat 45°31'36", long 112°42'06" referenced to North American Datum of 1983, in SE ¼ SE ¼ SW ¼ sec.34, T.3 S., R.9 W., Madison County, MT, Hydrologic Unit 10020004, on left bank 50 ft downstream from bridge, on frontage road east of Interstate 15, 0.1 mi downstream from Rock Creek, 7 mi south of Melrose, and at river mile 31.1.

DRAINAGE AREA.--2,476 mi^2.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1923 to current year. Monthly discharge only for some periods, published in Water Supply Paper 1309.

GAGE.--Water-stage recorder. Elevation of gage is 5,032.87 ft, referenced to the National Geodetic Vertical Datum of 1929. Prior to June 14, 1927, water-stage recorder, and July 17, 1927, to Sept. 30, 1931, nonrecording gage, at site 1.7 mi upstream at different elevation.

REMARKS.--Records are good except for estimated daily discharges, which are poor. Diversions for irrigation of about 136,000 acres occur upstream from station. U.S. Geological Survey satellite telemeter is located at the station.

Suggested citation: U.S. Geological Survey, 2013, Water-resources data for the United States, Water Year 2012: U.S. Geological Survey Water-Data Report WDR-US-2012, site 06025500, accessed at http://wdr.water.usgs.gov/wy2012/pdfs/06025500.2012.pdf

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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	380	609	477	e390	e380	389	3,610	3,990	2,540	976	381	198
2	389	572	425	e390	e390	389	3,860	3,560	2,700	956	366	200
3	393	510	405	e410	e380	389	2,360	3,190	3,050	948	345	198
4	397	523	409	e420	e360	389	1,910	2,820	3,330	896	334	199
5	434	609	e310	e420	e360	401	1,770	2,600	3,790	825	320	199
6	464	555	e300	e410	e360	408	1,640	2,420	4,450	786	310	199
7	480	453	e360	e400	e370	371	1,350	2,210	4,600	754	304	199
8	505	442	e390	e410	e370	388	1,100	2,040	4,280	729	295	195
9	509	505	e390	e420	e380	398	1,110	2,010	3,700	704	287	192
10	516	459	e370	e400	e380	401	1,250	2,250	3,210	677	291	191
11	543	506	e360	e380	e380	409	1,450	2,430	3,010	655	259	202
12	605	536	e350	e370	e380	418	1,950	2,500	2,730	624	249	208
13	599	559	e350	e380	395	418	2,270	2,520	2,650	612	251	211
14	598	532	e370	e390	392	417	2,050	2,670	3,000	608	239	211
15	588	e500	e370	e380	370	417	1,850	3,030	2,790	746	227	218
16	584	e370	e380	e360	367	459	1,650	3,510	2,570	864	223	223
17	617	e390	e380	e340	397	500	1,540	4,160	2,430	1,050	219	218
18	627	454	e380	e370	378	512	1,570	4,430	2,430	1,060	208	218
19	644	e420	e380	e380	379	480	1,620	4,110	2,360	932	206	235
20	629	e400	e380	e380	376	456	1,640	3,620	2,210	829	206	231
21	611	e430	e370	e390	402	495	1,840	3,380	2,020	727	204	216
22	598	507	e340	e380	399	568	2,120	3,620	1,880	657	212	215
23	602	565	e340	e370	410	644	2,440	4,270	1,850	605	221	221
24	612	572	e370	e350	399	706	2,930	4,130	1,820	554	217	227
25	618	586	e370	e380	392	801	3,600	3,830	1,720	474	210	230
26	601	499	e390	e380	388	993	4,350	3,510	1,590	431	211	242
27	582	458	e390	e370	390	1,150	5,690	3,310	1,430	419	211	242
28	559	499	e410	e370	382	1,370	5,770	3,250	1,270	432	207	242
29	574	520	e410	e390	393	1,450	5,540	3,280	1,150	434	206	249
30	567	523	e410	e390	---	1,630	4,650	3,090	1,070	422	201	255
31	586	---	e400	e390	---	1,920	---	2,740	---	395	197	---
Total	17,011	15,063	11,736	11,960	11,099	20,136	76,480	98,480	77,630	21,781	7,817	6,484
Mean	549	502	379	386	383	650	2,549	3,177	2,588	703	252	216
Max	644	609	477	420	410	1,920	5,770	4,430	4,600	1,060	381	255
Min	380	370	300	340	360	371	1,100	2,010	1,070	395	197	191
Ac-ft	33,740	29,880	23,280	23,720	22,010	39,940	151,700	195,300	154,000	43,200	15,510	12,860

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1924 - 2012, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	488	490	388	347	358	477	1,474	3,219	3,901	1,292	452	364
Max	1,109	1,037	763	716	800	1,019	3,515	8,294	8,380	4,120	1,457	870
(WY)	(1947)	(1928)	(1976)	(1928)	(1971)	(2007)	(1943)	(1976)	(1965)	(1975)	(1975)	(1965)
Min	184	255	223	143	143	247	490	1,108	814	254	87.6	114
(WY)	(1936)	(1938)	(1933)	(1937)	(1937)	(1937)	(1975)	(1977)	(1992)	(1931)	(1988)	(1988)

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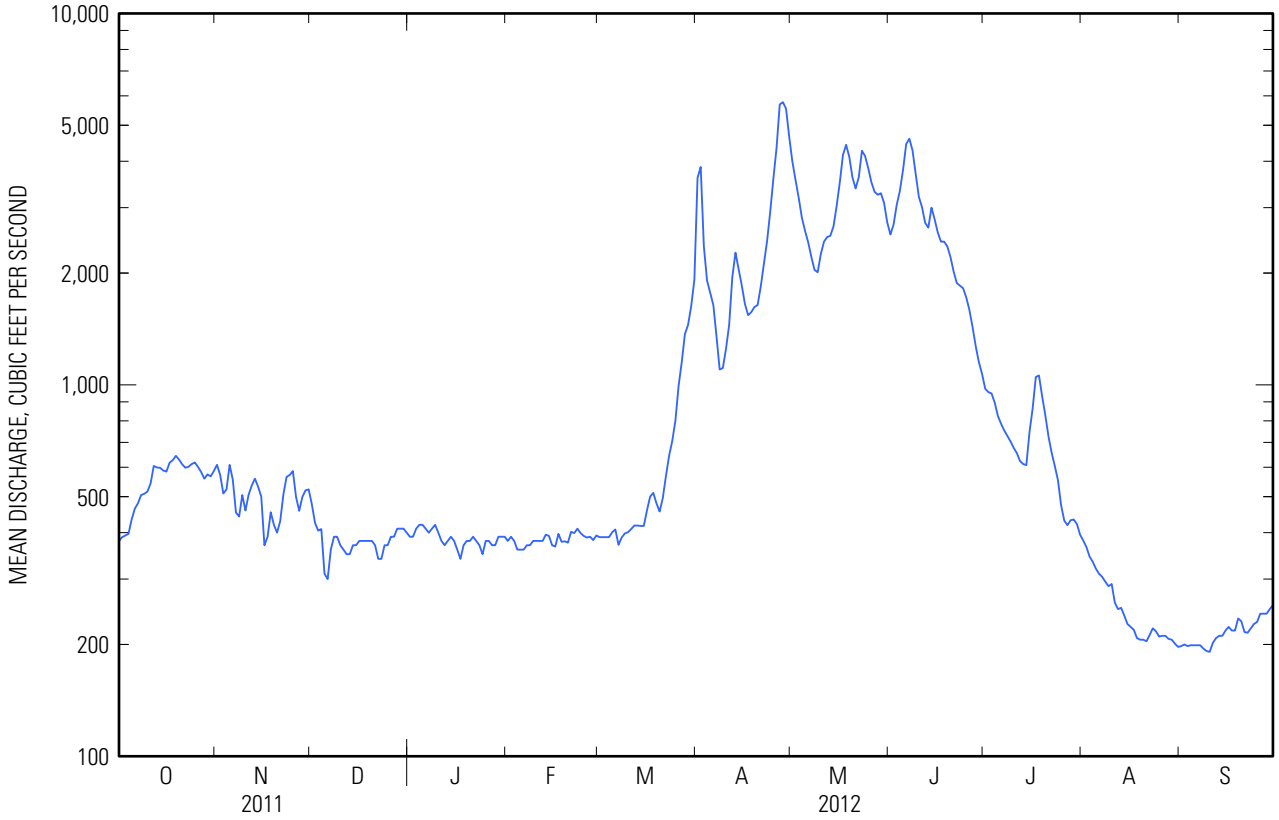
SUMMARY STATISTICS

	Calendar Year 2011		Water Year 2012		Water Years 1924 - 2012	
Annual total	606,803		375,677			
Annual mean	1,662		1,026		1,105	
Highest annual mean					2,024	1976
Lowest annual mean					486	1931
Highest daily mean	11,400	Jun 10	5,770	Apr 28	13,800	Jun 4, 1948
Lowest daily mean	300	Dec 6	191	Sep 10	49	Aug 17, 1931
Annual seven-day minimum	337	Sep 10	196	Sep 4	55	Aug 30, 1988
Maximum peak flow			5,970	Apr 27	[a]23,000	Jun 14, 1927
Maximum peak stage			5.25	Apr 27	14.00	Jun 14, 1927
Instantaneous low flow					[b]49	Aug 17, 1931
Annual runoff (ac-ft)	1,204,000		745,200		800,400	
10 percent exceeds	5,460		3,000		2,960	
50 percent exceeds	500		448		470	
90 percent exceeds	370		223		256	

[a]When Wise River Reservoir dam failed; maximum discharge unaffected by dam failure, 14,300 ft³/s, June 10, 1972, gage height, 8.04 ft.
[b]Observed, gage height, 0.70 ft, site and datum then in use.



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WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: August 1956 to September 1957, August 1960 to September 1964, June 1977 to current year (seasonal records).
SUSPENDED-SEDIMENT DISCHARGE: August 1956 to September 1957, August 1960 to September 1964.

INSTRUMENTATION.--Water temperature recorder was installed in June 1977.

REMARKS.--Daily water temperature record is rated good. Several unpublished observations of specific conductance and water temperature were made during the year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Maximum, 24.0°C, June 25, 1988 and several days in July in 2003, 2006, and 2007. Minimum, 0.0°C on many days during winter most years.
SEDIMENT CONCENTRATION (water years 1956-57, 1960-64): Maximum daily mean, 200 mg/L, June 29, 1961; minimum daily mean, 1 mg/L, on many days in 1960-64.
SEDIMENT LOAD (water years 1956-57, 1960-64): Maximum daily, 4,300 tons, June 9, 1964; minimum daily, less than 0.5 ton on several days in 1961.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: For period of seasonal operation, maximum, 23.2°C, July 21; minimum, 0.0°C, April 2.

TEMPERATURE, WATER, DEGREES CELSIUS
SEASON APRIL 2012 TO SEPTEMBER 2012

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		April			May			June			July	
1	5.4	0.3	2.5	9.0	5.4	7.0	12.8	11.1	11.9	20.0	16.0	17.8
2	3.3	0.0	1.3	8.3	6.1	7.2	13.9	11.6	12.6	20.8	15.5	18.0
3	4.6	0.9	2.8	7.7	5.7	6.8	13.5	11.4	12.6	20.4	16.2	18.1
4	6.9	3.4	4.9	9.0	6.2	7.5	15.3	11.8	13.4	20.7	14.4	17.5
5	6.4	3.8	4.8	9.0	7.0	8.0	15.4	12.8	14.0	18.3	15.0	16.3
6	4.9	2.7	3.7	9.8	5.8	7.7	12.9	9.9	11.1	19.0	14.0	16.6
7	5.1	1.7	3.4	11.2	7.4	9.1	11.5	8.1	10	21.1	15.6	17.9
8	7.6	2.3	4.8	13.0	9.1	10.8	13.2	10.5	11.8	19.5	15.3	17.5
9	9.2	4.3	6.6	14.0	10.7	12.2	12.7	10.3	10.9	22.2	15.3	18.5
10	10.5	5.9	8.0	12.9	10.4	11.9	10.4	9.0	9.4	21.2	16.4	18.8
11	10.5	7.0	8.5	11.2	8.1	9.7	12.3	7.9	9.9	20.1	15.9	18.1
12	9.6	7.1	8.5	12.0	8.3	10.1	13.8	10.5	12.1	22.3	15.5	18.7
13	8.0	5.5	6.6	13.1	9.6	11.3	15.6	12.5	13.7	20.0	16.5	17.9
14	8.9	4.9	6.7	13.9	10.6	12.3	14.6	11.0	13.0	20.9	15.9	18.1
15	6.8	5.9	6.4	14.1	11.5	12.9	15.3	12.5	13.8	20.1	16.5	18.4
16	8.0	4.9	6.3	14.1	11.9	13.0	15.3	12.7	14.0	21.4	16.3	18.6
17	9.7	6.0	7.5	13.6	10.6	11.9	16.5	12.8	14.3	20.2	15.7	18.0
18	10.3	7.5	8.6	11.3	9.3	10.2	16.1	12.9	14.2	21.3	15.9	18.4
19	10.3	7.0	8.4	11.1	8.4	9.8	13.2	11.0	12.2	22.4	16.2	19.1
20	11.9	7.8	9.5	11.3	8.5	10.1	14.3	10.2	12.0	22.1	17.4	19.6
21	13.3	9.4	11.0	12.9	10.4	11.7	16.6	12.1	14.1	23.2	17.1	20.0
22	13.0	9.8	11.2	12.3	10.5	11.7	18.0	14.4	15.9	22.0	17.2	19.7
23	12.7	10.3	11.4	10.9	8.5	9.7	18.7	14.4	16.4	21.0	16.8	18.8
24	13.1	10.9	11.8	9.8	7.3	8.6	18.9	14.9	16.8	22.2	15.6	18.9
25	11.9	9.8	10.9	9.1	6.2	7.4	19.3	15.9	17.4	20.7	15.3	18.2
26	11.4	10.1	10.7	6.2	4.6	5.2	19.1	16.2	17.3	21.8	15.5	18.5
27	10.1	6.4	8.1	6.0	3.9	4.9	17.6	13.4	15.4	19.5	16.4	18.1
28	6.4	4.9	5.8	8.8	5.2	6.7	18.4	13.2	15.5	20.1	15.2	17.7
29	8.4	5.1	6.5	10.3	7.3	8.7	18.6	13.8	16.0	21.4	15.8	18.7
30	8.0	5.4	6.6	10.8	9.3	10.1	20.7	14.4	17.3	21.2	16.5	19.0
31	---	---	---	11.9	9.6	10.7	---	---	---	22.5	16.5	19.4
Month	13.3	0.0	7.1	14.1	3.9	9.5	20.7	7.9	13.6	23.2	14.0	18.4

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TEMPERATURE, WATER, DEGREES CELSIUS
SEASON APRIL 2012 TO SEPTEMBER 2012

Day	Max	Min	Mean	Max	Min	Mean
		August			September	
1	23.1	16.3	19.5	17.7	14.5	16.1
2	21.2	16.1	18.7	18.1	12.9	15.5
3	19.8	15.9	17.8	17.2	12.2	14.9
4	21.0	14.0	17.3	17.5	11.9	14.8
5	21.9	15.0	18.3	16.8	11.6	14.4
6	19.9	16.4	18.0	16.5	12.1	14.2
7	21.2	14.7	17.9	16.8	11.1	14.1
8	19.3	15.7	17.6	17.2	11.6	14.6
9	21.2	15.6	18.3	16.6	12.0	14.6
10	19.9	16.2	17.4	17.1	12.8	14.9
11	21.2	14.3	17.5	15.6	11.1	13.4
12	21.7	15.6	18.6	14.2	9.0	11.7
13	21.7	16.0	18.9	14.6	9.0	11.9
14	21.0	15.1	18.1	15.1	9.7	12.5
15	19.2	15.3	17.3	14.6	10.3	12.6
16	20.1	13.7	16.8	13.6	10.8	12.3
17	21.2	14.9	18.0	14.7	9.5	12.1
18	21.5	15.0	18.3	15.3	10.0	12.7
19	19.3	15.3	17.1	15.6	10.7	13.2
20	20.1	14.7	17.3	15.4	10.5	13.1
21	18.6	15.1	16.9	15.6	10.6	13.2
22	20.7	14.6	17.3	15.0	10.4	12.9
23	20.5	14.9	17.7	14.4	11.1	12.9
24	18.2	14.1	16.4	15.5	11.5	13.5
25	18.1	11.8	15.0	15.2	12.1	13.7
26	17.4	12.3	15.0	15.0	10.6	13.0
27	18.8	13.7	16.4	15.1	10.6	12.9
28	20.4	14.4	17.3	13.9	10.5	12.5
29	19.2	14.1	16.7	15.6	11.8	13.6
30	18.5	12.9	15.8	15.6	11.4	13.5
31	18.1	13.2	15.6	---	---	---
Month	23.1	11.8	17.4	18.1	9.0	13.5