Water-Data Report 2006

06099500 MARIAS RIVER NEAR SHELBY, MT

Upper Missouri Basin
Marias Subbasin

LOCATION.--Lat 48°25′38″, long 111°53′20″ referenced to North American Datum of 1927, in SE ¼ NW ¼ SE ¼ sec.20, T.31 N., R.2 W., Toole County, MT, Hydrologic Unit 10030203, on left bank 20 ft downstream from bridge on old U.S. Highway 91, 5.1 mi south of Shelby, 24 mi downstream from Cut Bank Creek, and at river mile 140.6.

DRAINAGE AREA.--3,242 mi^2, of which 518 mi^2 probably is noncontributing.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--April 1902 to December 1904, May 1905 to December 1906, May 1907 to January 1908, April 1911 to current year. Monthly discharge only for some periods, published in Water Supply Paper (WSP) 1309.

REVISED RECORDS.-- WSP 1309: 1903-4, 1918, 1921, 1933, 1935, 1947. WSP 1509: 1902; 1912, maximum discharge (M); 1916; 1943 (M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 3,087.72 ft, referenced to the National Geodetic Vertical Datum of 1929. Prior to Dec. 23, 1947, nonrecording gage or water-stage recorder at several sites within 1,000 ft of present site at approximately the same elevation. Dec. 23, 1947, to Apr. 6, 1976, water-stage recorder at site 150 ft downstream at same elevation.

REMARKS.--Records are good except those for estimated daily discharges, which are poor. Some regulation occurs by Lower Two Medicine Lake (station number 06090900), Four Horns Reservoir (station number 06093000) Swift Reservoir (station number 06094000), and Lake Frances (station number 06095500), which have a combined capacity of 172,630 acre-ft. Diversions for irrigation of about 50,000 acres occurs upstream from station and about 15,000 acres downstream from 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 Several unpublished observations of water temperature and specific conductance were made during the year.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 2005 TO SEPTEMBER 2006
DAILY MEAN VALUES
[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	158	270	e160	e310	e370	e300	525	1,650	1,620	721	203	119
2	160	261	e130	e300	e350	e260	545	1,620	1,590	679	197	124
3	369	271	e150	e280	e340	e250	523	1,490	1,780	637	187	123
4	640	314	e160	e300	e355	e260	502	1,340	2,020	590	176	126
5	574	304	e170	e290	e370	e240	517	1,250	2,220	565	155	128
6	490	290	e160	e320	e310	e270	765	1,150	2,260	522	146	122
7	413	281	e140	e310	e290	e340	1,470	1,130	2,160	502	146	113
8	361	280	e160	e270	e350	e350	1,850	1,220	2,000	464	149	112
9	331	e250	e180	e260	e340	e320	1,580	1,250	1,940	422	133	109
10	340	e240	e220	e330	e250	e280	1,450	1,180	2,320	378	122	106
11	320	267	e280	e300	e220	e260	1,250	1,090	3,360	356	124	103
12	304	e300	e260	e290	e240	e250	1,130	1,030	3,400	380	134	106
13	288	e370	e260	e320	e230	e240	1,060	1,050	3,140	365	141	105
14	276	e350	e210	e310	e200	e250	1,150	1,150	3,460	340	144	111
15	287	e320	e200	e330	e160	e260	1,200	1,190	3,340	312	142	148
16	299	e360	e180	e300	e140	e270	1,300	1,360	3,140	284	138	185
17	288	e510	e170	e330	e135	e340	1,200	1,730	3,100	275	148	205
18	274	551	e160	e320	e130	e360	1,070	2,170	2,900	271	155	212
19	280	423	e150	e320	e160	e430	980	2,740	2,550	268	163	212
20	296	e340	e180	e300	e170	e400	969	3,160	2,230	256	151	204
21	305	315	e230	e285	e200	e390	953	3,170	1,940	251	135	196
22	313	298	e280	e240	e220	e430	1,030	3,150	1,660	241	119	198
23	333	290	e340	e320	e205	e420	1,330	3,030	1,400	236	107	213
24	328	282	e330	e380	e195	e410	1,300	2,890	1,210	235	95	216
25	317	279	e360	e400	e185	e440	1,130	2,680	1,100	289	92	213
26	304	269	e350	e360	e190	527	931	2,560	1,030	285	95	202
27	305	e270	e330	e340	e220	641	906	2,470	946	267	96	200
28	307	e245	e310	e310	e280	609	985	2,490	887	255	113	192
29	304	e230	e300	e380	---	575	1,060	2,420	812	245	126	181
30	288	e180	e280	e400	---	539	1,300	2,140	773	226	123	173
31	276	---	e300	e360	---	516	---	1,860	---	209	115	---
Total	10,128	9,210	7,090	9,865	6,805	11,427	31,961	58,810	62,288	11,326	4,270	4,757
Mean	327	307	229	318	243	369	1,065	1,897	2,076	365	138	159
Max	640	551	360	400	370	641	1,850	3,170	3,460	721	203	216
Min	158	180	130	240	130	240	502	1,030	773	209	92	103
Ac-ft	20,090	18,270	14,060	19,570	13,500	22,670	63,390	116,600	123,500	22,470	8,470	9,440

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1902 - 2006, BY WATER YEAR (WY)*

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	399	389	301	254	317	573	1,125	2,671	3,033	1,031	380	350
Max	1,448	1,485	1,135	700	1,173	2,300	3,149	5,300	10,190	3,982	1,100	1,853
(WY)	(1952)	(1990)	(1996)	(1918)	(1986)	(1947)	(1934)	(1927)	(1948)	(1902)	(1927)	(1911)
Min	73.8	116	103	41.9	58.7	139	280	711	409	147	67.1	66.4
(WY)	(2002)	(2002)	(1937)	(1937)	(1936)	(2002)	(1931)	(1977)	(1977)	(1940)	(1988)	(1988)

* During periods of operation (1903-04, 1906, 1912 to current year).

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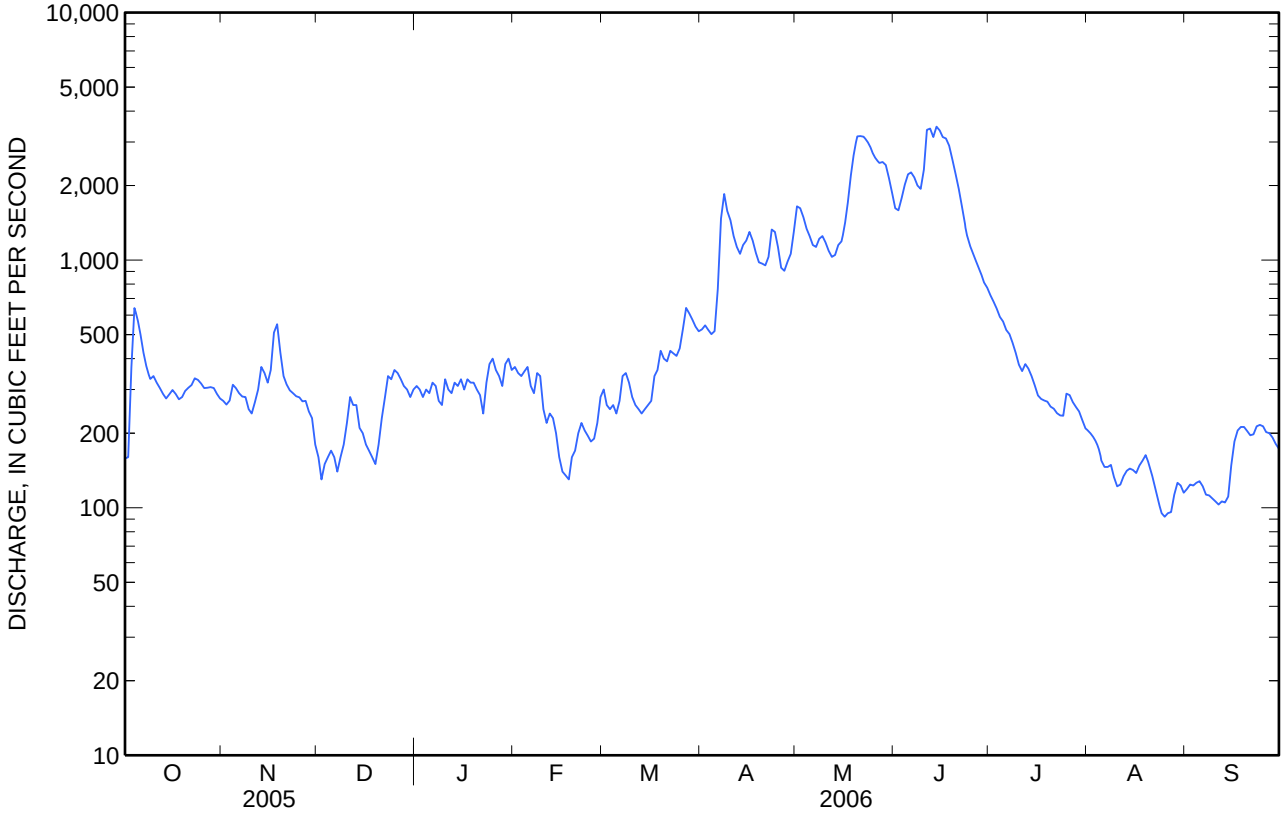
SUMMARY STATISTICS

	Calendar Year 2005		Water Year 2006		Water Years 1902 – 2006*	
Annual total	184,677		227,937			
Annual mean	506		624		891	
Highest annual mean					1,929	1927
Lowest annual mean					302	1977
Highest daily mean	4,190	Jun 8	3,460	Jun 14	109,000	Jun 9, 1964
Lowest daily mean	83	Aug 8	92	Aug 25	10	Aug 20, 1919
Annual seven-day minimum	92	Aug 4	102	Aug 22	21	Jan 25, 1937
Maximum peak flow			4,050	Jun 14	[a]241,000	Jun 9, 1964
Maximum peak stage			6.52	Jun 14	[b]23.64	Jun 9, 1964
Instantaneous low flow					[c]10	Aug 20, 1919
Annual runoff (ac-ft)	366,300		452,100		645,500	
10 percent exceeds	1,210		1,650		2,300	
50 percent exceeds	315		305		394	
90 percent exceeds	130		142		155	

* During periods of operation (1903-04, 1906, 1912 to current year).

[a] Largely due to the failure of Swift Dam, from slope-area measurement of peak flow. Maximum unaffected by dam failure, 75,000 ft³/s, gage height, 18.21 ft.

[b] From floodmark.

[c] Observed, site and datum then in use.