06038500 MADISON RIVER BELOW HEBGEN LAKE, NEAR GRAYLING, MT

Missouri Headwaters Basin
Madison Subbasin

LOCATION.--Lat 44°52′00″, long 111°20′15″ referenced to North American Datum of 1927, in NE ¼ NE ¼ NE ¼ sec.22, T.11 S., R.3 E., Gallatin County, MT, Hydrologic Unit 10020007, Gallatin National Forest, on right bank 1,500 ft downstream from Hebgen Dam, 8 mi northwest of Grayling, 17 mi upstream from West Fork, and at river mile 108.8.

DRAINAGE AREA.--905 mi^2.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--June 1909 to current year. Prior to October 1938 adjusted runoff only, published in Water Supply Paper (WSP) 1309. Prior to October 1949, published as "below Hebgen Reservoir".

REVISED RECORDS.-- WSP 1509: 1948. WSP 1559: Drainage area. WSP 1629: 1943. WSP 1709: 1959. WSP 1729: 1943.

GAGE.--Water-stage recorder. Elevation of gage is 6,448.47 ft (after 1959 earthquake) referenced to the National Geodetic Vertical Datum of 1929. Prior to July 13, 1943, nonrecording gage in stilling well.

REMARKS.--Records are excellent. Flow is completely regulated by Hebgen Lake (station number 06038000). Diversions for irrigation include about 1,100 acres upstream from station. Bureau of Reclamation satellite telemeter is located at the station.

AVERAGE DISCHARGE FOR PERIOD OF RECORD.--97 years, 1,017 ft^3/s, 15.26 in/yr, 736,800 acre-ft/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,200 ft^3/s, Aug. 17, 1959, caused by wave over Hebgen Dam during earthquake, gage height, 5.3 ft, from floodmark, from rating curve extended above 3,500 ft^3/s on basis of slope-area measurement of peak flow; maximum observed unaffected by wave over dam, 5,090 ft^3/s, June 3, 1943, gage height, 3.69 ft; minimum daily, 5.0 ft^3/s, May 9-12, 1960.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,410 ft^3/s, May 25, gage height, 2.67 ft; minimum daily, 749 ft^3/s, June 20.

06038500 MADISON RIVER BELOW HEBGEN LAKE, NEAR GRAYLING, MT—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2005 TO SEPTEMBER 2006
DAILY MEAN VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	890	880	871	953	1,040	1,010	1,060	1,040	2,080	963	1,380	953
2	890	880	872	953	1,040	1,010	1,060	1,040	2,080	963	1,200	952
3	890	880	871	953	1,030	1,010	1,060	1,040	2,080	961	1,120	952
4	890	880	871	953	1,030	1,010	1,060	1,040	2,070	958	1,110	950
5	890	880	924	953	1,030	1,010	1,070	1,040	2,020	957	1,100	949
6	890	880	974	953	1,030	1,010	1,060	1,040	1,730	963	1,090	951
7	890	880	974	953	1,030	1,010	1,060	1,040	1,610	1,030	1,090	950
8	890	880	974	953	1,030	1,010	1,060	1,050	1,470	1,100	1,090	949
9	890	880	974	1,010	1,030	1,000	1,060	1,050	1,390	1,080	1,090	948
10	890	880	974	1,050	1,030	1,000	1,060	1,050	1,270	1,080	1,090	947
11	890	880	974	1,050	1,030	999	1,050	1,050	1,170	1,090	1,070	944
12	890	880	974	1,050	1,020	999	1,050	1,060	1,110	1,150	1,060	944
13	890	880	974	1,050	1,020	997	1,050	1,060	979	1,200	1,050	943
14	890	880	972	1,050	1,020	1,050	1,050	1,060	916	1,190	1,030	942
15	890	880	972	1,050	1,020	1,090	1,060	1,060	863	1,180	1,010	942
16	890	880	970	1,050	1,020	1,090	1,060	1,070	822	1,160	998	942
17	890	880	970	1,050	1,020	1,090	1,060	1,080	824	1,150	983	942
18	888	880	966	1,050	1,020	1,090	1,060	1,090	824	1,120	974	942
19	886	879	964	1,050	1,020	1,090	1,060	1,090	783	1,110	961	942
20	888	879	964	1,050	1,020	1,090	1,060	1,100	749	1,110	955	942
21	890	877	963	1,040	1,020	1,080	1,060	1,100	749	1,170	954	942
22	889	877	963	1,040	1,020	1,080	1,050	1,710	750	1,340	954	942
23	888	876	963	1,040	1,020	1,080	1,050	2,160	757	1,520	954	942
24	886	875	963	1,040	1,020	1,080	1,040	2,310	758	1,550	953	942
25	885	875	958	1,040	1,010	1,080	1,050	2,400	758	1,530	953	942
26	883	874	956	1,040	1,010	1,080	1,050	2,270	758	1,520	953	942
27	883	876	957	1,040	1,010	1,070	1,050	2,080	815	1,510	953	942
28	882	874	954	1,040	1,010	1,070	1,050	2,080	898	1,490	953	942
29	882	871	955	1,040	---	1,070	1,050	2,080	963	1,490	953	942
30	881	874	953	1,040	---	1,070	1,050	2,080	963	1,480	953	936
31	881	---	953	1,040	---	1,070	---	2,080	---	1,460	953	---
Total	27,522	26,347	29,517	31,624	28,650	32,495	31,670	43,500	35,009	37,575	31,937	28,340
Mean	888	878	952	1,020	1,023	1,048	1,056	1,403	1,167	1,212	1,030	945
Max	890	880	974	1,050	1,040	1,090	1,070	2,400	2,080	1,550	1,380	953
Min	881	871	871	953	1,010	997	1,040	1,040	749	957	953	936
Ac-ft	54,590	52,260	58,550	62,730	56,830	64,450	62,820	86,280	69,440	74,530	63,350	56,210

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 2006 (UNADJUSTED), BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	1,335	1,372	978	898	842	842	924	859	1,254	1,028	1,076	1,123
Max	2,477	2,535	2,838	1,407	1,905	1,574	2,343	2,494	2,940	2,058	1,722	1,688
(WY)	(1962)	(1960)	(1960)	(1944)	(1943)	(1947)	(1948)	(1996)	(1943)	(1965)	(1939)	(1982)
Min	215	501	410	180	181	291	217	45.5	96.0	503	662	368
(WY)	(1942)	(1941)	(1940)	(1940)	(1940)	(1941)	(1961)	(1962)	(1960)	(1978)	(1960)	(1941)

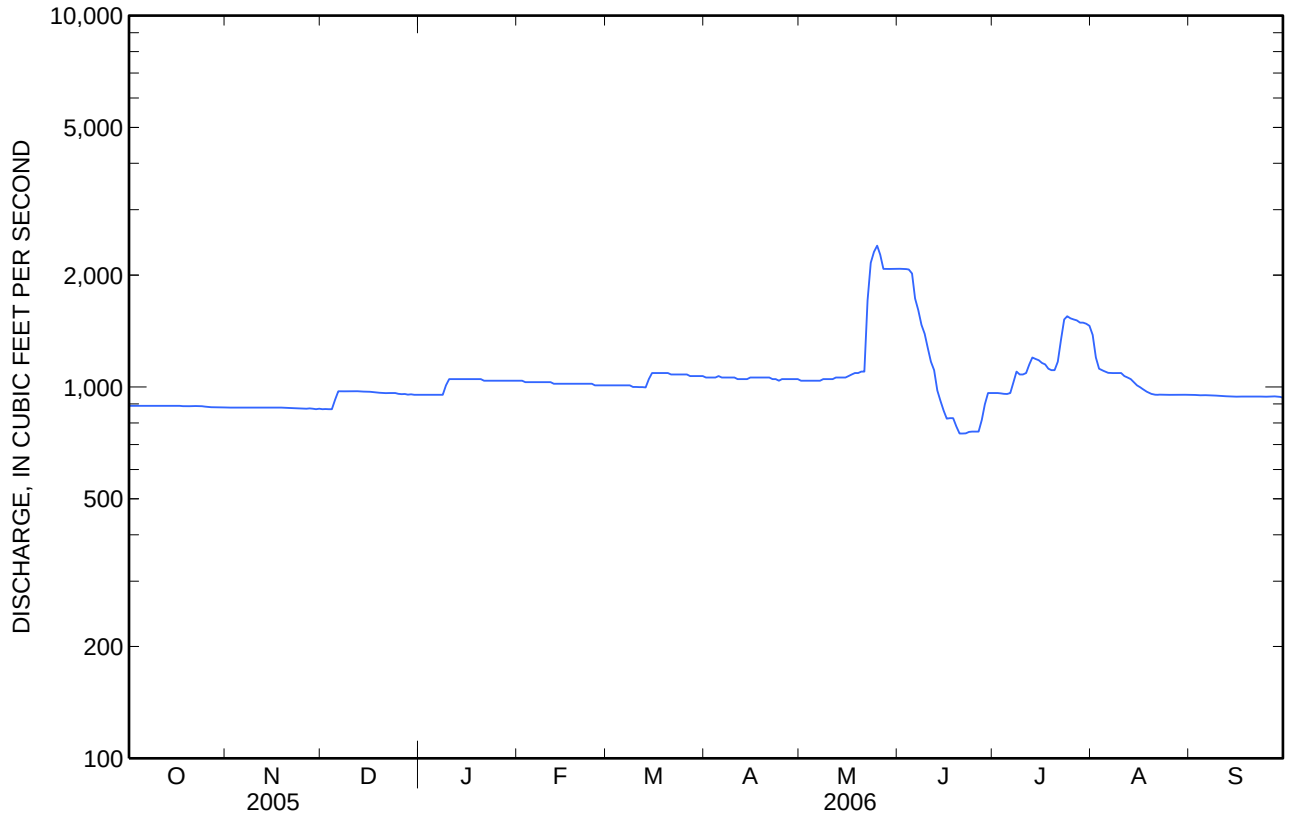
06038500 MADISON RIVER BELOW HEBGEN LAKE, NEAR GRAYLING, MT—Continued

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 2006, ADJUSTED FOR CHANGE IN CONTENTS IN HEBGEN LAKE BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	754	803	754	779	724	744	1,170	2,641	1,688	903	746	770
Cfsm	0.83	0.89	0.83	0.86	0.80	0.82	1.29	2.92	1.87	1.00	0.82	0.85
In	0.96	0.99	0.96	0.99	0.83	0.95	1.44	3.36	2.08	1.15	0.95	0.95
Ac-ft	46,390	47,760	46,350	47,930	40,230	45,750	69,620	162,380	100,440	55,530	45,850	45,810

OBSERVED

Calendar Year 2005	**Total**	345,692	**Mean**	947	**Max**	2,120	**Min**	789	**Ac-ft**	685,700
Water Year 2006	**Total**	384,186	**Mean**	1,053	**Max**	2,400	**Min**	749	**Ac-ft**	762,000

ADJUSTED

Calendar Year 2005	**Total**	343,837	**Mean**	942	**Cfsm**	1.04	**In**	14.13	**Ac-ft**	682,000
Water Year 2006	**Total**	380,187	**Mean**	1,042	**Cfsm**	1.15	**In**	15.92	**Ac-ft**	754,100