06052500 GALLATIN RIVER AT LOGAN, MT

Missouri Headwaters Basin
Gallatin Subbasin

LOCATION.--Lat 45°53′07″, long 111°26′15″ referenced to North American Datum of 1927, in SE ¼ NW ¼ NE ¼ sec.35, T.2 N., R.2 E., Gallatin County, MT,, Hydrologic Unit 10020008, on right bank at former county road bridge site, 0.2 mi upstream from present county bridge, 0.5 mi west of Logan, and at river mile 6.3.

DRAINAGE AREA.--1,795 mi^2.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--September 1893 to December 1905, August 1928 to current year. Monthly discharge only for some periods, published in Water Supply Paper (WSP) 1309.

REVISED RECORDS.-- WSP 1389: 1898-99; 1903; 1905; 1929, maximum discharge (M); 1935-36 (M); 1938-39 (M); 1941 (M). WSP 1559: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 4,086.42 ft, referenced to the National Geodetic Vertical Datum of 1929. Prior to Aug. 10, 1928, nonrecording gages at several sites within 0.5 mi of present site at various elevations. Aug. 10, 1928, to Oct. 7, 1941, nonrecording gage at present site and elevation.

REMARKS.--Water-discharge records are good except those for estimated daily discharges, which are poor. Some regulation occurs by Middle Creek Reservoir (station number 06049500). Diversions for irrigation include about 110,000 acres upstream from station. U.S. Army Corps of Engineers satellite telemeter is located at the station.

06052500 GALLATIN RIVER AT LOGAN, MT—Continued

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	423	648	e620	697	606	739	706	1,920	2,080	866	294	280
2	470	709	e620	697	604	698	725	1,920	1,990	823	311	287
3	534	825	e600	702	601	649	717	1,820	2,270	772	309	286
4	562	824	e600	687	601	636	707	1,690	2,920	694	301	287
5	584	801	e550	650	607	609	783	1,600	3,430	656	297	284
6	572	778	e500	633	590	602	1,450	1,610	3,440	616	288	277
7	567	793	e450	640	e580	616	1,620	1,710	3,420	585	279	277
8	619	829	e420	656	591	646	1,310	1,820	3,800	580	280	277
9	704	797	e500	e620	596	619	1,230	1,790	4,460	513	289	287
10	647	743	e600	633	581	590	1,260	1,650	4,820	482	284	291
11	605	804	e650	679	e530	560	1,240	1,530	4,550	488	278	299
12	633	847	e630	675	e550	557	1,150	1,470	3,800	465	253	295
13	634	811	e650	632	e560	562	1,160	1,560	3,490	494	295	293
14	633	773	e620	639	e550	562	1,360	1,700	3,360	462	307	298
15	632	742	e580	653	e500	594	1,460	2,000	3,340	424	286	326
16	617	715	e570	640	e450	577	1,570	2,260	2,790	449	303	392
17	607	780	e520	607	e420	578	1,770	2,590	2,450	427	316	417
18	598	753	e500	632	e400	594	1,670	3,040	2,260	395	336	421
19	594	750	e530	617	e450	596	1,410	3,510	2,100	357	329	430
20	591	742	e600	616	e500	579	1,290	4,030	2,110	329	317	427
21	587	724	e650	614	e580	568	1,230	4,620	1,890	310	301	458
22	578	723	e680	e580	e550	586	1,270	4,560	1,670	301	284	501
23	574	722	e660	597	e600	591	1,460	4,270	1,480	299	279	496
24	576	714	e650	614	e580	594	1,580	4,050	1,330	308	276	476
25	568	706	646	584	e580	609	1,440	3,750	1,210	309	276	466
26	560	784	651	596	593	699	1,340	3,880	1,080	306	273	462
27	576	773	659	602	607	699	1,260	4,000	972	286	279	452
28	613	730	666	596	681	650	1,310	3,710	914	275	276	452
29	661	e670	784	595	---	653	1,360	3,080	839	264	266	449
30	666	e650	727	603	---	721	1,600	2,600	916	263	258	433
31	655	---	690	605	---	726	---	2,270	---	267	270	---
Total	18,440	22,660	18,773	19,591	15,638	19,259	38,438	82,010	75,181	14,065	8,990	11,076
Mean	595	755	606	632	558	621	1,281	2,645	2,506	454	290	369
Max	704	847	784	702	681	739	1,770	4,620	4,820	866	336	501
Min	423	648	420	580	400	557	706	1,470	839	263	253	277
Ac-ft	36,580	44,950	37,240	38,860	31,020	38,200	76,240	162,700	149,100	27,900	17,830	21,970

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1894 - 2006, BY WATER YEAR (WY)*

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	759	811	739	683	695	783	1,035	2,110	2,952	992	482	634
Max	1,265	1,186	1,049	971	1,249	1,290	1,993	4,686	5,957	3,899	1,658	1,269
(WY)	(1983)	(1976)	(1976)	(1976)	(1963)	(1960)	(1952)	(1901)	(1997)	(1975)	(1993)	(1968)
Min	333	328	450	400	385	478	429	176	280	162	167	238
(WY)	(1935)	(1935)	(1894)	(1894)	(1936)	(1904)	(1934)	(1934)	(1934)	(1934)	(1934)	(1934)

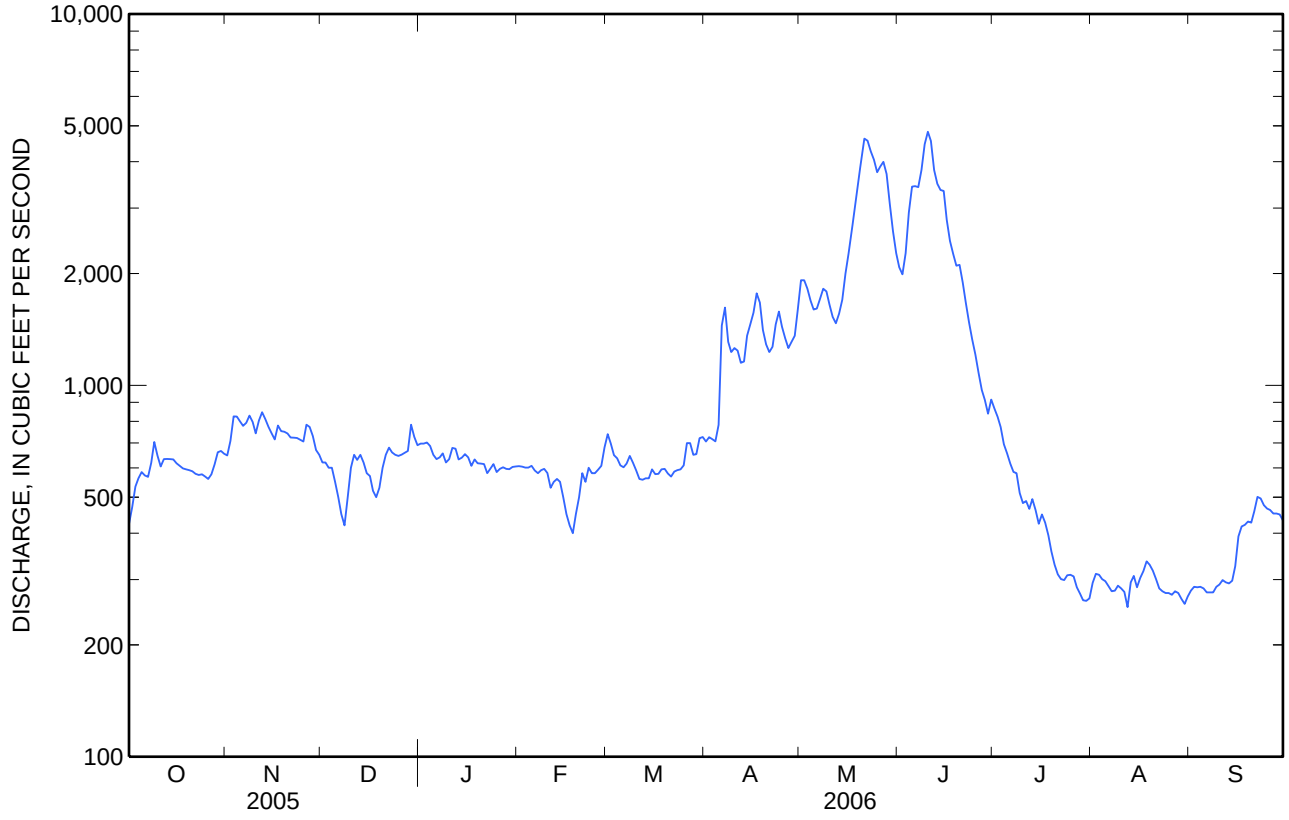
* During periods of operation (October 1893 to December 1905, August 1928 to current year).

06052500 GALLATIN RIVER AT LOGAN, MT—Continued

SUMMARY STATISTICS

	Calendar Year 2005		Water Year 2006		Water Years 1894 - 2006*	
Annual total	306,829		344,121			
Annual mean	841		943		1,056	
Highest annual mean					1,673	1997
Lowest annual mean					454	1934
Highest daily mean	3,840	Jun 18	4,820	Jun 10	9,840	Jun 21, 1899
Lowest daily mean	305	Jul 31	253	Aug 12	130	Jul 19, 1939
Annual seven-day minimum	333	Jul 27	271	Aug 25	147	Jul 16, 1934
Maximum peak flow			[a]5,010	Jun 10	[d]9,840	Jun 21, 1899
Maximum peak stage			[b]8.20	Dec 20	[e]11.88	Feb 5, 1963
Instantaneous low flow			[c]243	Aug 12	[f]130	Jul 19, 1939
Annual runoff (ac-ft)	608,600		682,600		765,200	
10 percent exceeds	2,050		1,990		2,100	
50 percent exceeds	588		619		750	
90 percent exceeds	365		295		414	

* During periods of operation (October 1893 to December 1905, August 1928 to current year).
[a] Gage height, 7.68 ft.
[b] Backwater from ice.
[c] Gage height, 3.46 ft.
[d] Observed, gage height, 6.25 ft, site and datum then in use.
[e] From floodmark, backwater from ice.
[f] Observed, gage height, 2.04 ft.



06052500 GALLATIN RIVER AT LOGAN, MT—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1949, 1951, 1957, 1965, 1979-86, 1999 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: August 1979 to September 1985, October 1999 to current year (varies between water year and seasonal records).

INSTRUMENTATION.--Temperature probe installed Sept. 14, 1999.

REMARKS.--Daily water temperature records good except for the period for July 6-21, which are poor due to low-flow conditions. Missing water-termperature data for May 25 to June 1 due to equipment problems. Several unpublished observations of specific conductance and water temperature were made during the year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Maximum, 28.5°C, July 19-21, 2003; minimum, 0.0°C, on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: During seasonal operation, maximum, 25.5°C, July 17, 22, 23, and 27-29; minimum 4.0°C, Apr. 18.

TEMPERATURE, WATER, DEGREES CELSIUS
SEASON APRIL 2006 TO SEPTEMBER 2006

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		April			May			June			July	
1	10.0	6.5	8.0	12.5	8.0	10.0	---	---	---	22.0	16.5	19.5
2	10.5	6.0	8.0	11.5	7.0	9.5	16.5	12.0	14.5	22.5	17.0	20.0
3	10.0	7.0	8.5	10.0	6.5	8.5	17.5	12.5	15.0	22.0	17.5	20.0
4	11.0	8.0	9.0	12.0	5.5	8.5	15.5	12.5	14.0	23.5	17.5	20.5
5	10.0	7.5	9.0	13.5	7.0	10.0	16.0	10.5	13.0	21.5	18.0	19.5
6	9.0	5.5	7.0	13.0	8.5	11.0	16.0	11.5	14.0	22.5	16.5	19.5
7	9.0	5.0	7.0	12.0	9.5	10.5	16.0	12.5	14.0	22.5	18.5	20.5
8	9.5	6.0	8.0	11.5	8.0	10.0	14.5	12.5	13.5	23.5	17.5	20.5
9	11.0	7.0	9.0	11.0	6.5	8.5	14.0	10.5	12.0	22.5	17.5	20.5
10	10.0	7.5	9.0	13.0	6.5	9.5	13.0	10.5	11.5	21.5	16.5	19.5
11	10.5	6.5	8.5	13.5	8.0	11.0	12.5	10.0	11.5	22.5	16.5	19.5
12	11.5	6.5	9.0	15.5	10.5	13.0	17.0	10.5	13.0	20.0	17.0	18.5
13	10.5	8.5	9.5	15.5	10.0	13.0	19.0	13.0	15.5	22.5	15.5	19.0
14	11.0	7.5	9.5	16.0	10.0	13.0	17.0	13.0	14.5	24.0	17.5	20.5
15	12.0	8.5	10.0	16.5	10.5	13.5	14.0	10.5	12.0	24.5	18.5	21.5
16	10.0	8.0	9.0	16.0	11.0	13.5	16.5	11.0	13.5	24.5	18.5	21.5
17	8.5	5.5	6.5	16.5	11.0	13.5	17.5	12.5	15.0	25.5	18.5	22.0
18	7.5	4.0	6.0	16.0	11.0	13.5	18.0	12.0	15.0	25.0	19.0	22.0
19	10.0	4.5	7.5	14.5	11.5	13.0	16.0	12.5	14.5	24.5	17.5	21.0
20	12.0	6.5	9.0	13.0	11.0	12.0	17.0	11.5	14.0	25.0	18.5	21.5
21	13.0	8.0	10.5	13.5	9.5	11.5	18.0	12.0	15.0	25.0	18.0	21.5
22	13.5	9.0	11.0	11.5	9.5	10.5	18.5	12.5	15.5	25.5	18.5	22.0
23	11.5	6.0	8.0	12.5	9.5	10.5	19.5	14.0	16.5	25.5	19.5	22.5
24	8.5	5.0	6.5	13.0	8.5	11.0	20.0	14.0	17.0	24.5	20.0	22.0
25	10.0	5.0	7.5	---	10.5	---	20.5	14.5	17.5	25.0	18.5	21.5
26	12.5	7.5	10.0	---	---	---	21.5	15.0	18.5	25.0	18.5	21.5
27	12.0	9.0	10.5	---	---	---	21.0	16.0	18.5	25.5	18.0	22.0
28	13.5	7.5	10.5	---	---	---	21.0	15.5	18.5	25.5	19.0	22.5
29	15.0	9.0	12.0	---	---	---	21.0	17.0	19.0	25.5	19.0	22.5
30	13.5	11.0	12.0	---	---	---	22.0	16.5	19.0	24.5	19.0	21.5
31	---	---	---	---	---	---	---	---	---	23.0	16.0	19.0
Month	15.0	4.0	9.0	---	---	---	---	---	---	25.5	15.5	21.0

06052500 GALLATIN RIVER AT LOGAN, MT—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
SEASON APRIL 2006 TO SEPTEMBER 2006

Day	Max	Min	Mean	Max	Min	Mean
		August			September	
1	22.0	16.5	19.5	18.0	11.5	14.5
2	23.0	17.0	20.0	18.0	11.5	14.5
3	23.0	16.5	19.5	18.5	12.0	15.0
4	22.5	16.5	19.5	17.0	12.5	15.0
5	23.5	16.5	20.0	17.5	13.0	15.0
6	24.0	17.0	20.0	17.5	13.0	15.0
7	22.0	17.0	19.5	18.0	13.0	15.5
8	21.0	16.5	19.0	17.0	13.5	15.5
9	21.5	15.0	18.0	18.5	14.0	16.0
10	23.5	16.0	19.5	19.0	14.0	16.0
11	23.0	17.0	20.0	18.0	12.5	15.5
12	19.5	15.0	16.5	18.0	12.5	15.0
13	20.0	12.5	16.0	17.5	12.5	15.0
14	21.0	14.0	17.5	15.0	12.5	13.5
15	20.0	15.0	17.5	13.0	11.0	12.0
16	19.0	14.5	17.0	11.0	9.5	10.5
17	19.5	14.5	17.0	10.0	8.5	9.5
18	21.0	14.5	17.5	14.0	8.5	11.0
19	21.0	14.5	17.5	13.0	10.0	11.5
20	21.5	15.0	18.0	12.0	11.0	11.5
21	21.5	15.5	18.5	12.0	10.5	11.0
22	21.5	16.0	19.0	10.5	9.0	10.0
23	21.0	16.0	18.5	13.0	8.5	10.5
24	20.0	15.0	18.0	12.5	9.0	11.0
25	18.5	16.0	17.5	14.0	9.0	11.5
26	20.0	14.5	17.5	13.5	9.5	12.0
27	21.5	15.0	18.0	15.0	11.5	13.0
28	21.5	15.0	18.5	14.5	10.5	12.5
29	20.0	15.5	18.0	14.5	11.0	13.0
30	19.0	15.0	16.5	14.5	10.0	12.5
31	18.0	12.0	15.0	---	---	---
Month	24.0	12.0	18.0	19.0	8.5	13.0