Water-Data Report 2007

12344000 BITTERROOT RIVER NEAR DARBY, MT

Pend Oreille Basin
Bitterroot Subbasin

LOCATION.--Lat 45°58′20″, long 114°08′26″ referenced to North American Datum of 1927, in SW ¼ SE ¼ NE ¼ sec.36, T.3 N., R.21 W., Ravalli County, MT, Hydrologic Unit 17010205, on left bank 50 ft upstream from bridge on U.S. Highway 93, 0.3 mi downstream from Chaffin Creek, 4.1 mi southeast of Darby, and at river mile 77.2.

DRAINAGE AREA.--1,049 mi^2.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--April 1937 to current year. Monthly discharge only for April 1937, published in Water Supply Paper (WSP) 1316.

REVISED RECORDS.-- WSP 1246: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 3,942.14 ft, referenced to the National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1987, at elevation 1.00 ft higher. Prior to Aug. 2, 1939, nonrecording gage at highway bridge 45 ft upstream at same elevation.

REMARKS.--Records are good except those for estimated daily discharges and those for May to September, which are fair. Some regulation occurs by Painted Rocks Lake (station number 12342000). Diversions for irrigation of about 5,000 acres occur upstream from station. Ditch bypassing station irrigates about 500 acres downstream from station. U.S. Geological Survey satellite telemeter is located at the station.

12344000 BITTERROOT RIVER NEAR DARBY, MT—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES
[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	171	129	300	215	213	233	721	2,700	2,040	713	375	400
2	171	158	291	268	e190	204	705	2,820	2,140	677	372	396
3	176	224	231	320	207	230	657	3,070	2,180	646	368	395
4	176	221	242	303	228	246	655	2,670	2,170	618	363	398
5	181	215	302	255	238	252	645	2,620	2,210	590	358	443
6	203	348	271	240	248	265	689	2,300	2,230	568	365	435
7	206	2,430	263	231	255	287	750	2,080	2,000	557	363	412
8	193	3,080	255	261	275	337	847	2,090	1,870	530	405	402
9	192	1,200	256	248	298	341	988	2,370	1,800	493	404	402
10	190	776	259	245	302	346	971	3,100	1,820	463	403	399
11	188	631	262	189	294	359	900	3,510	2,300	441	397	394
12	183	536	260	e120	304	423	854	3,730	2,040	418	396	388
13	190	490	290	e130	290	741	844	3,980	1,920	399	397	381
14	197	453	296	e140	275	796	831	3,690	1,830	387	396	378
15	197	395	336	e150	272	676	877	3,220	1,750	386	391	334
16	211	442	286	e170	322	616	863	3,110	1,640	386	386	326
17	197	392	175	e180	288	624	906	3,130	1,620	409	390	326
18	196	371	e160	e170	282	753	1,020	3,220	1,440	432	389	332
19	190	343	193	e190	273	891	967	3,340	1,310	385	380	348
20	249	359	229	e180	272	934	916	3,290	1,260	367	385	346
21	252	372	248	e200	263	869	885	3,290	1,240	353	398	342
22	214	407	273	e220	264	785	877	2,740	1,200	392	389	341
23	201	371	250	238	291	749	912	2,400	1,080	390	381	484
24	196	342	248	233	252	759	977	2,210	1,040	393	374	483
25	195	339	262	223	257	833	1,050	2,120	962	405	366	417
26	192	309	296	217	252	923	1,160	2,010	878	384	362	393
27	188	318	296	204	233	920	1,180	2,070	831	377	359	378
28	184	234	272	192	238	861	1,350	2,430	813	369	357	366
29	182	199	225	193	---	769	1,910	2,120	805	367	359	367
30	188	218	202	213	---	732	2,600	1,980	760	364	357	362
31	149	---	213	217	---	735	---	1,990	---	384	359	---
Total	5,998	16,302	7,942	6,555	7,376	18,489	29,507	85,400	47,179	14,043	11,744	11,568
Mean	193	543	256	211	263	596	984	2,755	1,573	453	379	386
Max	252	3,080	336	320	322	934	2,600	3,980	2,300	713	405	484
Min	149	129	160	120	190	204	645	1,980	760	353	357	326
Ac-ft	11,900	32,340	15,750	13,000	14,630	36,670	58,530	169,400	93,580	27,850	23,290	22,950

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1937 - 2007, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	349	314	277	249	268	356	971	2,861	2,992	955	411	349
Max	1,020	788	765	421	791	1,011	2,530	5,995	6,235	2,608	751	634
(WY)	(1947)	(1947)	(1947)	(1947)	(1996)	(1972)	(1943)	(1947)	(1964)	(1975)	(1975)	(1941)
Min	143	144	138	125	125	139	306	1,110	678	210	141	129
(WY)	(1938)	(1988)	(1988)	(1988)	(1941)	(1944)	(1937)	(1977)	(1987)	(1940)	(1940)	(1937)

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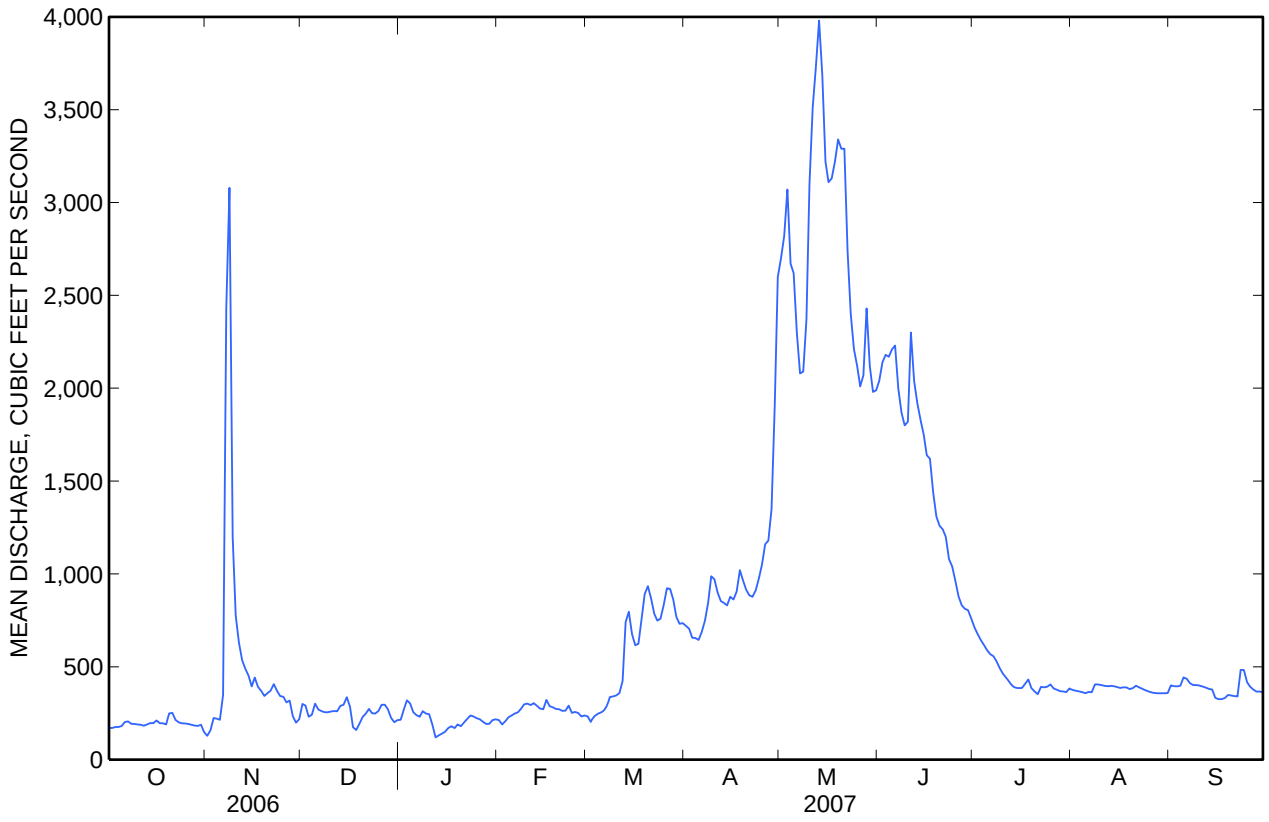
SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1937 - 2007	
Annual total	309,049		262,103			
Annual mean	847		718		869	
Highest annual mean					1,423	1976
Lowest annual mean					454	1987
Highest daily mean	7,370	May 20	3,980	May 13	11,000	May 9, 1947
Lowest daily mean	110	Feb 18	120	Jan 12	80	Feb 9, 1939
Annual seven-day minimum	168	Feb 15	151	Jan 12	98	Jan 1, 1988
Maximum peak flow			4,410	Nov 8	[b]11,500	May 9, 1947
Maximum peak stage			5.60	Nov 8	8.45	May 31, 2003
Instantaneous low flow			[a]95	Nov 1	[c]71	Feb 9, 1939
Annual runoff (ac-ft)	613,000		519,900		629,500	
10 percent exceeds	2,470		2,070		2,330	
50 percent exceeds	331		378		366	
90 percent exceeds	196		194		195	

[a] Gage height, 0.76 ft.
[b] Gage height, 8.18 ft, datum then in use.
[c] Observed.



WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1997-98, October 2000 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Seasonal records 2001-2003; full-year records for water years 2004-2006.

REMARKS.--Several unpublished observations of specific conductance and water temperature were made during the year.

EXTREMES FOR PERIOD OF DAILY RECORD. --
WATER TEMPERATURE: Maximum, 24.5°C, Aug. 8, 2001; minimum, 0.0°C during winter periods.

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 1 of 2
[Remark codes: <, less than; E, estimated.]

Date	Time	Instantaneous discharge, cfs (00061)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unf µS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Nitrate + nitrite water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Particulate nitrogen, susp, water, mg/L (49570)	Total nitrogen, water, unfltrd, mg/L (62855)	Orthophosphate, water, fltrd, mg/L as P (00671)	Total phosphorus, water, unfltrd mg/L (00665)	Total carbon, suspnd sedimnt total, mg/L (00694)
Mar													
21...	1500	885	7.6	65	10.5	5.5	.023	.003	.02	.16	E.006	.019	.4
May													
21...	1230	3,360	7.7	42	8.5	7.0	<.016	<.002	.04	.24	E.005	.019	.5
Jun													
13...	1430	1,900	7.6	49	21.5	11.0	<.016	<.002	.04	.14	.007	.015	.6
Aug													
09...	1315	411	7.7	67	25.5	15.5	E.008	<.002	.03	.10	.006	.009	.4

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 2 of 2
[Remark codes: <, less than.]

Date	Inorganic carbon, suspnd sedimnt total, mg/L (00688)	Organic carbon, suspnd sedimnt total, mg/L (00689)	Organic carbon, water, fltrd, mg/L (00681)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
Mar						
21...	<.1	.4	1.3	68	5	12
May						
21...	<.1	.5	--	34	14	127
Jun						
13...	<.1	.6	2.7	54	7	36
Aug						
09...	<.1	.4	2.0	60	1	1.1

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 3 of 5
[Remark codes: E, estimated.]

Date	Time	Hardness, water, mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)	Alkalinity, wat flt fxd end lab, mg/L as CaCO3 (29801)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)
Mar												
21...	1500	22	7.18	1.06	.61	.2	2.40	30	.83	.19	12.0	2.54
Jun												
13...	1430	20	6.58	.948	.61	.2	2.10	25	.50	E.08	10.0	1.41

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 4 of 5
[Remark codes: <, less than; E, estimated.]

Date	Dissolved solids, sum of constituents mg/L (70301)	Dissolved solids, tons/acre-ft (70303)	Dissolved solids, tons/d (70302)	Arsenic water, fltrd, µg/L (01000)	Arsenic water, unfltrd µg/L (01002)	Cadmium water, fltrd, µg/L (01025)	Cadmium water, unfltrd µg/L (01027)	Chromium, water, fltrd, µg/L (01030)	Chromium, water, unfltrd recoverable, µg/L (01034)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recoverable, µg/L (01042)
Mar											
21...	45	.06	107	.17	.26	.04	E.01	<.12	<.60	.90	E1.0
Jun											
13...	37	.05	189	.22	.26	E.02	<.02	.12	<.60	.78	E1.2

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 5 of 5
[Remark codes: E, estimated.]

Date	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recoverable, µg/L (01051)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)
Mar						
21...	E.09	.23	.14	.22	1.4	E1
Jun						
13...	E.11	.14	.10	E.12	.60	E1.2