

Water-Data Report 2009

05211000 MISSISSIPPI RIVER AT GRAND RAPIDS, MN

Mississippi Headwaters Basin
Prairie-Willow Subbasin

LOCATION.--Lat 47°13'56", long 93°31'48" referenced to North American Datum of 1927, in SW ¼ NW ¼ sec.27, T.55 N., R.25 W., Itasca County, MN, Hydrologic Unit 07010103, on left bank, 650 ft downstream from Blandin Dam, 150 ft upstream from bridge on U.S. Highway 169, 2.5 mi upstream from Prairie River, and at mile 1,182 upstream from Ohio River.

DRAINAGE AREA.--3,370 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1883 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,242.03 ft above sea level (NGVD of 1929). See WSP 1914 for history of changes prior to Jan. 17, 1951.

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow regulated by Winnibigoshish Lake, Leech Lake, Pokegama Lake, Blandin Paper Mill (up to 16 ft³/s diverted for paper production), and occasionally at low flow by power plant at Blandin Dam. Backwater from Prairie River occurs at times in most years.

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DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2008 TO SEPTEMBER 2009
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	582	982	1,360	e1,350	e1,490	e1,190	928	e2,600	e2,370	1,510	439	281
2	581	1,010	1,410	e1,350	e1,480	e1,180	893	e2,600	e2,380	e1,420	412	249
3	548	1,130	e1,410	e1,350	e1,470	e1,180	908	e2,600	e2,380	1,360	432	238
4	559	1,270	e1,390	e1,350	e1,460	e1,200	871	e2,600	e2,370	1,370	428	258
5	566	1,340	e1,390	e1,350	e1,460	e1,190	838	e2,600	e2,360	1,350	402	261
6	569	1,420	e1,380	e1,350	e1,460	e1,180	1,210	e2,600	e2,350	1,270	410	245
7	662	1,470	e1,360	e1,520	e1,460	e1,180	2,020	e2,600	e2,340	1,180	349	261
8	706	1,540	e1,350	e1,500	e1,450	e1,190	2,430	e2,600	e2,330	1,020	321	243
9	701	1,500	e1,340	e1,500	e1,420	e1,190	2,800	e2,600	e2,340	913	379	248
10	708	1,510	e1,340	e1,490	e1,390	e1,200	3,100	e2,600	e2,340	868	352	253
11	716	1,520	e1,350	e1,490	e1,380	e1,210	e3,000	e2,600	e2,330	882	342	239
12	722	1,520	e1,360	e1,490	e1,370	e1,200	e3,090	e2,600	2,310	870	344	252
13	728	1,510	e1,350	e1,480	e1,370	e1,190	e3,060	e2,600	2,320	743	336	252
14	731	1,500	e1,350	e1,480	e1,360	e1,200	e3,040	e2,600	2,300	750	273	248
15	729	1,510	e1,360	e1,480	e1,360	e1,230	e3,080	e2,800	2,290	613	250	237
16	732	1,500	e1,350	e1,480	e1,360	e1,350	e2,970	e2,840	2,300	589	303	251
17	720	1,510	e1,350	e1,490	e1,360	1,410	e2,880	e2,900	2,270	474	250	250
18	733	1,510	e1,350	e1,500	e1,360	1,500	e2,700	e2,950	2,300	422	249	236
19	736	1,500	e1,360	e1,510	e1,360	1,510	e2,640	e2,800	2,320	426	250	241
20	724	1,490	e1,350	e1,520	e1,340	1,540	e2,620	e2,650	2,270	444	267	240
21	732	1,460	e1,340	e1,520	e1,330	1,520	e2,610	e2,400	2,260	431	268	240
22	734	1,420	e1,350	e1,520	e1,260	1,520	e2,600	e2,380	e2,300	429	349	253
23	737	1,420	e1,350	e1,520	e1,240	1,870	e2,600	e2,380	e2,290	426	366	250
24	753	1,400	e1,350	e1,520	e1,240	2,000	e2,600	e2,380	e2,100	463	354	227
25	744	1,360	e1,350	e1,520	e1,230	1,940	e2,600	e2,380	1,890	427	359	233
26	750	1,370	e1,350	e1,520	e1,230	1,230	e2,600	e2,380	1,620	425	354	260
27	844	1,370	e1,350	e1,520	e1,210	801	e2,600	e2,380	1,550	433	354	230
28	942	1,370	e1,350	e1,530	e1,200	736	e2,600	e2,380	1,530	431	364	226
29	1,010	1,380	e1,350	e1,530	---	785	e2,600	e2,380	1,490	419	356	251
30	1,010	1,370	e1,350	e1,520	---	829	e2,600	e2,370	1,510	434	345	231
31	1,000	---	e1,350	e1,510	---	888	---	e2,370	---	425	328	---
Total	22,709	42,162	42,100	45,760	38,100	39,339	71,088	79,520	65,110	23,217	10,585	7,384
Mean	733	1,405	1,358	1,476	1,361	1,269	2,370	2,565	2,170	749	341	246
Max	1,010	1,540	1,410	1,530	1,490	2,000	3,100	2,950	2,380	1,510	439	281
Min	548	982	1,340	1,350	1,200	736	838	2,370	1,490	419	249	226
Ac-ft	45,040	83,630	83,510	90,760	75,570	78,030	141,000	157,700	129,100	46,050	21,000	14,650
Cfsm	0.22	0.42	0.40	0.44	0.40	0.38	0.70	0.76	0.64	0.22	0.10	0.07
In.	0.25	0.47	0.46	0.51	0.42	0.43	0.78	0.88	0.72	0.26	0.12	0.08

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1884 - 2009, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	1,424	1,344	1,156	1,146	1,122	1,065	1,056	1,172	1,264	1,347	1,298	1,340
Max	3,544	3,259	2,608	2,410	2,729	2,762	3,622	3,668	3,271	3,363	4,505	4,438
(WY)	(1902)	(1903)	(2000)	(1952)	(1945)	(1945)	(1901)	(1901)	(1962)	(1962)	(1905)	(1905)
Min	103	122	150	165	155	129	106	32.5	185	125	88.3	89.2
(WY)	(1937)	(1937)	(1937)	(1937)	(1934)	(1937)	(1937)	(1949)	(1936)	(1961)	(1934)	(1934)

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SUMMARY STATISTICS

	Calendar Year 2008		Water Year 2009		Water Years 1884 - 2009	
Annual total	387,325		487,074			
Annual mean	1,058		1,334		^a 1,236	
Highest annual mean					2,429	1906
Lowest annual mean					193	1934
Highest daily mean	2,510	Jun 14	3,100	Apr 10	8,900	Sep 29, 1914
Lowest daily mean	270	Sep 4	226	Sep 28	^b 0.00	Oct 2, 1948
Annual seven-day minimum	281	Aug 24	237	Sep 24	24	May 9, 1949
Maximum peak flow			^c 3,210	Apr 10	^d 12,500	Sep 3, 1948
Maximum peak stage			^f 8.99	Apr 16	^g 15.20	Sep 3, 1948
Instantaneous low flow			^h 204	Sep 30	0.00	Sep 3, 1948
Annual runoff (ac-ft)	768,300		966,100		895,400	
Annual runoff (cfsm)	0.314		0.396		0.367	
Annual runoff (inches)	4.28		5.38		4.98	
10 percent exceeds	1,920		2,600		2,330	
50 percent exceeds	901		1,350		1,140	
90 percent exceeds	454		278		309	

^a Median of annual-mean discharges is 1,200 ft³/s.

^b Many days, several years.

^c Gage height 8.45ft.

^d From rating curve extended above 4,500 ft³/s; result of dam failure.

^f Backwater from Prairie River.

^g From floodmark, result of dam failure.

^h Due to regulation.

