Water-Data Report 2012

04111000 GRAND RIVER NEAR EATON RAPIDS, MI

Southeastern Lake Michigan Basin
Upper Grand Subbasin

LOCATION.--Lat 42°32′05″, long 84°37′23″ referenced to North American Datum of 1927, in NE ¼ sec.26, T.2 N., R.3 W., Eaton County, MI, Hydrologic Unit 04050004, on right bank 400 ft upstream from bridge on Petrieville Highway, 2 mi northeast of Eaton Rapids, 2.5 mi downstream from Spring Brook, 25 mi upstream from Red Cedar River, and at mile 178.

DRAINAGE AREA.--661 mi^2.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1950 to September 1982, October 1995 to current year. Gage-height records collected in this vicinity 1905-28 (flood seasons only) are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 1707: 1951 (m).

GAGE.--Water-stage recorder. Datum of gage is 852.68 ft above NGVD 29 (levels by Michigan Department of Natural Resources).

REMARKS.--Records good. Flow regulated by powerplant at Smithville Dam and mills at Eaton Rapids. Gage-height telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 4, 1950, reached a stage of 8.15 ft, discharge, 3,860 ft^3/s.

Suggested citation: U.S. Geological Survey, 2013, Water-resources data for the United States, Water Year 2012: U.S. Geological Survey Water-Data Report WDR-US-2012, site 04111000, accessed at http://wdr.water.usgs.gov/wy2012/pdfs/04111000.2012.pdf

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DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012
DAILY MEAN VALUES
[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	506	621	1,590	1,240	1,380	1,360	891	720	292	149	105	97
2	515	596	1,820	1,270	1,290	1,540	903	780	291	145	88	93
3	503	557	1,730	1,060	1,250	1,690	874	772	290	142	91	103
4	490	527	1,860	e950	1,190	1,570	840	799	290	139	95	97
5	458	512	2,020	1,050	1,140	1,490	805	746	264	131	94	111
6	459	491	2,050	1,010	1,060	1,350	796	743	252	99	92	108
7	439	503	1,960	898	1,040	1,220	786	748	230	170	91	112
8	423	486	1,800	899	979	1,190	756	718	232	139	91	125
9	402	500	1,660	864	943	1,190	702	686	217	149	96	122
10	371	522	1,530	798	886	1,120	653	631	218	129	154	130
11	332	551	1,330	809	e780	1,100	628	562	211	120	237	109
12	321	540	1,350	749	e720	1,110	612	579	208	117	240	105
13	317	577	1,400	780	e745	1,180	563	562	231	107	199	107
14	362	530	1,310	768	e800	1,230	568	577	170	116	175	128
15	383	634	1,570	735	744	1,310	692	543	188	108	170	111
16	393	606	1,680	e655	854	1,310	908	481	182	101	164	138
17	358	635	1,760	980	938	1,210	1,000	465	178	104	155	118
18	340	650	1,620	1,050	983	1,170	1,100	441	233	115	148	112
19	358	593	1,470	e960	944	1,070	1,030	434	241	107	143	127
20	683	567	1,320	e720	891	1,010	922	402	256	106	134	101
21	847	561	1,270	e800	827	946	780	396	223	97	117	99
22	821	582	1,170	e965	792	885	730	363	209	118	142	123
23	806	642	1,160	1,230	787	938	686	347	189	126	115	133
24	791	704	1,160	1,370	809	1,300	632	344	187	121	150	130
25	749	735	1,110	1,350	813	1,400	614	315	198	119	96	128
26	700	748	1,090	1,350	812	1,370	580	320	174	112	91	115
27	694	733	1,070	1,390	822	1,250	567	299	167	98	100	123
28	668	759	1,090	1,400	832	1,100	580	312	161	99	92	121
29	676	984	1,030	1,340	1,000	988	575	305	159	123	93	116
30	659	1,310	1,050	1,240	---	936	644	287	151	113	105	113
31	648	---	1,150	1,170	---	904	---	286	---	139	98	---
Total	16,472	18,956	45,180	31,850	27,051	37,437	22,417	15,963	6,492	3,758	3,961	3,455
Mean	531	632	1,457	1,027	933	1,208	747	515	216	121	128	115
Max	847	1,310	2,050	1,400	1,380	1,690	1,100	799	292	170	240	138
Min	317	486	1,030	655	720	885	563	286	151	97	88	93
Cfsm	0.80	0.96	2.20	1.55	1.41	1.83	1.13	0.78	0.33	0.18	0.19	0.17
In.	0.93	1.07	2.54	1.79	1.52	2.11	1.26	0.90	0.37	0.21	0.22	0.19

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1951 - 2012, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	267	362	475	528	619	961	925	705	470	291	220	216
Max	875	744	1,457	1,406	1,489	1,932	1,582	1,848	1,380	1,234	855	1,084
(WY)	(1955)	(2002)	(2012)	(1952)	(2001)	(1974)	(2009)	(1956)	(2010)	(1968)	(2011)	(2008)
Min	64.6	94.7	86.0	96.5	111	223	378	200	138	94.7	78.8	64.6
(WY)	(1964)	(1964)	(1964)	(1963)	(1964)	(1964)	(1964)	(1958)	(1964)	(1965)	(1963)	(1963)

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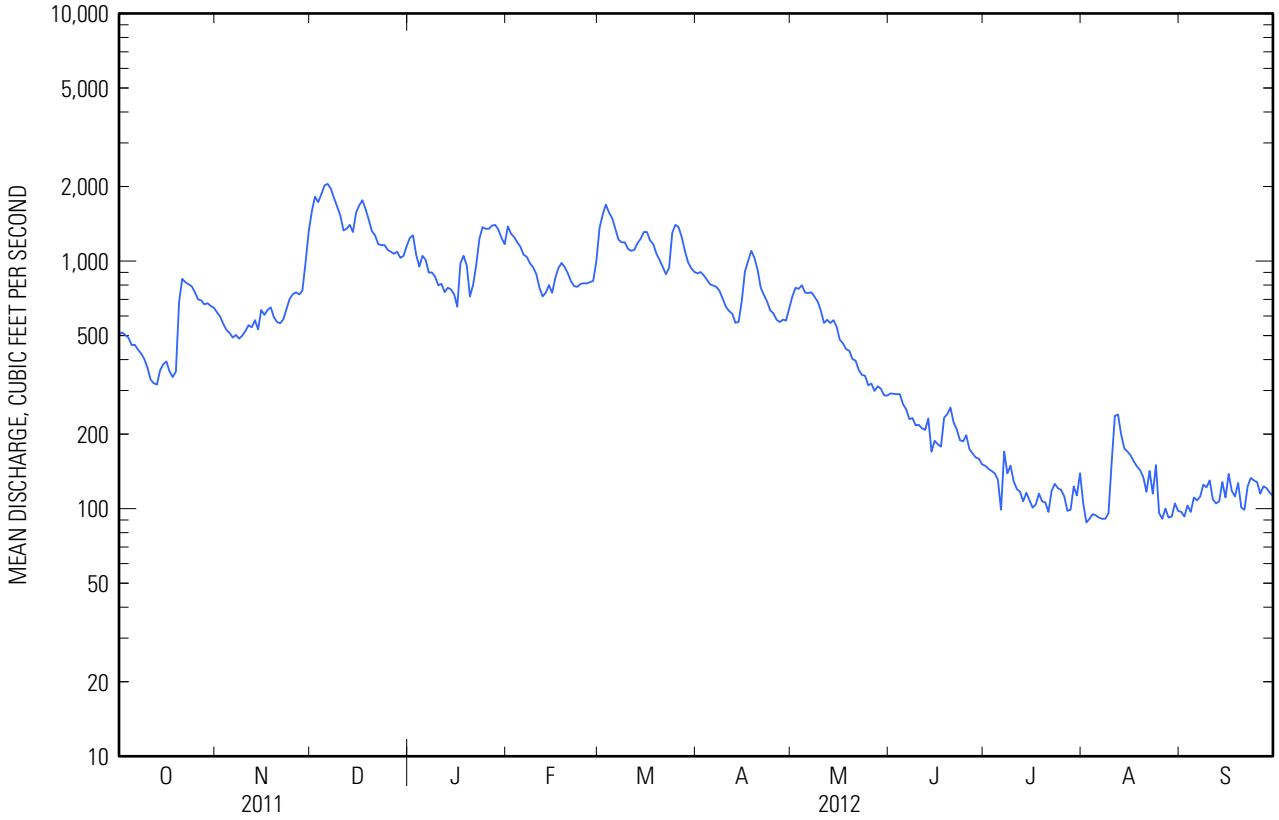
SUMMARY STATISTICS

	Calendar Year 2011		Water Year 2012		Water Years 1951 - 2012	
Annual total	310,894		232,992			
Annual mean	852		637		502	
Highest annual mean					847	2009
Lowest annual mean					147	1964
Highest daily mean	3,030	May 28	2,050	Dec 6	3,510	Sep 16, 2008
Lowest daily mean	187	Jul 23	88	Aug 2	21	Oct 12, 1963
Annual seven-day minimum	199	Jul 20	92	Aug 2	52	Oct 10, 1963
Maximum peak flow			2,070	Dec 6	[a]3,590	Sep 16, 2008
Maximum peak stage			5.77	Dec 6	8.19	Jun 28, 1968
Instantaneous low flow			78	Aug 25	14	Dec 20, 1962[b]
Annual runoff (cfsm)	1.29		0.963		0.760	
Annual runoff (inches)	17.50		13.11		10.33	
10 percent exceeds	1,590		1,310		1,070	
50 percent exceeds	704		588		361	
90 percent exceeds	269		110		127	

[a] Gage height 8.17 ft.
[b] Also occurred Oct. 14, 1966.