Water-Data Report 2012

05336700 KETTLE RIVER BELOW SANDSTONE, MN

St. Croix Basin
Kettle Subbasin

LOCATION.--Lat 46°06′20″, long 92°51′50″ referenced to North American Datum of 1927, in NW ¼ SW ¼ sec.22, T.42 N., R.20 W., Pine County, MN, Hydrologic Unit 07030003, on Sandstone Federal Correctional Institution property, on left bank, about 1.8 mi south of Sandstone.

DRAINAGE AREA.--868 mi^2.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1967 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 931.50 ft above sea level (NGVD of 1929, Minnesota Department of Transportation benchmark).

REMARKS.--Records good except those for estimated daily discharge, which are poor. Regulation from hydropower dam from 1908 to 1963.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in April 1965 reached a stage of 12.96 ft, from floodmarks, discharge, 13,400 ft^3/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,200 ft^3/s and (or) maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
May 29	1500	10,600	12.02
Jun 22	0745	*24,800	*18.22

Minimum discharge, 117 ft^3/s, Sept. 19, gage height, 4.01 ft

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 05336700, accessed at http://wdr.water.usgs.gov/wy2012/pdfs/05336700.2012.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	155	214	e230	176	e130	e140	607	851	6,290	1,710	415	166
2	156	211	e190	e166	e128	144	593	1,080	4,780	1,440	390	162
3	157	211	e203	e172	e130	142	589	1,150	3,660	1,670	359	159
4	156	209	e205	e177	e132	e136	587	1,120	2,860	2,540	399	158
5	162	203	e206	e179	e134	e141	567	1,060	2,250	2,680	476	154
6	158	206	e200	e172	e138	e145	521	1,330	1,840	2,520	452	146
7	159	205	e190	160	e139	155	491	1,670	1,530	2,850	401	146
8	163	206	e187	e142	e139	e142	475	1,570	1,330	2,440	377	145
9	171	208	e186	159	e140	e133	455	1,460	1,230	1,900	370	146
10	183	206	e184	168	e140	159	427	1,340	1,090	1,540	347	141
11	186	206	e183	166	e137	162	401	1,180	1,210	1,290	320	146
12	189	205	e184	e159	e135	278	382	1,020	1,430	1,100	296	140
13	219	208	e185	e151	e132	713	365	888	1,230	945	275	135
14	244	208	e190	e148	e128	781	360	753	1,110	879	261	131
15	232	205	e189	e144	e127	851	393	651	1,630	768	248	128
16	218	211	e185	e144	e126	753	1,070	566	1,610	688	248	128
17	230	210	e182	e142	e126	742	2,170	499	1,520	640	242	125
18	216	206	e190	e140	e125	741	2,230	450	1,850	608	245	123
19	204	e199	195	e135	e127	746	2,620	418	2,780	574	248	124
20	197	e179	e181	e129	140	853	2,550	553	5,470	536	238	127
21	195	e170	e176	e125	138	961	2,260	976	18,600	492	226	134
22	198	222	e175	e124	137	1,020	2,100	966	22,700	450	210	143
23	200	213	e172	e123	135	993	2,000	900	16,600	410	203	145
24	204	217	e171	e125	137	951	1,800	2,360	11,400	377	205	145
25	208	222	189	e125	e126	893	1,580	5,760	7,620	435	206	145
26	213	235	190	e126	e130	818	1,410	6,760	5,420	584	205	144
27	218	247	184	e128	e130	753	1,260	6,230	4,150	635	197	138
28	219	252	e166	e130	135	701	1,110	8,680	3,310	637	192	136
29	220	241	185	e129	e153	665	993	10,300	2,640	555	188	136
30	215	221	e165	e129	---	631	890	9,710	2,080	495	183	139
31	213	---	175	e130	---	624	---	8,110	---	447	172	---
Total	6,058	6,356	5,793	4,523	3,874	17,067	33,256	80,361	141,220	34,835	8,794	4,235
Mean	195	212	187	146	134	551	1,109	2,592	4,707	1,124	284	141
Max	244	252	230	179	153	1,020	2,620	10,300	22,700	2,850	476	166
Min	155	170	165	123	125	133	360	418	1,090	377	172	123
Ac-ft	12,020	12,610	11,490	8,970	7,680	33,850	65,960	159,400	280,100	69,100	17,440	8,400
Cfsm	0.23	0.24	0.22	0.17	0.15	0.63	1.28	2.99	5.42	1.29	0.33	0.16
In.	0.26	0.27	0.25	0.19	0.17	0.73	1.43	3.44	6.05	1.49	0.38	0.18

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 2012, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	680	562	267	178	177	554	2,269	1,252	953	632	416	463
Max	2,652	2,414	652	411	447	1,742	6,459	3,168	4,707	2,869	2,094	3,065
(WY)	(1969)	(1972)	(1984)	(1984)	(1998)	(1973)	(2001)	(1986)	(2012)	(1972)	(1972)	(1986)
Min	80.6	85.8	98.3	77.3	71.2	141	435	222	131	90.9	68.1	71.3
(WY)	(1977)	(1977)	(1977)	(1971)	(2007)	(1980)	(1977)	(1980)	(1988)	(2007)	(2007)	(1976)

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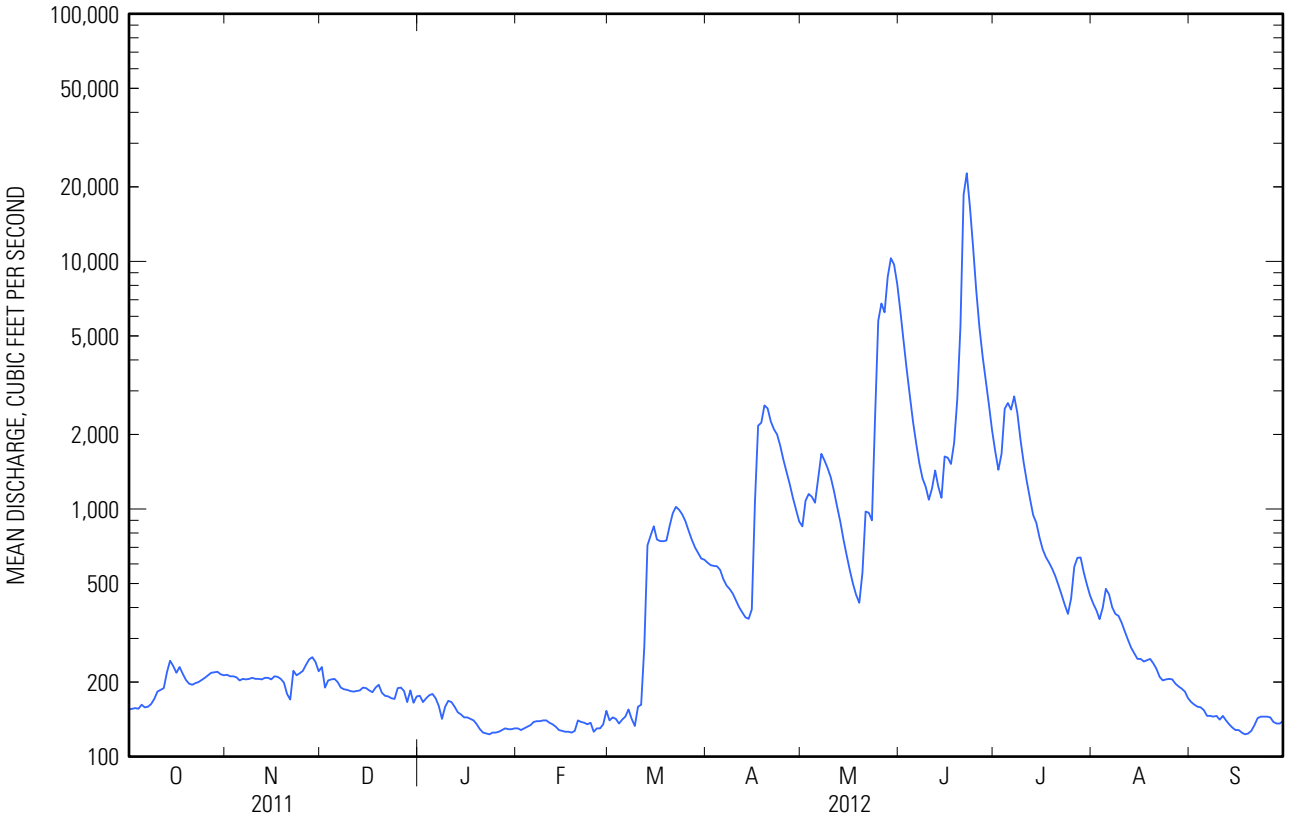
SUMMARY STATISTICS

	Calendar Year 2011		Water Year 2012		Water Years 1968 - 2012	
Annual total	295,604		346,372			
Annual mean	810		946		700	
Highest annual mean					1,390	1972
Lowest annual mean					254	1977
Highest daily mean	5,300	Apr 9	22,700	Jun 22	22,700	Jun 22, 2012
Lowest daily mean	155	Sep 30	[a]123	Jan 23	43	Nov 12, 1976
Annual seven-day minimum	157	Sep 30	125	Jan 21	62	Jan 14, 1971
Maximum peak flow			24,800	Jun 22	24,800	Jun 22, 2012
Maximum peak stage			18.22	Jun 22	18.22	Jun 22, 2012
Instantaneous low flow			117	Sep 19	[b]25	Nov 11, 1977
Annual runoff (ac-ft)	586,300		687,000		507,300	
Annual runoff (cfsm)	0.933		1.09		0.807	
Annual runoff (inches)	12.67		14.84		10.96	
10 percent exceeds	2,150		2,020		1,690	
50 percent exceeds	309		214		290	
90 percent exceeds	183		135		125	

[a] Also occurred Sept. 18.
[b] Result of freezeup.