

Water-Data Report 2013

05481000 Boone River near Webster City, IA

Des Moines Basin
Boone Subbasin

LOCATION.--Lat 42°25'57", long 93°48'20" referenced to North American Datum of 1927, in SW ¼ NW ¼ SE ¼ sec.18, T.88 N., R.25 W., Hamilton County, IA, Hydrologic Unit 07100005, on left bank 50 ft upstream from bridge on State Highway 17, 2.5 mi south of Webster City, 3.2 mi downstream from Brewers Creek, and 21.2 mi upstream from mouth.

DRAINAGE AREA.--844 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--Discharge records from March 1940 to current year.

REVISED RECORDS.--WSP 1438: Drainage area. WSP 1308: 1940 (M). WSP 1708: 1956.

GAGE.--Water-stage recorder. Datum of gage is 989.57 ft above National Geodetic Vertical Datum of 1929. Prior to June 26, 1940, non-recording gage at same site and datum.

REMARKS.--Records good except for estimated daily discharges, which are poor. U.S. Geological Survey data collection platform with satellite telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Since at least 1896, no flood outside the period of record exceeded the June 10, 1918, stage of about 19.1 ft, from high-water mark, from information by local resident, discharge 21,500 ft³/s. Flood of June 18, 1932, reached a stage of 16.0 ft, discharge 15,000 ft³/s.

05481000 Boone River near Webster City, IA—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	4.5	14	12	e2.2	e7.0	e14	727	500	5,650	795	85	19
2	4.8	13	11	e6.7	e13	e13	435	763	4,380	684	78	16
3	8.5	13	9.8	e10	e16	e14	275	1,300	3,510	606	72	15
4	5.5	12	e8.6	e4.2	e8.3	e13	210	2,050	2,760	544	70	14
5	4.7	12	e8.3	e5.0	e8.0	e12	169	3,520	2,250	487	69	15
6	4.7	13	9.3	e6.9	e12	e12	150	3,990	2,020	434	66	14
7	4.8	12	8.6	e8.3	e13	e16	134	3,580	1,970	384	61	13
8	4.4	14	e8.4	e6.1	e11	e25	122	3,170	1,790	345	58	12
9	4.5	14	e8.2	e7.3	e8.8	e584	263	2,730	1,570	475	55	12
10	4.1	13	e7.0	e7.8	e20	e1,400	752	2,200	1,500	347	51	11
11	9.3	15	e7.7	e10	e21	e912	1,040	1,810	1,660	283	48	11
12	8.8	12	e8.1	e7.4	e21	e618	1,030	1,510	1,980	246	49	11
13	12	11	9.3	e3.7	e25	e489	822	1,310	2,380	214	54	11
14	30	12	9.6	e4.7	e30	490	740	1,180	1,800	195	53	11
15	18	11	16	e5.4	e24	437	1,060	1,070	1,520	175	54	9.8
16	23	11	15	e6.8	e22	761	893	985	1,580	162	47	10
17	23	11	15	e5.0	e29	832	706	1,310	1,890	145	40	11
18	18	10	17	e8.8	e22	879	1,320	1,420	1,720	132	34	30
19	17	9.5	18	e7.8	e16	557	1,790	1,270	1,380	122	31	21
20	13	9.2	e12	e6.2	e15	457	1,450	2,830	1,090	110	30	17
21	15	10	e7.4	e2.1	e19	331	1,070	2,940	900	101	27	15
22	18	9.8	e8.4	e5.0	e16	277	844	2,310	784	97	26	16
23	19	11	e12	e7.9	e15	265	808	1,920	727	99	25	12
24	18	9.9	e6.7	e6.8	e17	295	895	1,620	1,790	95	25	11
25	44	10	e3.3	e7.0	e20	267	874	2,240	3,960	87	32	13
26	27	11	e4.2	e7.0	e17	274	726	4,170	3,080	79	40	12
27	27	9.0	e5.7	e20	e15	457	600	8,000	2,100	97	35	12
28	26	8.6	e10	e19	e16	1,120	516	12,000	1,520	121	30	11
29	21	11	e7.7	e17	---	1,770	477	12,400	1,160	110	26	10
30	19	12	e6.9	e14	---	1,470	508	10,200	944	97	23	8.0
31	17	---	e4.5	e9.5	---	1,090	---	7,440	---	92	20	---
Total	473.6	344.0	295.7	245.6	477.1	16,151	21,406	103,738	61,365	7,960	1,414	403.8
Mean	15.3	11.5	9.54	7.92	17.0	521	714	3,346	2,046	257	45.6	13.5
Max	44	15	18	20	30	1,770	1,790	12,400	5,650	795	85	30
Min	4.1	8.6	3.3	2.1	7.0	12	122	500	727	79	20	8.0
Med	17	11	8.6	7.0	16	457	734	2,200	1,790	162	47	12
Ac-ft	939	682	587	487	946	32,040	42,460	205,800	121,700	15,790	2,800	801
Cfsm	0.02	0.01	0.01	0.01	0.02	0.62	0.85	3.96	2.42	0.30	0.05	0.02
In.	0.02	0.02	0.01	0.01	0.02	0.71	0.94	4.57	2.70	0.35	0.06	0.02

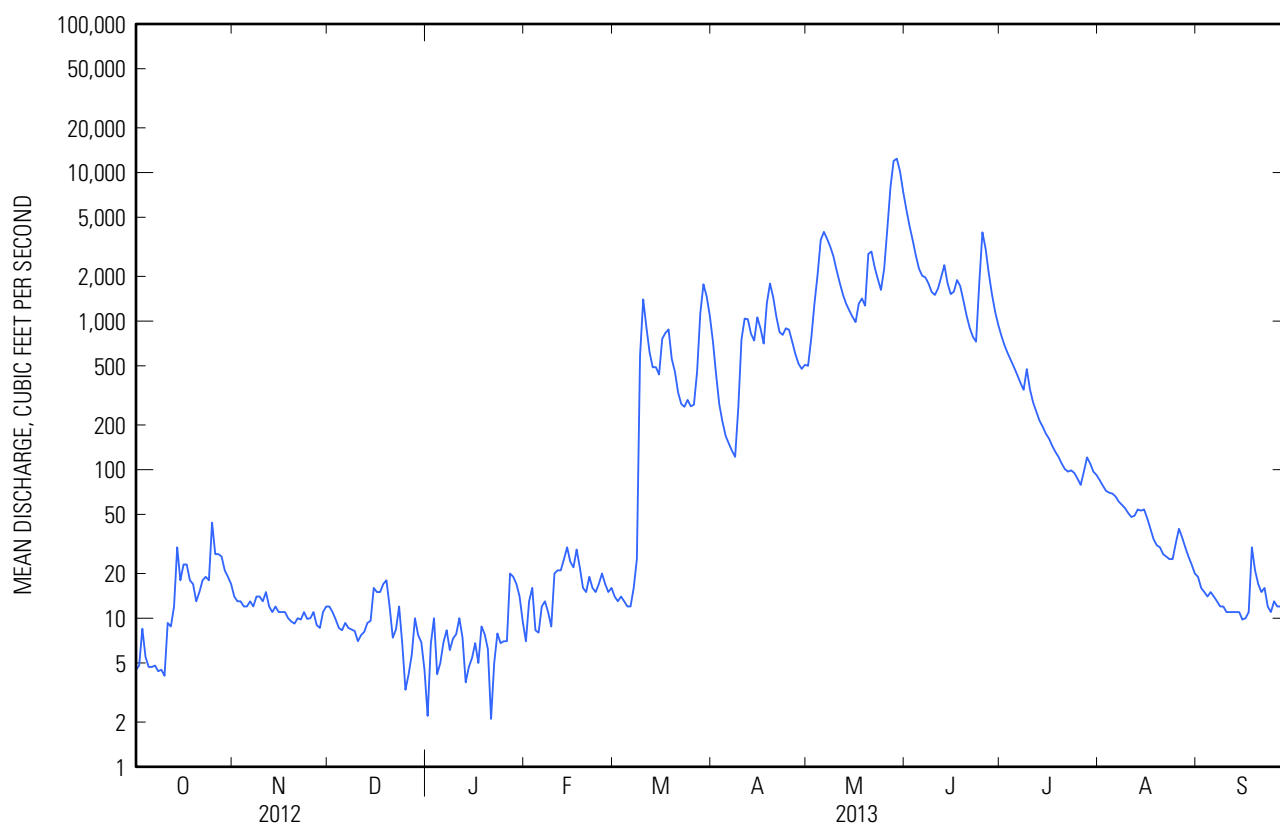
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2013, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	250	220	143	103	248	821	966	975	1,207	615	274	196
Max	1,771	1,395	1,181	568	1,847	3,920	4,307	4,315	6,041	4,715	2,942	2,501
(WY)	(1987)	(1993)	(1983)	(1983)	(1984)	(2010)	(1965)	(1991)	(2008)	(1993)	(1993)	(1965)
Min	6.66	11.0	4.62	0.32	3.60	32.5	33.7	46.0	14.1	8.66	9.61	6.48
(WY)	(1950)	(1950)	(1977)	(1977)	(1950)	(1968)	(1957)	(1968)	(1977)	(1977)	(2012)	(1976)

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SUMMARY STATISTICS

	Calendar Year 2012		Water Year 2013		Water Years 1941 - 2013	
Annual total	29,536.5		214,273.8			
Annual mean	80.7		587		502	
Highest annual mean					1,861	1993
Lowest annual mean					36.1	1956
Highest daily mean	1,850	May 3	12,400	May 29	19,600	Jun 10, 2008
Lowest daily mean	3.0	Jan 21	2.1	Jan 21	0.00	Feb 7, 1977
Annual seven-day minimum	4.4	Aug 29	4.7	Oct 4	0.01	Feb 1, 1977
Maximum peak flow			12,800	May 29	20,700	Jun 28, 2010
Maximum peak stage			13.67	May 29	18.55	Jun 22, 1954
Instantaneous low flow					0.00	Feb 7, 1977
Annual runoff (ac-ft)	58,590		425,000		363,400	
Annual runoff (cfsm)	0.096		0.696		0.594	
Annual runoff (inches)	1.30		9.44		8.08	
10 percent exceeds	182		1,780		1,300	
50 percent exceeds	19		25		145	
90 percent exceeds	6.2		7.4		17	



05481000 Boone River near Webster City, IA—Continued**WATER-QUALITY RECORDS**

PERIOD OF RECORD.--Water years 2012.

PERIOD OF DAILY RECORD.--

NITRATE + NITRITE: March 2012 to current year, records fragmentary.

WATER TEMPERATURE: November 2011 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum daily mean, 30.4°C, July 6, 2012; minimum daily mean, -0.2°C, many days during winter periods.

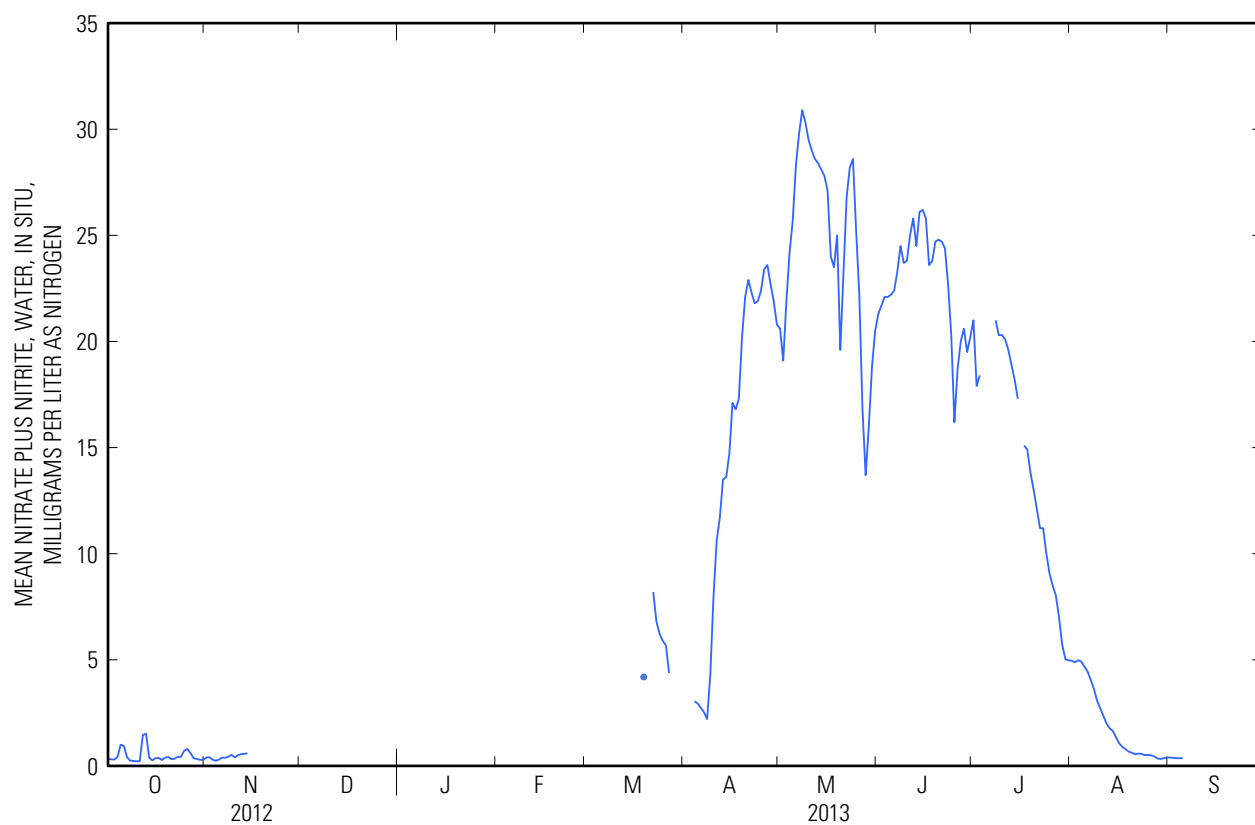
EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum daily mean, 28.5°C, August 28, 2013; minimum daily mean, -0.2°C, many days during the winter period.

NITRATE PLUS NITRITE, WATER, IN SITU, MILLIGRAMS PER LITER AS NITROGEN
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013
DAILY MEAN VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	0.34	0.39	---	---	---	---	---	20.6	21.3	21.0	4.96	0.40
2	0.31	0.41	---	---	---	---	---	19.1	21.7	17.9	4.88	0.38
3	0.30	0.30	---	---	---	---	---	21.9	22.1	18.4	4.98	0.37
4	0.42	0.24	---	---	---	---	3.05	24.2	22.1	---	4.92	0.36
5	1.00	0.30	---	---	---	---	2.94	25.7	22.2	---	4.68	0.37
6	0.94	0.39	---	---	---	---	2.74	28.3	22.4	---	4.45	---
7	0.41	0.38	---	---	---	---	2.53	29.8	23.3	---	4.05	---
8	0.25	0.44	---	---	---	---	2.21	30.9	24.5	21.0	3.63	---
9	0.23	0.52	---	---	---	---	4.31	30.3	23.7	20.3	3.08	---
10	0.22	0.40	---	---	---	---	7.97	29.5	23.8	20.3	2.71	---
11	0.22	0.50	---	---	---	---	10.6	29.0	25.0	20.1	2.35	---
12	1.46	0.56	---	---	---	---	11.7	28.6	25.8	19.6	1.99	---
13	1.52	0.57	---	---	---	---	13.5	28.4	24.5	18.9	1.77	---
14	0.39	0.59	---	---	---	---	13.6	28.1	26.1	18.2	1.64	---
15	0.26	---	---	---	---	---	14.7	27.8	26.2	17.3	1.34	---
16	0.37	---	---	---	---	---	17.1	27.1	25.8	---	1.06	---
17	0.37	---	---	---	---	---	16.8	24.0	23.6	15.1	0.89	---
18	0.28	---	---	---	---	---	17.3	23.5	23.8	14.9	0.79	---
19	0.39	---	---	---	---	4.19	20.2	25.0	24.7	13.8	0.67	---
20	0.42	---	---	---	---	---	22.1	19.6	24.8	13.0	0.62	---
21	0.32	---	---	---	---	---	22.9	23.2	24.7	12.1	0.55	---
22	0.34	---	---	---	---	8.20	22.3	26.8	24.4	11.2	0.58	---
23	0.43	---	---	---	---	6.80	21.8	28.2	22.7	11.2	0.57	---
24	0.42	---	---	---	---	6.22	21.9	28.6	20.3	10.0	0.51	---
25	0.71	---	---	---	---	5.89	22.4	25.2	16.2	9.07	0.52	---
26	0.80	---	---	---	---	5.68	23.4	22.2	18.7	8.50	0.50	---
27	0.61	---	---	---	---	4.37	23.6	16.8	20.0	8.03	0.45	---
28	0.36	---	---	---	---	---	22.7	13.7	20.6	7.00	0.35	---
29	0.33	---	---	---	---	---	21.9	16.0	19.5	5.71	0.33	---
30	0.29	---	---	---	---	---	20.8	18.8	20.2	5.03	0.36	---
31	0.28	---	---	---	---	---	---	20.5	---	4.97	0.39	---
Mean	0.48	---	---	---	---	---	---	24.6	22.8	---	1.95	---
Max	1.52	---	---	---	---	---	---	30.9	26.2	---	4.98	---
Min	0.22	---	---	---	---	---	---	13.7	16.2	---	0.33	---

05481000 Boone River near Webster City, IA—Continued



05481000 Boone River near Webster City, IA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013
DAILY MEAN VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	16.0	6.5	2.0	-0.1	---	-0.2	3.7	13.9	16.7	20.0	23.3	26.1
2	15.2	6.2	3.6	-0.1	---	-0.2	4.0	6.1	16.1	20.7	23.5	23.1
3	14.9	6.7	6.4	-0.1	---	-0.1	4.8	5.6	15.7	21.3	22.5	22.2
4	14.1	7.3	5.0	-0.1	---	-0.2	6.4	5.5	15.4	22.5	22.5	23.7
5	10.3	7.4	3.1	-0.1	---	-0.2	7.5	6.7	15.1	22.9	23.7	25.4
6	7.5	7.4	3.9	-0.1	---	-0.1	8.3	8.2	15.2	23.7	24.8	25.8
7	7.2	6.7	4.2	-0.1	---	-0.1	8.2	10.1	15.3	25.2	25.0	25.5
8	8.5	5.8	3.1	-0.1	---	-0.1	11.1	11.9	14.8	26.7	23.4	24.5
9	9.7	7.0	2.4	-0.1	---	-0.2	9.0	12.6	15.4	26.1	23.4	24.8
10	7.8	10.1	0.9	-0.1	---	-0.1	5.4	12.4	16.4	25.5	22.7	25.4
11	8.7	8.6	0.9	-0.1	---	-0.1	4.4	12.3	18.0	24.5	23.8	25.3
12	7.9	4.8	0.9	-0.1	---	-0.1	4.2	11.7	19.3	24.3	24.7	23.0
13	11.8	3.8	0.9	---	-0.2	-0.1	4.5	12.3	19.1	22.9	23.1	20.5
14	13.4	5.2	0.9	---	-0.2	-0.1	6.0	15.1	18.7	23.0	21.6	18.9
15	10.8	5.6	1.1	---	-0.2	0.4	5.8	17.1	18.1	24.8	22.0	18.8
16	11.9	5.0	1.9	---	-0.1	0.4	6.2	17.9	19.0	26.6	21.5	17.9
17	13.0	5.1	1.1	---	-0.1	0.4	6.8	18.7	19.3	27.7	22.0	16.5
18	9.5	6.4	1.2	---	-0.1	0.4	4.9	17.8	19.7	27.8	22.4	19.6
19	9.4	7.4	1.1	-0.2	-0.1	0.3	4.0	18.7	20.1	27.5	22.9	22.1
20	10.1	5.9	0.3	---	-0.1	0.2	4.5	17.0	20.8	26.2	25.0	18.8
21	10.0	6.5	0.2	---	-0.1	0.6	6.6	15.3	21.5	26.1	25.7	16.8
22	14.4	7.5	0.4	---	-0.2	0.9	8.0	13.9	22.5	25.9	26.1	17.9
23	15.8	3.0	0.4	---	-0.2	1.5	6.6	14.0	22.9	24.9	25.7	18.5
24	15.8	1.9	0.3	---	-0.2	0.9	6.6	14.8	21.3	23.5	25.0	17.8
25	11.1	2.1	0.2	---	-0.2	1.3	8.0	13.8	19.6	23.8	26.0	18.1
26	7.4	2.1	0.1	---	-0.2	1.7	10.3	11.8	20.9	23.4	27.1	19.6
27	7.3	1.6	0.0	---	-0.2	1.8	12.8	12.4	20.4	20.9	27.6	20.9
28	6.2	1.4	0.0	---	-0.2	2.0	14.3	14.1	20.5	20.2	28.5	19.0
29	6.4	1.3	0.0	-0.2	---	2.2	16.3	15.4	20.0	20.4	28.1	16.3
30	5.8	1.4	0.0	-0.2	---	3.7	17.2	16.2	19.5	21.0	28.3	17.2
31	5.7	---	0.0	---	---	4.4	---	16.8	---	22.2	27.5	---
Mean	10.4	5.3	1.5	---	---	0.7	7.5	13.2	18.6	23.9	24.5	21.0
Max	16.0	10.1	6.4	---	---	4.4	17.2	18.7	22.9	27.8	28.5	26.1
Min	5.7	1.3	0.0	---	---	-0.2	3.7	5.5	14.8	20.0	21.5	16.3