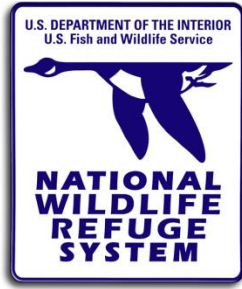


Water-Data Report 2013
413723083123801 Crane Creek Mouth at Ottawa NWR



Division of Biological Resources
Water Resources Branch

Water-Data Report 2013

413723083123801 Crane Creek Mouth at Ottawa NWR

LOCATION: Lat. 41°37'23"N, long 83°12'38"W, near Oak Harbor, OH. Ottawa County, OH, adjacent to management unit Pool 2B on Ottawa National Wildlife Refuge.

DRAINAGE AREA: 35,688 acres

SURFACE WATER RECORDS

PERIOD OF RECORD: June 2009 to present

GAGE SITE: Design Analysis 522+ in communication with Esterline pressure transducer and YSI water quality probe in a square metal gage house. GOES antenna in communication with DA 522+ DCP transmits every hour in a 10 second window at a baud rate of 300. Instruments are powered by a 1.2 ampere solar panel run to a deep cycle marine battery through a SunSaver power regulator. Solar panel, GPS and GOES antennas are attached to a mast connected to the gage house. Stage is collected at 15-minute intervals. Weekly gage height data available online, NWS Id is CRR01. Datum of the gage is the International Great Lakes Datum of 1985.

NATIONAL WILDLIFE REFUGE: Ottawa NWR

COOPERATION: USGS Great Lakes Science Center

REMARKS: Records coded fair for the 2013 calendar year.

EXTREMES FOR THE PERIOD OF RECORD: Maximum gage height, 574.17 ft, October 19, 2011; minimum gage height, 569.46 ft, October 28, 2010.

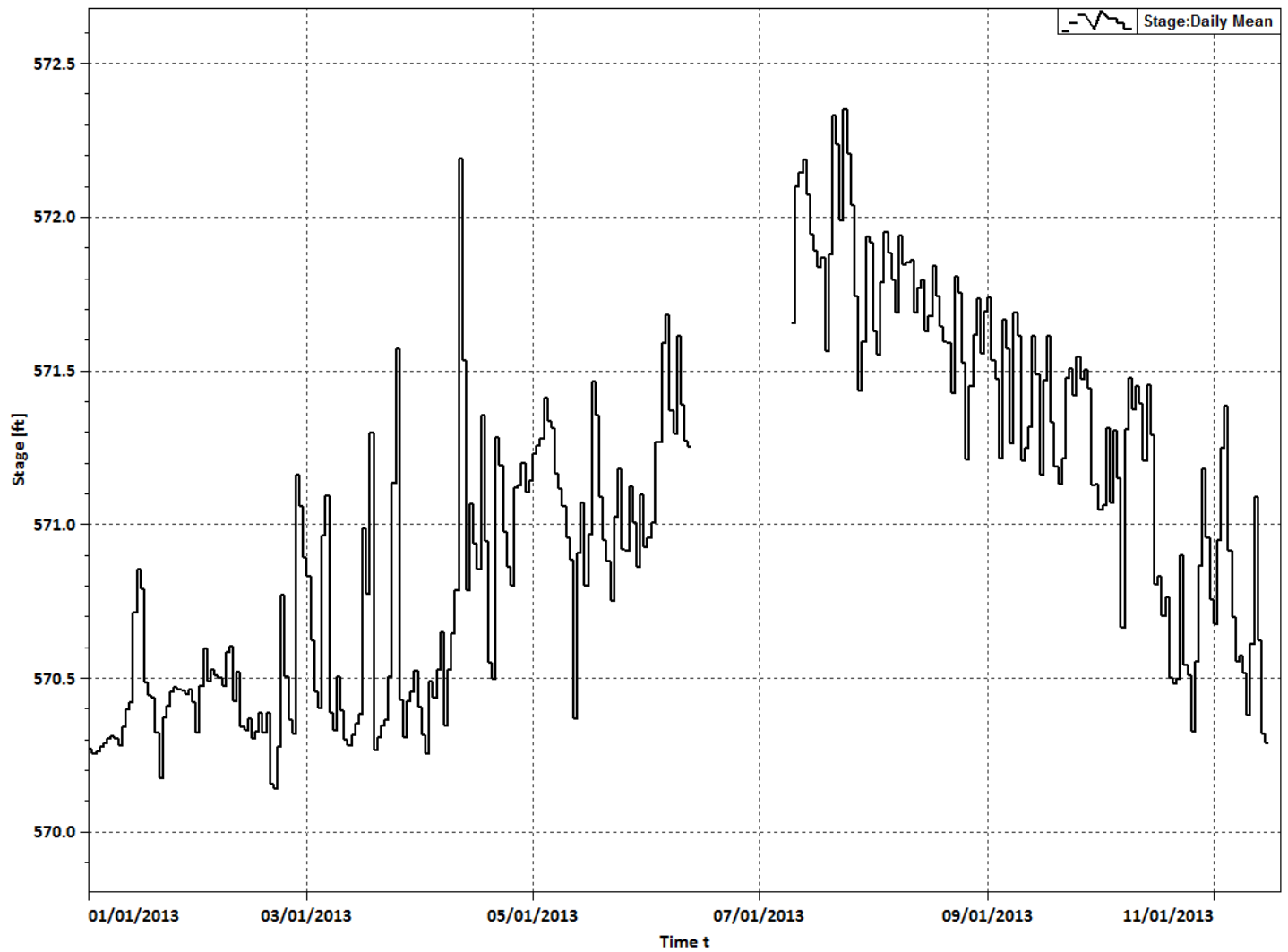
EXTREMES FOR CURRENT YEAR: Maximum gage height, 573.07 ft, April 11; minimum gage height, 570.04 ft, January 20.

Water-Data Report 2013
413723083123801 Crane Creek Mouth at Ottawa NWR

GAGE HEIGHT, FEET
CALENDAR YEAR 2013
DAILY MEAN VALUES

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	570.27	570.59	570.83	570.31	571.23	570.96	---	571.63	571.74	571.05	570.67	---
2	570.25	570.49	570.62	570.25	571.26	571.01	---	571.55	571.53	571.06	570.95	---
3	570.26	570.52	570.46	570.49	571.28	571.27	---	571.79	571.47	571.31	571.25	---
4	570.28	570.51	570.40	570.44	571.41	571.27	---	571.95	571.21	571.07	571.38	---
5	570.29	570.50	570.96	570.53	571.33	571.59	---	571.88	571.67	571.30	570.91	---
6	570.30	570.47	571.09	570.65	571.31	571.68	---	571.79	571.57	571.15	570.70	---
7	570.31	570.58	570.39	570.34	571.17	571.37	---	571.69	571.26	570.66	570.55	---
8	570.30	570.60	570.33	570.53	571.11	571.30	---	571.94	571.69	571.31	570.57	---
9	570.28	570.42	570.50	570.65	571.06	571.61	---	571.84	571.61	571.48	570.51	---
10	570.34	570.52	570.40	570.79	570.96	571.39	571.65	571.85	571.21	571.37	570.38	---
11	570.40	570.34	570.30	572.19	570.88	571.27	572.10	571.86	571.25	571.45	570.61	---
12	570.42	570.33	570.28	571.53	570.37	571.25	572.14	571.69	571.32	571.39	571.09	---
13	570.71	570.37	570.31	570.79	570.91	---	572.19	571.77	571.61	571.21	570.62	---
14	570.85	570.30	570.35	571.06	571.07	---	572.07	571.79	571.49	571.45	570.32	---
15	570.79	570.32	570.38	570.94	570.80	---	571.94	571.63	571.16	571.29	570.29	---
16	570.49	570.39	570.99	570.85	570.97	---	571.89	571.68	571.47	570.80	---	---
17	570.44	570.32	570.77	571.35	571.47	---	571.83	571.84	571.61	570.83	---	---
18	570.43	570.39	571.30	570.94	571.35	---	571.87	571.74	571.33	570.70	---	---
19	570.32	570.16	570.27	570.55	571.09	---	571.56	571.64	571.19	570.76	---	---
20	570.17	570.14	570.31	570.50	570.95	---	571.88	571.60	571.13	570.50	---	---
21	570.37	570.28	570.34	571.28	570.88	---	572.33	571.59	571.21	570.48	---	---
22	570.41	570.77	570.36	571.19	570.75	---	572.24	571.43	571.48	570.50	---	---
23	570.45	570.50	570.50	570.97	571.02	---	571.99	571.81	571.51	570.90	---	---
24	570.47	570.36	571.13	570.86	571.18	---	572.35	571.75	571.42	570.54	---	---
25	570.46	570.32	571.57	570.80	570.92	---	572.21	571.52	571.54	570.51	---	---
26	570.46	571.16	570.43	571.12	570.91	---	572.04	571.21	571.47	570.32	---	---
27	570.45	571.06	570.31	571.13	571.12	---	571.74	571.45	571.50	570.55	---	---
28	570.46	570.89	570.43	571.20	571.01	---	571.43	571.62	571.44	570.87	---	---
29	570.42		570.45	571.10	570.86	---	571.60	571.73	571.13	571.18	---	---
30	570.32		570.52	571.14	571.10	---	571.93	571.56	571.13	570.96	---	---
31	570.48		570.40		570.93		571.91	571.69		570.76		---
Mean	570.41	570.49	570.57	570.88	571.05	---	---	571.69	571.41	570.96	---	---
Max	570.85	571.16	571.57	572.19	571.47	---	---	571.95	571.74	571.48	---	---
Min	570.17	570.14	570.27	570.25	570.37	---	---	571.21	571.13	570.32	---	---

Water-Data Report 2013
413723083123801 Crane Creek Mouth at Ottawa NWR



Water-Data Report 2013
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WATER QUALITY RECORDS

PERIOD OF RECORD: June 2009 to present. Data collection is continuous throughout the open-water period.

SPECIFIC CONDUCTANCE: April - November 2013

WATER TEMPERATURE: April - November 2013

DISSOLVED OXYGEN: April - November 2013

pH: April - November 2013

TURBIDITY: April - November 2013

INSTRUMENTATION: Design Analysis 522+ in communication with YSI (Model 6920) water quality probe. Water quality data is collected at 30-minute intervals.

REMARKS: Despite regular cleaning and calibration of the water quality sonde , most sensors experienced excessive fouling during 2013.

SPECIFIC CONDUCTANCE: Record coded poor for the 2013 calendar year.

WATER TEMPERATURE: Record coded poor for the 2013 calendar year.

DISSOLVED OXYGEN: Record coded poor for the 2013 calendar year.

pH: Record coded poor for the 2013 calendar year.

TURBIDITY: Record considered erroneous and not published for the 2013 calendar year.

Water-Data Report 2013
413723083123801 Crane Creek Mouth at Ottawa NWR

SPECIFIC CONDUCTANCE [$\mu\text{S}/\text{cm}$]

Day	January			February			March			April			May			June		
	min	max	mean	min	max	mean	min	max	mean	min	max	mean	min	max	mean	min	max	mean
1	---	---	---	---	---	---	---	---	---	---	---	---	471.00	740.00	634.17	459.00	662.00	569.44
2	---	---	---	---	---	---	---	---	---	798.00	832.00	812.90	333.00	719.00	631.08	419.00	738.00	587.55
3	---	---	---	---	---	---	---	---	---	542.00	801.00	663.21	346.00	717.00	589.83	---	---	---
4	---	---	---	---	---	---	---	---	---	542.00	712.00	650.33	345.00	693.00	546.75	---	---	---
5	---	---	---	---	---	---	---	---	---	524.00	725.00	630.42	400.00	647.00	557.25	---	---	---
6	---	---	---	---	---	---	---	---	---	428.00	733.00	575.56	402.00	648.00	543.50	---	---	---
7	---	---	---	---	---	---	---	---	---	409.00	819.00	731.35	522.00	664.00	595.06	---	---	---
8	---	---	---	---	---	---	---	---	---	412.00	731.00	524.17	547.00	629.00	587.17	---	---	---
9	---	---	---	---	---	---	---	---	---	360.00	761.00	482.58	521.00	662.00	590.21	---	---	---
10	---	---	---	---	---	---	---	---	---	327.00	589.00	428.21	424.00	681.00	614.15	---	---	---
11	---	---	---	---	---	---	---	---	---	363.00	470.00	392.65	387.00	684.00	564.83	---	---	---
12	---	---	---	---	---	---	---	---	---	394.00	526.00	436.23	684.00	823.00	775.88	---	---	---
13	---	---	---	---	---	---	---	---	---	394.00	440.00	410.63	350.00	726.00	449.24	---	---	---
14	---	---	---	---	---	---	---	---	---	419.00	489.00	454.21	346.00	443.00	372.33	---	---	---
15	---	---	---	---	---	---	---	---	---	466.00	565.00	526.52	378.00	671.00	498.06	---	---	---
16	---	---	---	---	---	---	---	---	---	530.00	616.00	586.52	396.00	459.00	419.63	---	---	---
17	---	---	---	---	---	---	---	---	---	423.00	633.00	515.50	358.00	449.00	400.40	---	---	---
18	---	---	---	---	---	---	---	---	---	444.00	704.00	614.54	374.00	458.00	418.19	---	---	---
19	---	---	---	---	---	---	---	---	---	543.00	761.00	672.25	438.00	478.00	457.56	---	---	---
20	---	---	---	---	---	---	---	---	---	439.00	778.00	670.88	430.00	494.00	472.40	---	---	---
21	---	---	---	---	---	---	---	---	---	347.00	527.00	407.67	408.00	547.00	459.07	---	---	---
22	---	---	---	---	---	---	---	---	---	410.00	640.00	507.58	418.00	584.00	501.06	---	---	---
23	---	---	---	---	---	---	---	---	---	503.00	738.00	633.40	360.00	516.00	426.33	---	---	---
24	---	---	---	---	---	---	---	---	---	514.00	704.00	619.71	374.00	460.00	417.85	---	---	---
25	---	---	---	---	---	---	---	---	---	525.00	632.00	585.83	386.00	606.00	475.25	---	---	---
26	---	---	---	---	---	---	---	---	---	565.00	618.00	599.56	393.00	532.00	475.96	---	---	---
27	---	---	---	---	---	---	---	---	---	410.00	678.00	595.38	358.00	527.00	427.85	---	---	---
28	---	---	---	---	---	---	---	---	---	554.00	658.00	617.73	367.00	679.00	472.10	---	---	---
29	---	---	---	---	---	---	---	---	---	558.00	668.00	635.94	448.00	836.00	681.75	---	---	---
30	---	---	---	---	---	---	---	---	---	593.00	709.00	659.31	460.00	763.00	594.90	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---	462.00	754.00	654.08	---	---	---
Monthly Average	---	---	---	---	---	---	---	---	---	---	---	---	415.68	622.23	525.93	---	---	---

Water-Data Report 2013

413723083123801 Crane Creek Mouth at Ottawa NWR

SPECIFIC CONDUCTANCE [$\mu\text{S}/\text{cm}^1$]

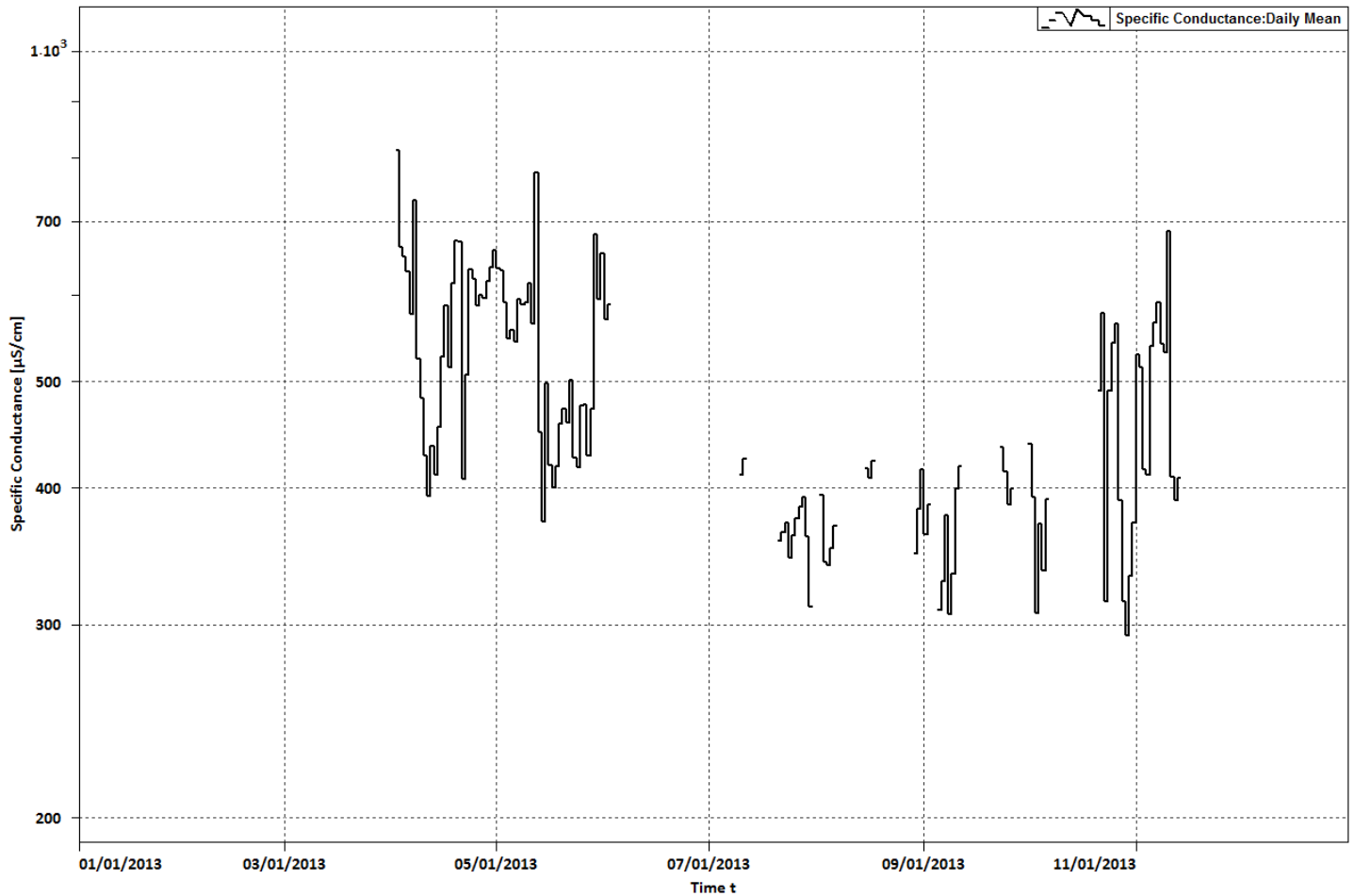
Day	July			August			September			October			November			December		
	min	max	mean	min	max	mean	min	max	mean	min	max	mean	min	max	mean	min	max	mean
1	---	---	---	---	---	---	334.00	450.00	362.27	383.00	497.00	438.97	282.00	693.00	529.52	---	---	---
2	---	---	---	335.00	477.00	393.61	352.00	428.00	385.92	268.00	502.00	391.90	282.00	586.00	514.79	---	---	---
3	---	---	---	306.00	479.00	342.52	---	---	---	262.00	385.00	307.23	282.00	556.00	415.27	---	---	---
4	---	---	---	310.00	403.00	339.60	---	---	---	301.00	430.00	370.79	283.00	562.00	411.25	---	---	---
5	---	---	---	336.00	382.00	352.54	292.00	339.00	309.76	295.00	390.00	335.77	302.00	625.00	538.13	---	---	---
6	---	---	---	366.00	374.00	369.50	293.00	362.00	328.77	---	---	390.00	300.00	656.00	565.38	---	---	---
7	---	---	---	---	---	---	287.00	446.00	377.56	---	---	---	383.00	659.00	590.38	---	---	---
8	---	---	---	---	---	---	277.00	377.00	306.58	---	---	---	291.00	689.00	541.19	---	---	---
9	---	---	---	---	---	---	302.00	372.00	334.00	---	---	---	340.00	677.00	531.65	---	---	---
10	389.00	424.00	411.24	---	---	---	340.00	429.00	399.38	---	---	---	373.00	731.00	685.73	---	---	---
11	423.00	428.00	425.33	---	---	---	401.00	436.00	418.31	---	---	---	280.00	569.00	409.58	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---	371.00	406.00	389.35	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---	399.00	436.00	407.92	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	377.00	442.00	416.61	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	361.00	446.00	408.42	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	420.00	426.00	423.00	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
21	324.00	399.00	357.69	---	---	---	---	---	---	422.00	614.00	490.81	---	---	---	---	---	---
22	346.00	388.00	364.13	---	---	---	---	---	---	349.00	664.00	577.06	---	---	---	---	---	---
23	312.00	405.00	371.75	---	---	---	422.00	445.00	435.95	279.00	396.00	315.08	---	---	---	---	---	---
24	312.00	376.00	345.46	---	---	---	318.00	435.00	414.19	396.00	567.00	490.17	---	---	---	---	---	---
25	347.00	377.00	362.02	---	---	---	304.00	444.00	385.73	413.00	589.00	542.71	---	---	---	---	---	---
26	360.00	399.00	374.81	---	---	---	365.00	429.00	399.28	484.00	592.00	564.19	---	---	---	---	---	---
27	331.00	445.00	384.40	---	---	---	---	---	---	305.00	558.00	389.48	---	---	---	---	---	---
28	337.00	450.00	392.23	---	---	---	---	---	---	276.00	363.00	315.21	---	---	---	---	---	---
29	302.00	414.00	360.71	318.00	399.00	348.47	---	---	---	279.00	314.00	293.15	---	---	---	---	---	---
30	293.00	340.00	311.68	324.00	465.00	382.60	---	---	---	306.00	356.00	332.21	---	---	---	---	---	---
31	---	---	---	311.00	526.00	415.63	---	---	---	305.00	438.00	371.31	---	---	---	---	---	---
Monthly Average	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Water-Data Report 2013
413723083123801 Crane Creek Mouth at Ottawa NWR

**SPECIFIC CONDUCTANCE
SUMMARY STATISTICS**

	Calendar Year 2013#	Period of Record (2009 - 2013)#
Minimum Daily Value [$\mu\text{S}/\text{cm}$]	293 (Oct 29)	10 (Sep 6, 2011)
Maximum Daily Value [$\mu\text{S}/\text{cm}$]	813 (Apr2)	1069 (Dec 6, 2009)
Median of Daily Mean [$\mu\text{S}/\text{cm}$]	477	410

#See Period of record; partial years used in monthly and annual statistics



Water-Data Report 2013
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WATER TEMPERATURE [°C]

Day	January			February			March			April			May			June		
	min	max	mean	min	max	mean	min	max	mean	min	max	mean	min	max	mean	min	max	mean
1	---	---	---	---	---	---	---	---	---	---	---	---	15.70	25.30	20.34	20.30	26.50	23.35
2	---	---	---	---	---	---	---	---	---	1.20	9.10	6.33	16.70	24.10	20.29	21.10	23.90	22.74
3	---	---	---	---	---	---	---	---	---	1.40	13.20	5.87	16.70	23.20	19.65	---	---	---
4	---	---	---	---	---	---	---	---	---	2.80	16.30	8.06	16.70	20.90	18.57	---	---	---
5	---	---	---	---	---	---	---	---	---	5.00	15.40	9.22	15.50	20.90	18.12	---	---	---
6	---	---	---	---	---	---	---	---	---	5.60	11.60	8.77	15.30	22.20	18.31	---	---	---
7	---	---	---	---	---	---	---	---	---	7.70	16.40	11.16	16.40	24.00	19.73	---	---	---
8	---	---	---	---	---	---	---	---	---	7.40	15.40	11.03	17.10	24.60	20.47	---	---	---
9	---	---	---	---	---	---	---	---	---	8.60	16.00	12.17	18.70	25.50	22.09	---	---	---
10	---	---	---	---	---	---	---	---	---	7.60	11.30	9.52	15.80	22.80	20.49	---	---	---
11	---	---	---	---	---	---	---	---	---	5.60	8.00	6.92	11.30	16.40	14.71	---	---	---
12	---	---	---	---	---	---	---	---	---	5.30	6.10	5.63	8.50	12.90	10.59	---	---	---
13	---	---	---	---	---	---	---	---	---	4.80	6.40	5.55	7.60	19.90	14.25	---	---	---
14	---	---	---	---	---	---	---	---	---	4.30	9.60	6.45	10.90	19.20	15.42	---	---	---
15	---	---	---	---	---	---	---	---	---	6.20	18.70	12.34	16.70	25.40	20.26	---	---	---
16	---	---	---	---	---	---	---	---	---	11.80	15.00	13.09	16.60	26.70	21.38	---	---	---
17	---	---	---	---	---	---	---	---	---	8.50	13.40	10.93	16.00	21.40	18.61	---	---	---
18	---	---	---	---	---	---	---	---	---	9.20	21.70	15.69	15.20	21.70	17.97	---	---	---
19	---	---	---	---	---	---	---	---	---	6.80	17.80	11.61	17.00	27.20	22.39	---	---	---
20	---	---	---	---	---	---	---	---	---	4.20	11.00	7.76	21.10	30.40	25.00	---	---	---
21	---	---	---	---	---	---	---	---	---	4.10	12.50	7.60	21.70	27.80	24.53	---	---	---
22	---	---	---	---	---	---	---	---	---	6.50	16.00	10.83	21.00	24.80	22.71	---	---	---
23	---	---	---	---	---	---	---	---	---	10.20	18.90	14.27	12.70	22.30	18.09	---	---	---
24	---	---	---	---	---	---	---	---	---	7.10	15.60	11.03	9.80	19.00	13.99	---	---	---
25	---	---	---	---	---	---	---	---	---	5.40	10.70	8.37	13.10	23.60	16.77	---	---	---
26	---	---	---	---	---	---	---	---	---	5.40	17.60	10.93	13.70	26.20	18.97	---	---	---
27	---	---	---	---	---	---	---	---	---	9.60	18.50	13.96	15.20	20.30	16.51	---	---	---
28	---	---	---	---	---	---	---	---	---	12.10	14.60	13.22	14.70	23.50	19.08	---	---	---
29	---	---	---	---	---	---	---	---	---	13.20	21.10	16.34	18.90	28.80	23.36	---	---	---
30	---	---	---	---	---	---	---	---	---	14.00	22.10	18.46	22.00	28.90	25.27	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---	21.50	27.00	24.76	---	---	---
Monthly Average	---	---	---	---	---	---	---	---	---	---	---	---	15.80	23.45	19.44	---	---	---

Water-Data Report 2013
413723083123801 Crane Creek Mouth at Ottawa NWR

WATER TEMPERATURE [°C]

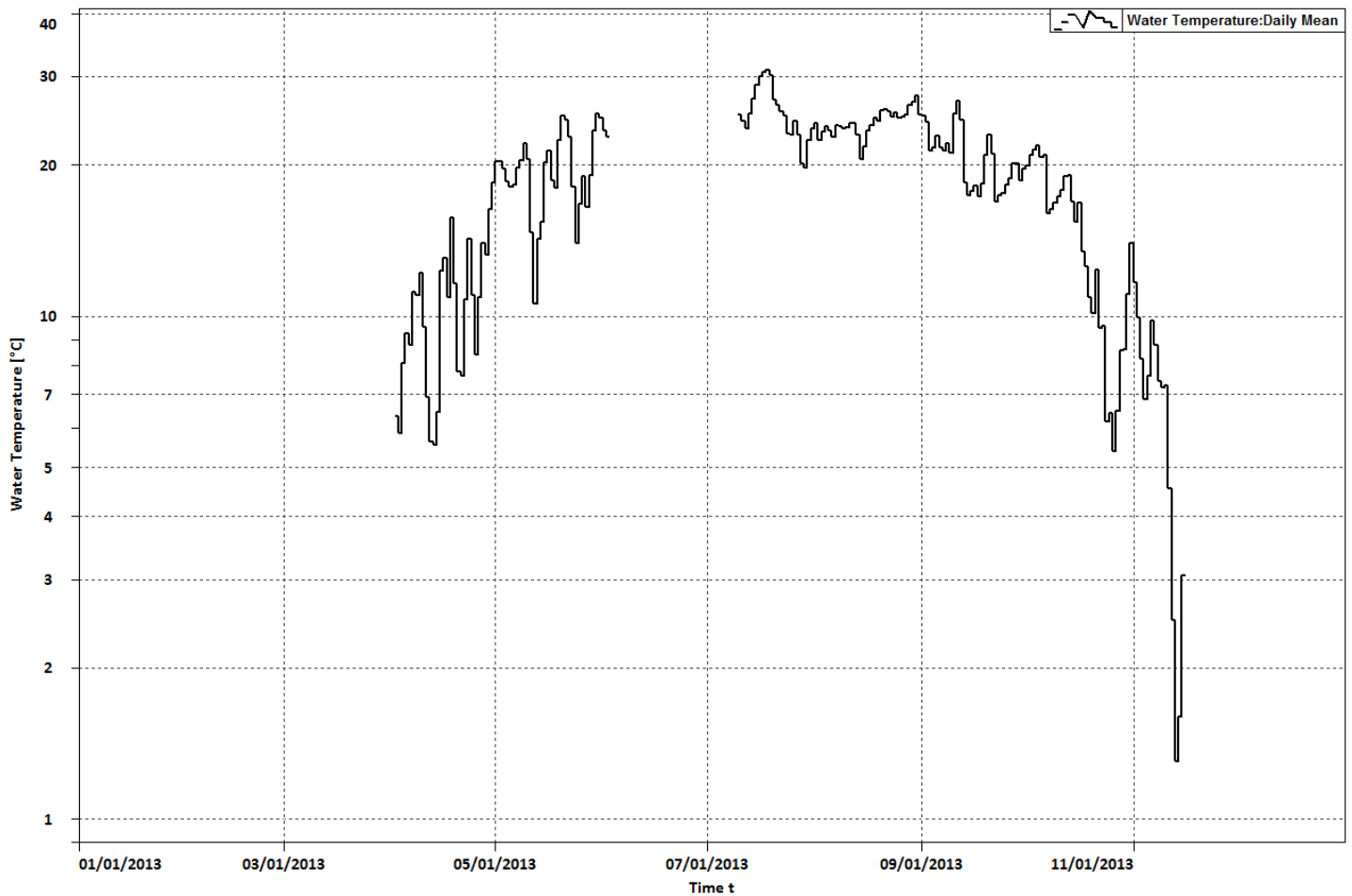
Day	July			August			September			October			November			December		
	min	max	mean	min	max	mean	min	max	mean	min	max	mean	min	max	mean	min	max	mean
1	---	---	---	22.28	26.02	24.22	23.57	26.69	25.01	16.58	24.39	19.95	9.77	14.74	11.65	---	---	---
2	---	---	---	21.32	24.71	22.41	22.98	25.83	24.37	17.52	26.04	20.94	8.84	11.55	9.94	---	---	---
3	---	---	---	20.72	27.24	23.26	18.98	23.17	21.34	19.63	24.13	21.44	6.00	10.00	8.22	---	---	---
4	---	---	---	21.43	27.14	23.89	18.37	24.85	21.68	19.74	23.88	21.86	5.37	8.08	6.84	---	---	---
5	---	---	---	22.29	24.82	23.46	21.64	24.95	22.88	20.25	21.34	20.69	5.99	9.53	7.61	---	---	---
6	---	---	---	21.39	24.42	22.69	19.10	24.39	21.61	18.57	22.58	20.90	8.28	11.81	9.81	---	---	---
7	---	---	---	22.26	26.56	23.94	17.95	25.67	21.31	13.42	18.57	16.03	6.05	11.20	8.76	---	---	---
8	---	---	---	22.43	25.21	23.88	20.89	22.64	22.08	12.46	19.66	16.30	5.50	9.64	7.44	---	---	---
9	---	---	---	21.93	26.40	23.64	19.59	23.51	21.11	15.05	19.34	16.80	5.29	9.52	7.23	---	---	---
10	22.98	26.97	25.23	22.39	25.68	23.76	21.83	29.41	25.27	14.44	19.60	17.29	4.94	8.97	7.28	---	---	---
11	22.11	27.65	24.49	21.88	26.80	24.18	23.64	30.22	26.78	14.88	20.17	17.80	3.00	5.41	4.55	---	---	---
12	21.05	26.41	23.61	23.41	25.54	24.21	20.83	26.85	24.63	16.79	22.16	19.02	0.03	4.94	2.49	---	---	---
13	23.02	27.52	25.26	20.36	24.28	22.97	15.77	20.83	18.40	17.05	21.22	19.06	0.28	2.72	1.30	---	---	---
14	24.71	30.02	27.11	17.52	24.07	20.57	14.36	21.19	17.37	15.65	18.31	16.89	0.03	3.45	1.60	---	---	---
15	26.71	31.28	28.81	18.89	25.87	21.78	15.89	20.10	17.75	13.84	16.95	15.42	2.76	3.45	3.06	---	---	---
16	28.53	31.37	30.07	19.85	27.16	23.35	16.25	20.13	18.15	15.80	18.48	16.81	---	---	---	---	---	---
17	28.35	33.39	30.64	21.74	26.37	23.99	15.19	20.10	17.27	11.57	16.59	13.43	---	---	---	---	---	---
18	29.10	33.07	30.83	22.71	28.44	24.81	16.29	20.69	18.38	10.12	14.87	12.58	---	---	---	---	---	---
19	28.00	32.35	30.18	22.39	27.76	24.41	18.08	24.01	20.97	9.94	12.13	10.89	---	---	---	---	---	---
20	24.96	29.55	26.99	23.05	29.66	25.61	20.54	26.07	22.98	7.32	14.16	10.17	---	---	---	---	---	---
21	24.81	28.12	26.31	23.65	28.58	25.74	18.73	23.57	21.06	10.71	14.57	12.35	---	---	---	---	---	---
22	24.51	26.94	25.59	23.17	27.61	25.60	14.63	18.73	16.92	7.97	11.38	9.47	---	---	---	---	---	---
23	23.05	28.54	25.07	22.23	27.93	24.87	15.36	19.62	17.38	7.10	12.82	9.55	---	---	---	---	---	---
24	21.07	24.61	23.09	23.08	27.52	25.41	15.07	19.98	17.53	5.27	8.06	6.16	---	---	---	---	---	---
25	20.62	26.29	22.94	21.89	28.03	24.83	15.40	20.45	18.23	5.03	8.17	6.43	---	---	---	---	---	---
26	22.25	26.41	24.43	21.35	27.92	24.97	16.50	21.91	18.78	4.66	6.37	5.40	---	---	---	---	---	---
27	21.30	24.44	22.90	23.24	28.17	25.20	17.63	22.95	20.17	3.85	9.72	6.47	---	---	---	---	---	---
28	19.00	21.30	20.14	24.68	28.09	26.26	17.45	23.51	20.16	6.44	10.98	8.54	---	---	---	---	---	---
29	17.71	22.11	19.77	24.36	29.88	26.67	17.70	20.60	18.62	6.53	11.08	8.58	---	---	---	---	---	---
30	19.65	25.26	22.43	25.25	30.02	27.41	17.58	22.88	19.63	7.79	14.49	11.07	---	---	---	---	---	---
31	22.41	25.07	23.67	23.17	27.76	25.12				13.00	14.84	14.00				---	---	---
Monthly Average	---	---	---	22.14	26.96	24.29	18.26	23.18	20.59	12.22	16.68	14.27	---	---	---	---	---	---

Water-Data Report 2013
413723083123801 Crane Creek Mouth at Ottawa NWR

**WATER TEMPERATURE
SUMMARY STATISTICS**

	Calendar Year 2013#	Period of Record (2009 - 2013)#
Minimum Daily Value [°C]	1.3 (Nov 13)	0.1 (Dec 8, 2009)
Maximum Daily Value [°C]	30.8 (Jul 18)	36.2 (Jul 7, 2012)
Median of Daily Mean [°C]	17.9	19.2

#See Period of record; partial years used in monthly and annual statistics



413723083123801 Crane Creek Mouth at Ottawa NWR

DISSOLVED OXYGEN [mg/L]

[illegible]

Water-Data Report 2013

413723083123801 Crane Creek Mouth at Ottawa NWR

DISSOLVED OXYGEN [mg/L]

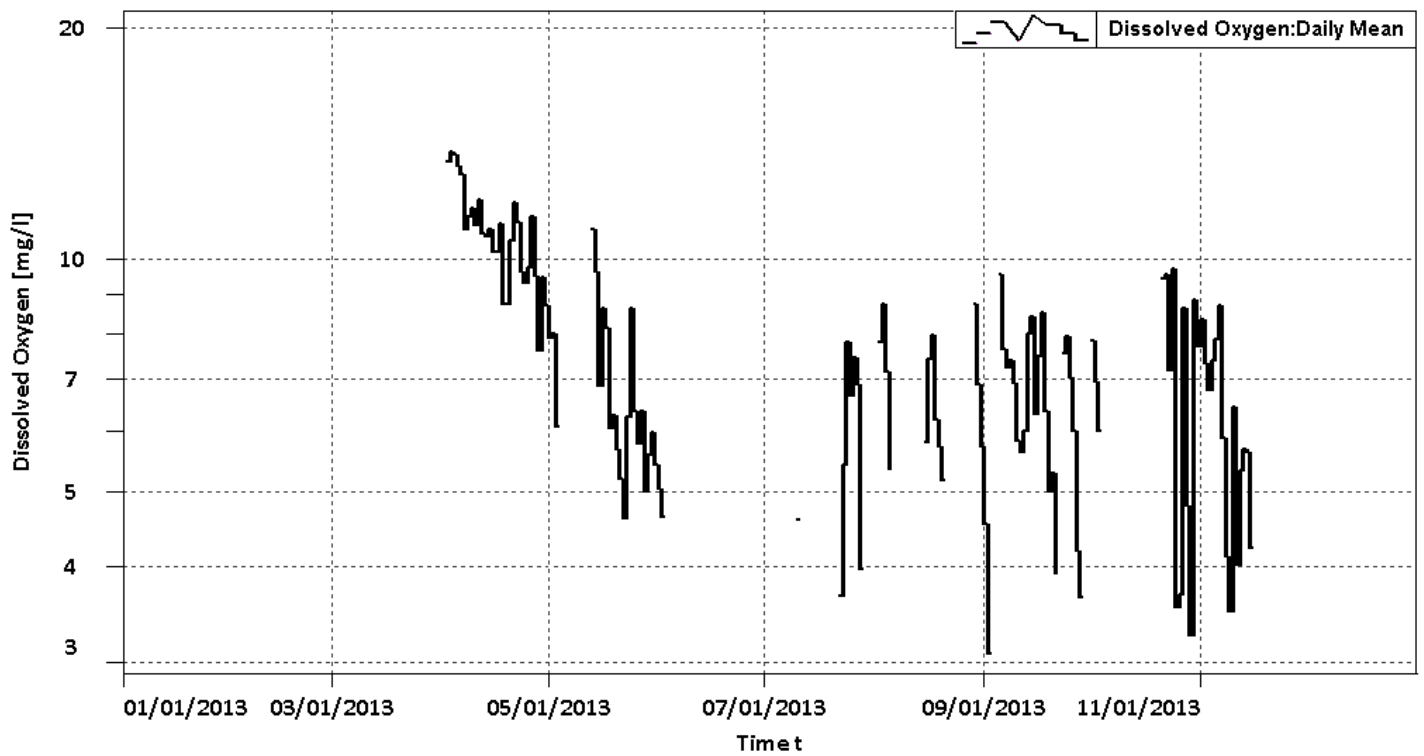
Day	July			August			September			October			November			December		
	min	max	mean	min	max	mean	min	max	mean	min	max	mean	min	max	mean	min	max	mean
1	---	---	---	---	---	---	4.00	5.74	4.54	5.21	9.91	7.83	6.52	9.36	8.36	---	---	---
2	---	---	---	6.41	9.25	7.83	3.07	3.08	3.08	3.27	9.41	6.94	5.48	9.93	7.34	---	---	---
3	---	---	---	7.43	9.89	8.76	---	---	---	3.07	8.02	6.00	3.41	9.95	6.76	---	---	---
4	---	---	---	3.11	9.99	7.14	---	---	---	---	---	---	3.55	9.97	7.39	---	---	---
5	---	---	---	4.43	6.11	5.34	---	---	9.58	---	---	---	5.48	9.57	7.87	---	---	---
6	---	---	---	---	---	---	4.12	9.96	7.66	---	---	---	6.77	9.97	8.71	---	---	---
7	---	---	---	---	---	---	3.88	9.94	7.25	---	---	---	3.13	8.94	5.87	---	---	---
8	---	---	---	---	---	---	5.61	9.97	7.40	---	---	---	3.02	4.55	4.12	---	---	---
9	---	---	---	---	---	---	3.20	9.51	6.91	---	---	---	3.02	4.08	3.49	---	---	---
10	3.57	5.63	4.60	---	---	---	3.12	9.73	5.81	---	---	---	3.17	3.59	6.42	---	---	---
11	---	---	---	---	---	---	3.13	9.97	5.62	---	---	---	3.11	4.87	4.01	---	---	---
12	---	---	---	---	---	---	3.27	9.12	5.99	---	---	---	4.47	6.62	5.32	---	---	---
13	---	---	---	---	---	---	5.60	9.96	8.02	---	---	---	4.55	6.83	5.66	---	---	---
14	---	---	---	---	---	---	6.17	9.99	8.42	---	---	---	3.92	6.30	5.62	---	---	---
15	---	---	---	3.16	9.86	5.80	3.01	9.99	6.31	---	---	---	3.61	5.08	4.22	---	---	---
16	---	---	---	3.05	9.89	7.41	4.32	9.76	7.50	---	---	---	---	---	---	---	---	---
17	---	---	---	3.44	9.75	7.98	5.48	9.86	8.55	---	---	---	---	---	---	---	---	---
18	---	---	---	3.26	7.99	6.20	3.63	9.66	6.34	---	---	---	---	---	---	---	---	---
19	---	---	---	3.02	8.31	5.73	3.19	7.48	4.99	---	---	---	---	---	---	---	---	---
20	---	---	---	3.06	8.86	5.17	3.29	8.21	5.29	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	3.22	5.18	3.92	8.41	9.93	9.46	---	---	---	---	---	---
22	3.04	5.15	3.66	---	---	---	---	---	---	8.95	9.99	9.58	---	---	---	---	---	---
23	3.01	8.19	5.42	---	---	---	5.93	8.48	7.56	3.04	9.67	7.17	---	---	---	---	---	---
24	6.05	9.08	7.82	---	---	---	6.48	9.91	7.94	9.56	9.67	9.72	---	---	---	---	---	---
25	3.43	9.83	6.67	---	---	---	5.05	9.72	7.02	3.11	3.89	3.54	---	---	---	---	---	---
26	4.93	9.98	7.44	---	---	---	3.01	7.50	5.98	3.02	3.73	3.68	---	---	---	---	---	---
27	3.71	9.56	6.89	---	---	---	3.11	5.48	4.18	3.16	9.99	8.66	---	---	---	---	---	---
28	3.10	4.50	3.96	---	---	---	3.07	4.21	3.65	3.10	9.54	4.79	---	---	---	---	---	---
29	---	---	---	7.43	9.60	8.74	---	---	---	3.05	3.54	3.26	---	---	---	---	---	---
30	---	---	---	5.28	9.12	6.87	---	---	---	6.28	9.95	8.88	---	---	---	---	---	---
31	---	---	---	3.03	9.20	5.72				4.95	9.84	7.72				---	---	---
Monthly Average	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Water-Data Report 2013
413723083123801 Crane Creek Mouth at Ottawa NWR

**DISSOLVED OXYGEN
SUMMARY STATISTICS**

	Calendar Year 2013#	Period of Record (2009 - 2013)#
Minimum Daily Value [mg/L]	3.08 (Sep 2)	0.05 (Jul 24, 2010)
Maximum Daily Value [mg/L]	13.82 (Apr 3)	19.58 (Jun 25, 2010)
Median of Daily Mean [mg/L]	7.48	7.61

#See Period of record; partial years used in monthly and annual statistics



Water-Data Report 2013
413723083123801 Crane Creek Mouth at Ottawa NWR

pH

Day	January			February			March			April			May			June		
	min	max	mean	min	max	mean	min	max	mean	min	max	mean	min	max	mean	min	max	mean
1	---	---	---	---	---	---	---	---	---	---	---	---	7.74	8.52	8.00	7.34	8.20	7.60
2	---	---	---	---	---	---	---	---	---	8.37	8.69	8.60	7.71	8.51	8.12	7.35	7.71	7.50
3	---	---	---	---	---	---	---	---	---	8.43	8.79	8.59	7.86	8.62	8.23	---	---	---
4	---	---	---	---	---	---	---	---	---	8.48	8.98	8.66	7.81	8.68	8.26	---	---	---
5	---	---	---	---	---	---	---	---	---	8.49	9.01	8.69	7.76	8.55	8.17	---	---	---
6	---	---	---	---	---	---	---	---	---	8.60	9.17	8.79	7.70	8.49	8.03	---	---	---
7	---	---	---	---	---	---	---	---	---	8.43	8.88	8.55	7.42	8.36	7.76	---	---	---
8	---	---	---	---	---	---	---	---	---	8.30	8.93	8.58	7.33	7.92	7.55	---	---	---
9	---	---	---	---	---	---	---	---	---	8.28	9.14	8.72	7.28	7.70	7.38	---	---	---
10	---	---	---	---	---	---	---	---	---	8.36	8.79	8.59	7.29	7.88	7.43	---	---	---
11	---	---	---	---	---	---	---	---	---	8.22	8.49	8.44	7.32	7.69	7.44	---	---	---
12	---	---	---	---	---	---	---	---	---	7.89	8.22	7.96	7.47	7.70	7.53	---	---	---
13	---	---	---	---	---	---	---	---	---	7.85	8.00	7.92	7.51	8.54	8.07	---	---	---
14	---	---	---	---	---	---	---	---	---	7.83	8.42	8.04	7.52	8.51	8.07	---	---	---
15	---	---	---	---	---	---	---	---	---	7.97	8.50	8.23	7.42	8.67	7.80	---	---	---
16	---	---	---	---	---	---	---	---	---	7.97	9.00	8.27	7.41	8.70	7.98	---	---	---
17	---	---	---	---	---	---	---	---	---	8.26	8.67	8.41	7.50	8.92	8.35	---	---	---
18	---	---	---	---	---	---	---	---	---	8.09	8.42	8.31	7.38	8.89	8.08	---	---	---
19	---	---	---	---	---	---	---	---	---	8.09	8.45	8.32	7.35	8.62	7.73	---	---	---
20	---	---	---	---	---	---	---	---	---	8.39	8.80	8.52	7.39	8.52	7.55	---	---	---
21	---	---	---	---	---	---	---	---	---	8.31	8.74	8.52	7.35	8.27	7.55	---	---	---
22	---	---	---	---	---	---	---	---	---	8.28	8.94	8.55	7.35	7.52	7.43	---	---	---
23	---	---	---	---	---	---	---	---	---	8.19	8.82	8.50	7.36	8.04	7.60	---	---	---
24	---	---	---	---	---	---	---	---	---	8.08	8.71	8.40	7.46	8.38	7.84	---	---	---
25	---	---	---	---	---	---	---	---	---	7.92	8.44	8.17	7.34	8.19	7.63	---	---	---
26	---	---	---	---	---	---	---	---	---	7.99	8.63	8.27	7.37	8.12	7.56	---	---	---
27	---	---	---	---	---	---	---	---	---	7.90	8.14	8.01	7.37	8.07	7.70	---	---	---
28	---	---	---	---	---	---	---	---	---	7.83	8.16	8.01	7.34	7.90	7.50	---	---	---
29	---	---	---	---	---	---	---	---	---	7.66	8.32	7.96	7.42	8.47	7.63	---	---	---
30	---	---	---	---	---	---	---	---	---	7.59	8.17	7.92	7.38	8.26	7.64	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---	7.39	8.04	7.60	---	---	---
Monthly Average	---	---	---	---	---	---	---	---	---	---	---	---	7.46	8.30	7.78	---	---	---

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pH

Day	July			August			September			October			November			December		
	min	max	mean	min	max	mean	min	max	mean	min	max	mean	min	max	mean	min	max	mean
1	---	---	---	---	---	---	7.19	7.40	7.30	7.20	8.40	7.76	7.42	8.05	7.68	---	---	---
2	---	---	---	7.46	7.91	7.69	---	---	---	7.30	8.75	7.96	7.22	8.04	7.53	---	---	---
3	---	---	---	7.50	8.47	7.99	---	---	---	7.85	8.71	8.29	7.58	8.08	7.84	---	---	---
4	---	---	---	7.62	8.70	8.19	---	---	---	7.24	7.69	7.48	7.72	7.93	7.86	---	---	---
5	---	---	---	7.32	8.37	7.94	8.54	9.18	8.90	7.53	8.15	7.80	---	---	---	---	---	---
6	---	---	---	7.79	7.90	7.84	7.64	9.11	8.36	7.31	7.53	7.40	---	---	---	---	---	---
7	---	---	---	7.30	8.05	7.61	7.33	8.36	7.81	---	---	---	7.45	8.23	7.93	---	---	---
8	---	---	---	7.21	8.27	7.54	---	---	---	---	---	---	7.84	8.39	8.19	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---	7.72	8.18	8.02	---	---	---
10	7.23	7.54	7.35	---	---	---	---	---	---	---	---	---	7.88	8.18	8.06	---	---	---
11	7.35	7.37	7.36	---	---	---	---	---	---	---	---	---	7.79	8.26	8.05	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---	7.98	8.22	8.07	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---	7.93	8.22	8.07	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---	7.95	8.19	8.11	---	---	---
15	---	---	---	7.93	8.46	8.19	---	---	---	---	---	---	7.91	8.15	8.05	---	---	---
16	---	---	---	7.27	8.60	8.01	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	7.40	8.42	7.92	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	7.23	8.22	7.74	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	7.10	8.19	7.44	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	7.09	7.60	7.29	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	7.00	7.19	7.09	---	---	---	7.61	8.03	7.84	---	---	---	---	---	---
22	7.02	7.48	7.28	---	---	---	---	---	---	7.66	8.03	7.85	---	---	---	---	---	---
23	7.23	8.39	7.54	---	---	---	7.29	7.88	7.50	7.45	8.33	7.90	---	---	---	---	---	---
24	7.63	8.36	7.96	---	---	---	7.42	8.40	7.67	7.47	7.82	7.70	---	---	---	---	---	---
25	7.35	8.01	7.70	---	---	---	7.14	7.74	7.38	7.68	8.02	7.86	---	---	---	---	---	---
26	8.07	8.21	8.18	7.03	7.89	7.38	7.00	7.18	7.11	7.65	8.10	8.00	---	---	---	---	---	---
27	7.12	7.56	7.27	7.01	8.14	7.35	---	---	---	7.38	8.02	7.66	---	---	---	---	---	---
28	7.08	7.13	7.10	---	---	---	---	---	---	7.40	8.21	7.85	---	---	---	---	---	---
29	7.02	7.10	7.07	7.86	8.46	8.25	---	---	---	7.68	8.23	7.96	---	---	---	---	---	---
30	6.99	7.03	7.01	7.10	7.93	7.62	---	---	---	7.32	8.18	7.73	---	---	---	---	---	---
31	---	---	---	7.17	7.87	7.49	---	---	---	7.33	7.94	7.55	---	---	---	---	---	---
Monthly Average	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Water-Data Report 2013
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pH
SUMMARY STATISTICS

	Calendar Year 2013#	Period of Record (2009 - 2013)#
Minimum Daily Value	7.01 (Jul 30)	6.82 (May 26, 2010)
Maximum Daily Value	8.90 (Sep 5)	9.57 (Aug 11, 2011)
Median of Daily Mean	7.89	7.99

#See Period of record; partial years used in monthly and annual statistics

