

Water-Data Report 2010

**02096846 CANE CREEK NEAR ORANGE GROVE, NC**

Cape Fear Basin  
Haw Subbasin

LOCATION.--Lat 35°59'14", long 79°12'22" referenced to North American Datum of 1983, Orange County, NC, Hydrologic Unit 03030002, on right bank, downstream of bridge on Secondary Road 1114, and 1.0 mi northwest of Orange Grove.

DRAINAGE AREA.--7.54 mi<sup>2</sup>.

**SURFACE-WATER RECORDS**

PERIOD OF RECORD.--November 1988 to current year.

GAGE.--Water-stage recorder. Datum of gage is 507.6 ft above North American Vertical Datum of 1988. Satellite telemetry at station.

REMARKS.--Records poor. Maximum discharge for period of record from rating curve extended above 500 ft<sup>3</sup>/s, based on contracted-opening measurement of peak flow; maximum gage-height, 7.90 ft, from flood mark. No flow occurs at times most years.

## 02096846 CANE CREEK NEAR ORANGE GROVE, NC—Continued

**DISCHARGE, CUBIC FEET PER SECOND**  
**WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010**  
**DAILY MEAN VALUES**

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	0.03	0.17	1.5	6.8	6.5	5.2	7.4	1.3	1.2	0.08	e0.02	0.00
2	0.01	0.29	55	5.6	11	5.0	6.0	1.2	1.1	0.08	e0.04	0.00
3	0.00	0.19	73	4.7	51	5.9	5.3	1.2	1.1	0.07	e0.04	0.00
4	0.00	0.14	11	4.2	28	5.6	4.8	1.3	0.84	0.05	e0.03	0.00
5	0.00	0.08	13	3.9	223	4.8	4.4	1.2	0.67	0.02	e0.03	0.00
6	0.01	0.07	11	3.7	139	4.4	4.1	1.1	0.52	0.01	e0.05	0.00
7	0.01	0.05	6.6	3.6	26	4.3	3.7	1.1	0.42	0.01	e0.04	0.00
8	0.00	0.05	5.1	3.7	16	4.0	3.4	1.0	0.34	0.02	e0.03	0.00
9	0.00	0.05	95	3.3	13	4.0	3.5	0.88	0.30	0.04	e0.02	0.00
10	0.01	0.11	19	3.0	15	3.9	2.8	0.91	0.26	0.03	e0.02	0.00
11	0.01	55	8.5	2.9	11	4.0	2.5	e1.2	0.22	0.02	e0.01	0.00
12	0.01	98	6.2	3.0	8.9	5.2	2.4	e1.8	0.21	0.02	0.00	0.00
13	0.01	e40	14	2.8	8.7	29	2.3	e1.7	0.49	0.04	0.00	0.00
14	0.01	e7.9	14	2.7	8.2	16	2.2	e1.6	0.57	0.12	0.00	0.00
15	0.02	e3.5	8.5	2.7	7.7	10	2.2	e1.5	0.28	0.05	0.00	0.00
16	0.01	e2.3	6.3	2.6	8.2	7.2	2.1	e1.4	0.18	0.03	0.00	0.00
17	0.00	e1.8	5.1	46	6.8	5.9	2.0	24	0.17	0.09	0.00	0.00
18	0.01	e1.5	4.7	19	6.1	5.5	1.8	19	0.14	0.11	0.00	0.00
19	0.01	e1.7	36	9.7	5.6	4.8	1.7	4.3	0.12	0.08	0.00	0.00
20	0.00	e1.8	20	7.2	5.4	4.3	1.7	2.2	0.11	0.23	0.02	0.00
21	0.00	e1.4	15	6.8	5.1	4.2	1.9	1.4	0.11	0.17	0.00	0.00
22	0.00	e1.2	11	20	7.4	4.6	1.9	1.2	0.08	0.10	0.00	0.00
23	0.00	55	8.2	10	9.0	4.5	1.6	1.4	0.07	0.07	0.00	0.00
24	0.01	17	6.9	7.9	8.5	3.9	1.6	1.1	0.07	0.06	0.00	0.00
25	0.01	6.2	109	120	11	3.7	2.3	1.0	0.06	0.04	0.00	0.00
26	0.00	3.4	43	19	7.6	3.9	1.8	0.91	0.06	e0.02	0.00	0.00
27	0.01	3.1	15	11	6.4	3.6	1.5	0.73	0.06	e0.03	0.00	0.00
28	0.04	2.3	10	8.3	5.6	3.5	1.4	0.65	0.07	e0.06	0.00	0.84
29	0.03	1.7	7.2	7.1	---	98	1.3	14	0.07	e0.07	0.00	0.84
30	0.02	1.5	5.8	8.4	---	19	1.3	2.0	0.08	e0.03	0.00	43
31	0.01	---	7.1	7.2	---	10	---	1.1	---	e0.03	0.00	---
<b>Total</b>	0.29	307.50	651.7	366.8	665.7	297.9	82.9	95.38	9.97	1.88	0.35	44.68
<b>Mean</b>	0.01	10.2	21.0	11.8	23.8	9.61	2.76	3.08	0.33	0.06	0.01	1.49
<b>Max</b>	0.04	98	109	120	223	98	7.4	24	1.2	0.23	0.05	43
<b>Min</b>	0.00	0.05	1.5	2.6	5.1	3.5	1.3	0.65	0.06	0.01	0.00	0.00
<b>Cfsm</b>	0.00	1.36	2.79	1.57	3.15	1.27	0.37	0.41	0.04	0.01	0.00	0.20
<b>In.</b>	0.00	1.52	3.22	1.81	3.28	1.47	0.41	0.47	0.05	0.01	0.00	0.22

**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 2010, BY WATER YEAR (WY)**

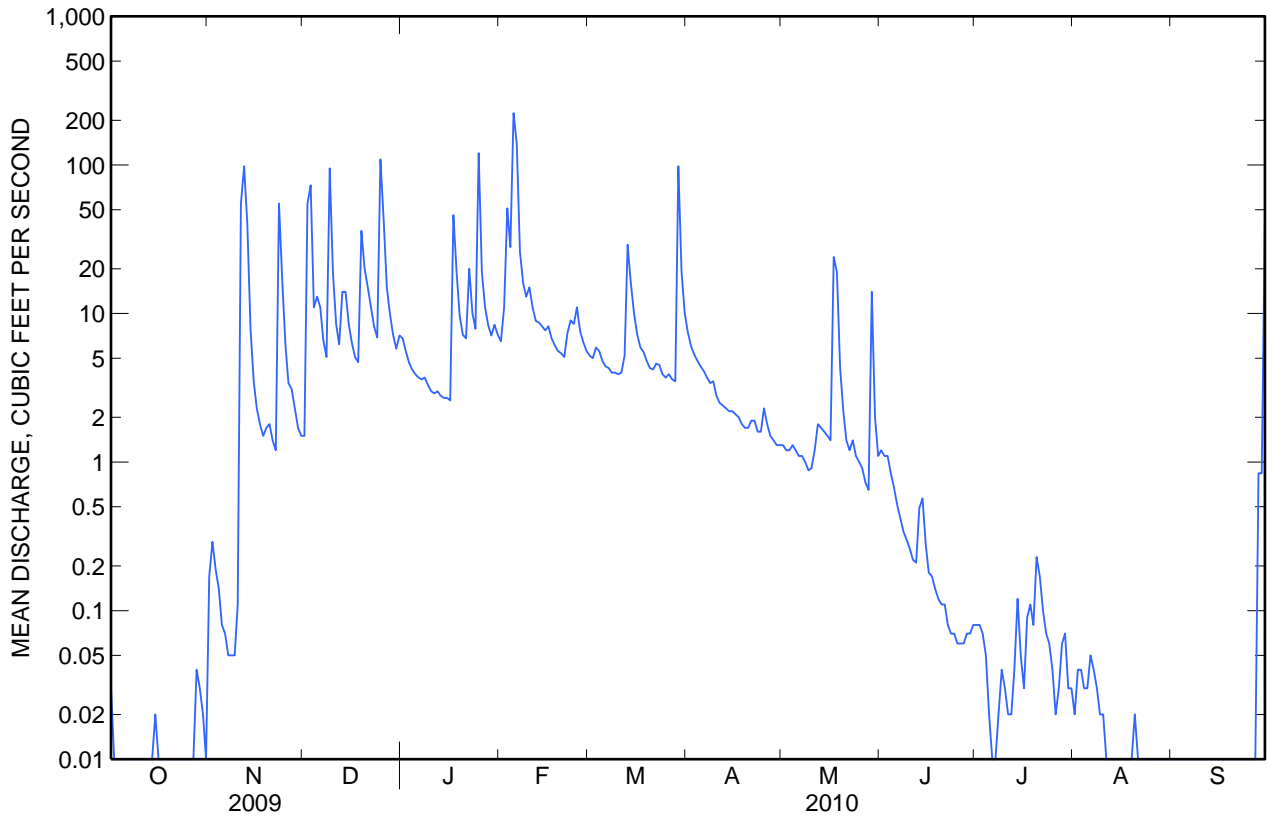
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
<b>Mean</b>	2.25	4.05	6.26	10.2	11.2	16.1	9.38	4.48	3.65	2.08	1.23	3.48
<b>Max</b>	13.0	18.6	21.0	28.3	34.3	46.3	37.2	18.7	16.4	13.5	9.50	25.9
<b>(WY)</b>	(2003)	(2007)	(2010)	(1998)	(1998)	(1998)	(2003)	(1989)	(1995)	(2000)	(2004)	(1996)
<b>Min</b>	0.01	0.00	0.08	0.32	1.25	1.19	1.06	0.13	0.02	0.03	0.00	0.00
<b>(WY)</b>	(1999)	(2008)	(2008)	(2008)	(2008)	(2006)	(2002)	(2002)	(2002)	(2007)	(2007)	(2005)

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SUMMARY STATISTICS

	Calendar Year 2009		Water Year 2010		Water Years 1989 - 2010	
Annual total	2,087.93		2,525.05			
Annual mean	5.72		6.92		6.03	
Highest annual mean					14.3	2003
Lowest annual mean					0.99	2002
Highest daily mean	109	Mar 1	223	Feb 5	516	Mar 4, 1993
Lowest daily mean	0.00	Sep 13	0.00	Oct 3	0.00	Sep 17, 1990
Annual seven-day minimum	0.00	Sep 11	0.00	Aug 12	0.00	Sep 17, 1990
Maximum peak flow			696	Feb 5	<sup>a</sup> 2,060	Sep 6, 1996
Maximum peak stage			4.92	Feb 5	<sup>a</sup> 7.90	Sep 6, 1996
Instantaneous low flow			<sup>a</sup> 0.00	Oct 2	<sup>a</sup> 0.00	Sep 17, 1990
Annual runoff (cfsm)	0.759		0.917		0.800	
Annual runoff (inches)	10.30		12.46		10.87	
10 percent exceeds	11		14		11	
50 percent exceeds	1.3		1.3		1.5	
90 percent exceeds	0.01		0.00		0.03	

<sup>a</sup> See Remarks.



## 02096846 CANE CREEK NEAR ORANGE GROVE, NC—Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1989 to current year.

REMARKS.--Station operated to define water quality as part of a regional surface-water quality assessment.

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010**

Part 1 of 5

[%, percent; ANC, acid neutralizing capacity; CaCO<sub>3</sub>, calcium carbonate; N, nitrogen; P, phosphorus; SiO<sub>2</sub>, silicon dioxide; ft<sup>3</sup>/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; μS/cm, microsiemens per centimeter; μg/L, micrograms per liter; <, less than; E, estimated]

Date	Sample start time	Medium name	Sample type	Barometric pressure, mm Hg (00025)	Color, water, filtered, platinum cobalt units (00080)	Discharge, instantaneous, ft <sup>3</sup> /s (00061)	Dissolved oxygen, water, unfiltered, mg/L (00300)	Dissolved oxygen, water, unfiltered, % saturation (00301)	pH, water, unfiltered, field, standard units (00400)
10-05-2009	1015	Surface water	Regular	752	40	.00	7.7	78	7.0
12-08-2009	1021	<i>QC sample - Artificial</i>	<i>Blank</i>	--	--	--	--	--	--
12-08-2009	1115	Surface water	Regular	759	60	4.9	11.9	97	7.3
12-08-2009	1116	<i>QC sample - Surface water</i>	<i>Replicate</i>	--	60	--	--	--	--
02-03-2010	1015	Surface water	Regular	753	75	35	13.1	98	6.9
04-01-2010	1130	Surface water	Regular	754	62	7.1	11.4	110	7.2
06-15-2010	1015	Surface water	Regular	752	50	.30	7.5	89	7.4
08-04-2010	1000	Surface water	Regular	753	50	.73	6.2	73	7.1
08-04-2010	1005	<i>QC sample - Surface water</i>	<i>Replicate</i>	753	50	--	--	--	--
08-04-2010	1035	<i>QC sample - Artificial</i>	<i>Blank</i>	--	--	--	--	--	--
09-30-2010	1300	Surface water	Regular	741	150	106	7.9	90	6.3

## 02096846 CANE CREEK NEAR ORANGE GROVE, NC—Continued

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010**

Part 2 of 5

[%, percent; ANC, acid neutralizing capacity; CaCO<sub>3</sub>, calcium carbonate; N, nitrogen; P, phosphorus; SiO<sub>2</sub>, silicon dioxide; ft<sup>3</sup>/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; μS/cm, microsiemens per centimeter; μg/L, micrograms per liter; <, less than; E, estimated]

Date	Specific conduc- tance, water, unfiltered, μS/cm at 25 °C (00095)	Tempera- ture, water, °C (00010)	Dissolved solids dried at 180 °C, water, filtered, mg/L (70300)	Hardness, water, mg/L as CaCO <sub>3</sub> (00900)	Calcium, water, filtered, mg/L (00915)	Magne- sium, water, filtered, mg/L (00925)	Potassium, water, filtered, mg/L (00935)	Sodium, water, filtered, mg/L (00930)	ANC, water, unfiltered, inflection- point, incremental titration method, field, mg/L as CaCO <sub>3</sub> (00419)
10-05-2009	110	15.6	82	40.5	10.3	3.56	2.91	4.81	40.0
12-08-2009	--	--	--	< .18	< .04	< .016	< .06	< .10	--
12-08-2009	72	6.7	57	22.2	5.40	2.12	1.27	4.44	13.1
12-08-2009	--	--	61	22.0	5.35	2.10	1.27	4.35	13.7
02-03-2010	57	3.1	52	16.6	3.86	1.68	1.07	3.81	11.4
04-01-2010	66	13.3	53	20.3	5.00	1.89	.79	4.30	15.5
06-15-2010	98	22.9	74	32.1	8.07	2.90	1.58	5.33	27.9
08-04-2010	91	23.2	60	31.4	8.09	2.72	1.28	5.18	31.7
08-04-2010	--	--	59	31.2	8.03	2.70	1.31	5.19	30.5
08-04-2010	--	--	--	< .18	< .04	< .016	< .06	< .10	--
09-30-2010	48	20.0	49	14.1	3.46	1.33	2.14	2.81	6.4

## 02096846 CANE CREEK NEAR ORANGE GROVE, NC—Continued

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010**

Part 3 of 5

[%, percent; ANC, acid neutralizing capacity; CaCO<sub>3</sub>, calcium carbonate; N, nitrogen; P, phosphorus; SiO<sub>2</sub>, silicon dioxide; ft<sup>3</sup>/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; μS/cm, microsiemens per centimeter; μg/L, micrograms per liter; <, less than; E, estimated]

Date	Bi carbonate, water, unfiltered, inflection-point, incremental titration method, field, mg/L (00450)	Chloride, water, filtered, mg/L (00940)	Fluoride, water, filtered, mg/L (00950)	Silica, water, filtered, mg/L as SiO <sub>2</sub> (00955)	Sulfate, water, filtered, mg/L (00945)	Ammonia plus organic nitrogen, water, unfiltered, mg/L as N (00625)	Ammonia, water, filtered, mg/L as N (00608)	Nitrate plus nitrite, water, filtered, mg/L as N (00631)	Nitrite, water, filtered, mg/L as N (00613)
10-05-2009	48.8	5.71	E .07	11.9	2.67	.23	< .020	.017	.002
12-08-2009	--	2.03	< .08	< .06	E .10	< .10	< .020	< .016	< .002
12-08-2009	16.0	6.25	< .08	12.8	5.90	.37	< .020	.864	.002
12-08-2009	16.8	6.30	< .08	12.7	5.89	.36	< .020	.873	.002
02-03-2010	13.9	5.67	< .08	9.70	5.63	.40	< .020	.340	.003
04-01-2010	18.9	5.70	< .08	10.8	4.62	.30	< .020	.440	.002
06-15-2010	34.0	7.05	E .07	14.2	2.23	.35	E .017	.708	.003
08-04-2010	38.7	4.64	.09	13.2	2.44	.32	E .013	.318	.003
08-04-2010	37.2	4.64	.10	12.8	2.40	.31	.027	.310	.003
08-04-2010	--	< .12	< .08	< .06	< .18	< .10	E .016	< .016	E .001
09-30-2010	7.8	2.89	< .08	7.49	5.16	.88	< .020	.244	.004

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010**

Part 4 of 5

[%, percent; ANC, acid neutralizing capacity; CaCO<sub>3</sub>, calcium carbonate; N, nitrogen; P, phosphorus; SiO<sub>2</sub>, silicon dioxide; ft<sup>3</sup>/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; μS/cm, microsiemens per centimeter; μg/L, micrograms per liter; <, less than; E, estimated]

Date	Orthophosphate, water, filtered, mg/L as P (00671)	Phosphorus, water, unfiltered, mg/L as P (00665)	Aluminum, water, unfiltered, recoverable, μg/L (01105)	Cadmium, water, unfiltered, μg/L (01027)	Chromium, water, unfiltered, recoverable, μg/L (01034)	Cobalt, water, unfiltered, recoverable, micrograms per liter (01037)	Copper, water, unfiltered, recoverable, μg/L (01042)	Iron, water, unfiltered, recoverable, μg/L (01045)	Lead, water, unfiltered, recoverable, μg/L (01051)
10-05-2009	.014	.050	153	E .03	E .37	.31	1.6	338	.27
12-08-2009	< .008	E .005	< 6	< .04	< .42	.07	< 1.4	< 9	< .06
12-08-2009	.015	.044	--	--	--	--	--	--	--
12-08-2009	.015	.043	--	--	--	--	--	--	--
02-03-2010	.019	.057	--	--	--	--	--	--	--
04-01-2010	.008	.029	205	< .04	< .42	.19	E .98	694	.27
06-15-2010	.025	.049	--	--	--	--	--	--	--
08-04-2010	.026	.039	--	--	--	--	--	--	--
08-04-2010	.027	.040	--	--	--	--	--	--	--
08-04-2010	< .008	< .008	< 6	< .04	< .42	< .04	< 1.4	< 9	< .06
09-30-2010	.053	.134	709	< .04	.61	.77	3.3	952	.72

## 02096846 CANE CREEK NEAR ORANGE GROVE, NC—Continued

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010**

Part 5 of 5

[%, percent; ANC, acid neutralizing capacity; CaCO<sub>3</sub>, calcium carbonate; N, nitrogen; P, phosphorus; SiO<sub>2</sub>, silicon dioxide; ft<sup>3</sup>/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; μS/cm, microsiemens per centimeter; μg/L, micrograms per liter; <, less than; E, estimated]

Date	Manganese, water, unfiltered, recoverable, μg/L (01055)	Mercury, water, unfiltered, recoverable, μg/L (71900)	Molybdenum, water, unfiltered, recoverable, micrograms per liter (01062)	Nickel, water, unfiltered, recoverable, μg/L (01067)	Silver, water, unfiltered, recoverable, μg/L (01077)	Zinc, water, unfiltered, recoverable, μg/L (01092)	Arsenic, water, unfiltered, μg/L (01002)	Selenium, water, unfiltered, μg/L (01147)	Organic carbon, water, unfiltered, mg/L (00680)	Suspended sediment concentration, mg/L (80154)
10-05-2009	152	< .010	.1	E .25	< .02	3.1	1.9	E .08	6.3	8
12-08-2009	2.1	< .010	< .1	< .36	< .02	< 2.0	< .18	< .10	1.0	--
12-08-2009	--	--	--	--	--	--	--	--	6.7	7
12-08-2009	--	--	--	--	--	--	--	--	6.9	7
02-03-2010	--	--	--	--	--	--	--	--	6.7	13
04-01-2010	30.5	< .010	< .1	E .19	< .02	< 2.0	.23	.10	4.9	12
06-15-2010	--	--	--	--	--	--	--	--	5.4	6
08-04-2010	--	--	--	--	--	--	--	--	5.2	6
08-04-2010	--	--	--	--	--	--	--	--	5.1	2
08-04-2010	< .8	< .010	< .1	< .36	< .02	< 2.0	< .18	< .10	< .6	--
09-30-2010	165	.013	< .1	.52	E .02	8.3	.59	.17	22.5	53