



Water-Data Report 2010

**02097464 MORGAN CREEK NEAR WHITE CROSS, NC**

Cape Fear Basin  
Haw Subbasin

LOCATION.--Lat 35°55'25", long 79°06'54" referenced to North American Datum of 1983, Orange County, NC, Hydrologic Unit 03030002, at downstream side of culvert on North Carolina Highway 54, 2 mi upstream from University Lake, and 3.5 mi east of White Cross.

DRAINAGE AREA.--8.35 mi<sup>2</sup>.

**SURFACE-WATER RECORDS**

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

GAGE.--Water-stage recorder. Datum of gage is 410.13 ft above North American Vertical Datum of 1988. Satellite telemetry at streamgage.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Maximum discharge for period of record from rating curve extended above 2,700 ft<sup>3</sup>/s, by logarithmic plotting. No flow occurs at times most years.

## 02097464 MORGAN CREEK NEAR WHITE CROSS, 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	0.05	0.23	2.5	6.2	8.0	5.3	5.9	1.9	1.5	0.15	0.03	0.00
2	0.05	0.28	41	5.5	11	5.4	5.2	1.9	1.4	0.14	0.07	0.00
3	0.05	0.25	61	4.4	36	6.6	4.6	2.0	1.2	0.12	0.06	0.00
4	0.05	0.21	17	e4.2	26	5.6	4.2	2.4	0.97	0.14	0.04	0.00
5	0.04	0.19	15	e4.0	169	4.9	3.9	2.2	0.83	0.10	0.04	0.00
6	0.04	0.18	12	e3.8	120	4.5	3.5	2.2	0.69	0.05	0.08	0.00
7	0.04	0.18	7.3	3.7	29	4.3	3.2	2.0	0.62	0.04	0.07	0.00
8	0.03	0.17	6.3	3.7	20	4.2	3.0	1.8	0.54	0.03	0.05	0.00
9	0.03	0.17	70	3.4	17	4.1	3.4	1.5	0.47	0.07	0.04	0.00
10	0.03	0.20	24	3.3	16	4.2	2.9	1.5	0.47	0.09	0.03	0.00
11	0.03	25	11	3.3	12	4.3	2.7	1.7	0.42	0.08	0.02	0.00
12	0.02	46	6.6	3.3	10	5.0	2.6	2.8	0.34	0.07	0.01	0.00
13	0.03	52	14	3.1	9.8	20	2.5	2.6	0.53	0.06	0.00	0.00
14	0.02	11	15	3.0	9.0	15	2.5	2.4	0.74	0.16	0.00	0.00
15	0.02	4.9	8.9	2.9	8.2	9.4	2.5	2.2	0.49	0.13	0.00	0.00
16	0.03	3.2	5.9	2.9	8.0	7.1	2.9	2.1	1.1	0.15	0.00	0.00
17	0.03	2.5	4.9	31	7.1	5.9	2.3	32	1.4	0.14	0.00	0.00
18	0.02	2.2	4.4	25	6.5	5.7	2.2	32	0.53	0.19	0.00	0.00
19	0.02	2.4	37	12	6.0	5.4	2.0	9.9	0.34	0.21	0.00	0.00
20	0.02	2.5	21	8.5	5.4	4.6	2.1	4.6	0.27	0.17	0.00	0.00
21	0.02	2.2	14	8.1	5.2	4.3	2.5	2.7	0.24	0.16	0.00	0.00
22	0.02	2.0	8.7	20	8.4	4.8	2.4	2.2	0.20	0.13	0.00	0.00
23	0.02	31	6.6	11	8.6	4.3	2.0	2.2	0.20	0.08	0.00	0.00
24	0.04	18	5.3	8.6	8.1	3.9	1.9	2.2	0.27	0.07	0.00	0.00
25	0.04	6.7	68	136	9.1	3.9	2.9	2.1	0.25	0.06	0.00	0.00
26	0.04	4.5	42	27	7.8	4.6	2.6	1.7	0.25	0.03	0.00	0.00
27	0.04	3.8	18	17	6.7	3.7	2.2	1.4	0.23	0.04	0.00	0.00
28	0.15	3.1	11	12	5.9	3.7	2.2	1.1	0.19	0.09	0.00	0.07
29	0.13	2.7	7.7	9.6	---	25	1.9	1.5	0.16	0.11	0.00	0.07
30	0.12	2.5	6.2	11	---	12	2.0	1.1	0.15	0.05	0.00	17
31	0.11	---	6.8	11	---	7.5	---	0.93	---	0.04	0.00	---
<b>Total</b>	1.38	230.26	579.1	408.5	593.8	209.2	86.7	130.83	16.99	3.15	0.54	17.14
<b>Mean</b>	0.04	7.68	18.7	13.2	21.2	6.75	2.89	4.22	0.57	0.10	0.02	0.57
<b>Max</b>	0.15	52	70	136	169	25	5.9	32	1.5	0.21	0.08	17
<b>Min</b>	0.02	0.17	2.5	2.9	5.2	3.7	1.9	0.93	0.15	0.03	0.00	0.00
<b>Cfsm</b>	0.01	0.92	2.24	1.58	2.54	0.81	0.35	0.51	0.07	0.01	0.00	0.07
<b>In.</b>	0.01	1.03	2.58	1.82	2.65	0.93	0.39	0.58	0.08	0.01	0.00	0.08

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

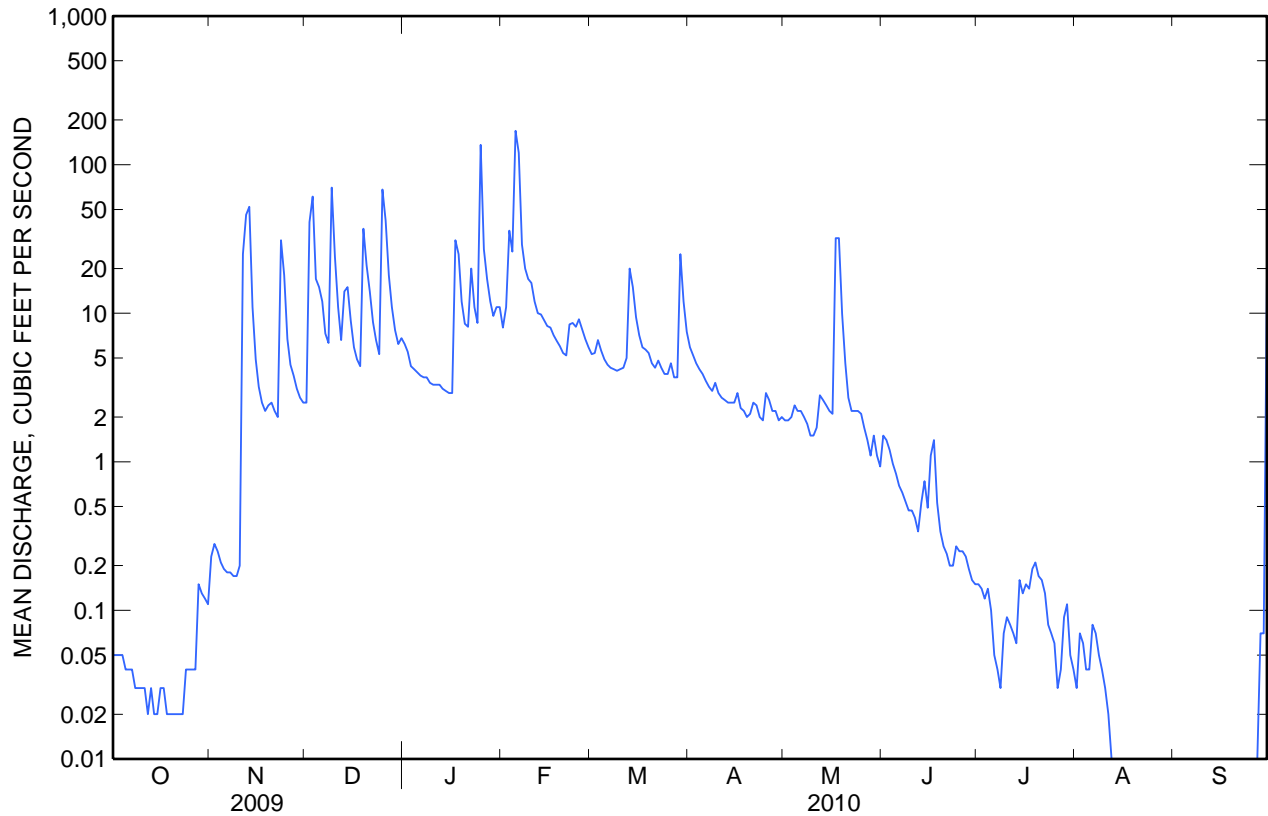
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
<b>Mean</b>	2.89	4.44	5.78	10.2	11.9	16.3	9.84	5.46	3.68	2.47	2.27	5.21
<b>Max</b>	13.1	16.0	18.7	33.4	39.7	53.0	38.6	30.1	19.9	12.3	18.7	40.4
<b>(WY)</b>	(1990)	(2007)	(2010)	(1998)	(1998)	(1998)	(2003)	(1989)	(1995)	(2000)	(1995)	(1999)
<b>Min</b>	0.01	0.00	0.18	0.37	1.26	1.67	1.95	0.72	0.03	0.04	0.00	0.00
<b>(WY)</b>	(2008)	(2008)	(2008)	(2008)	(2008)	(2006)	(2002)	(2002)	(2002)	(2002)	(2007)	(2007)

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SUMMARY STATISTICS

	Calendar Year 2009		Water Year 2010		Water Years 1989 - 2010	
<b>Annual total</b>	2,046.30		2,277.59			
<b>Annual mean</b>	5.61		6.24		6.51	
<b>Highest annual mean</b>					12.5	1998
<b>Lowest annual mean</b>					1.46	2002
<b>Highest daily mean</b>	85	Mar 1	169	Feb 5	737	Sep 6, 1996
<b>Lowest daily mean</b>	0.00	Sep 15	0.00	Aug 13	0.00	Jun 16, 2002
<b>Annual seven-day minimum</b>	0.01	Sep 11	0.00	Aug 13	0.00	Aug 8, 2002
<b>Maximum peak flow</b>			576	Jan 25	<sup>a</sup> 3,100	Aug 27, 1995
<b>Maximum peak stage</b>			7.29	Jan 25	11.20	Aug 27, 1995
<b>Instantaneous low flow</b>			<sup>a</sup> 0.00	Aug 12	<sup>a</sup> 0.00	Jun 16, 2002
<b>Annual runoff (cfsm)</b>	0.671		0.747		0.780	
<b>Annual runoff (inches)</b>	9.12		10.15		10.60	
<b>10 percent exceeds</b>	14		15		13	
<b>50 percent exceeds</b>	2.5		2.1		2.2	
<b>90 percent exceeds</b>	0.04		0.00		0.12	

<sup>a</sup> See Remarks.



**02097464 MORGAN CREEK NEAR WHITE CROSS, NC—Continued****WATER-QUALITY RECORDS**

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

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: August 2002 to November 2003.

REMARKS.--Station operated as part of a regional surface-water quality assessment. August 2002 to November 2003, station was also part of the NAWQA Urban Land Use Gradient study.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum recorded, 27.6°C, August 30, 2003; minimum recorded, 0.0°C, January 19, 23-26, 28, 2003.

**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)	Specific conductance, water, unfiltered, μS/cm at 25 °C (00095)
10-05-2009	1130	Surface water	Regular	756	100	.04	1.6	16	6.5	137
12-08-2009	1230	Surface water	Regular	761	60	5.7	11.7	96	7.1	94
02-24-2010	1130	Surface water	Regular	747	50	7.4	11.2	96	7.0	86
04-01-2010	1245	Surface water	Regular	754	40	5.9	11.8	116	7.6	88
06-15-2010	1315	Surface water	Regular	755	50	.51	6.8	81	7.1	116
08-06-2010	1115	Surface water	Regular	756	75	.09	.9	11	6.6	132

## 02097464 MORGAN CREEK NEAR WHITE CROSS, 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	Temperature, 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)	Magnesium, 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)	Bi carbonate, water, unfiltered, inflection- point, incremental titration method, field, mg/L (00450)
10-05-2009	15.6	112	51.1	13.3	4.32	2.69	6.62	52.2	63.6
12-08-2009	6.9	73	29.1	7.35	2.61	1.99	5.56	21	25
02-24-2010	7.8	71	25.8	6.51	2.31	1.34	5.21	19.5	23.8
04-01-2010	14.2	55	27.6	7.04	2.43	1.20	5.46	22.2	27.1
06-15-2010	23.6	85	42.2	11.2	3.42	1.59	6.30	36.6	44.6
08-06-2010	24.1	106	48.9	13.0	4.00	1.93	6.13	45.3	55.2

**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	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)	Orthophos- phate, water, filtered, mg/L as P (00671)
10-05-2009	6.20	E .07	18.9	2.60	.29	< .020	E .009	E .001	.019
12-08-2009	8.52	< .08	13.0	7.79	.32	< .020	.705	E .002	.014
02-24-2010	8.39	< .08	11.1	6.23	.23	< .020	.659	E .002	.011
04-01-2010	8.26	< .08	7.00	5.22	.27	< .020	.236	E .002	E .007
06-15-2010	7.70	E .07	15.5	3.01	.27	.026	.288	.003	.026
08-06-2010	6.83	.09	16.4	2.11	.41	.043	.067	.005	.024

## 02097464 MORGAN CREEK NEAR WHITE CROSS, NC—Continued

**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	Phosphorus, water, unfiltered, mg/L as P (00665)	Aluminum, water, unfiltered, recover able, µg/L (01105)	Cadmium, water, unfiltered, µg/L (01027)	Chromium, water, unfiltered, recover able, µg/L (01034)	Cobalt, water, unfiltered, recoverabl e, microgram s per liter (01037)	Copper, water, unfiltered, recover able, µg/L (01042)	Iron, water, unfiltered, recover able, µg/L (01045)	Lead, water, unfiltered, recover able, µg/L (01051)	Manganes e, water, unfiltered, recover able, µg/L (01055)	Mercury, water, unfiltered, recover able, µg/L (71900)
10-05-2009	.085	34	.05	< .42	.85	< 1.4	2,590	.20	329	< .010
12-08-2009	.038	--	--	--	--	--	--	--	--	--
02-24-2010	.031	--	--	--	--	--	--	--	--	--
04-01-2010	.025	115	< .04	E .26	.20	E 1.0	588	.23	34.9	< .010
06-15-2010	.051	--	--	--	--	--	--	--	--	--
08-06-2010	.071	--	--	--	--	--	--	--	--	--

**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	Molybdenu m, water, unfiltered, recoverabl e, microgram s per liter (01062)	Nickel, water, unfiltered, recover able, µg/L (01067)	Silver, water, unfiltered, recover able, µg/L (01077)	Zinc, water, unfiltered, recover able, µg/L (01092)	Arsenic, water, unfiltered, µg/L (01002)	Selenium, water, unfiltered, µg/L (01147)	Organic carbon, water, unfiltered, mg/L (00680)	Suspended sediment concen tration, mg/L (80154)
10-05-2009	.2	E .32	< .02	2.7	1.2	E .07	6.0	6
12-08-2009	--	--	--	--	--	--	5.7	5
02-24-2010	--	--	--	--	--	--	3.4	5
04-01-2010	E .1	E .32	< .02	2.5	.38	.11	3.8	6
06-15-2010	--	--	--	--	--	--	3.8	7
08-06-2010	--	--	--	--	--	--	4.6	16