

Water-Data Report 2010

**02097314 NEW HOPE CREEK NEAR BLANDS, NC**

Cape Fear Basin  
Haw Subbasin

LOCATION.--Lat 35°53'06", long 78°57'55" referenced to North American Datum of 1983, Durham County, NC, Hydrologic Unit 03030002, on right bank, 15 ft downstream of bridge on Secondary Road 1107, 0.5 mi southwest of Blands, and 2 mi downstream of Third Fork Creek.

DRAINAGE AREA.--75.9 mi<sup>2</sup>.

**SURFACE-WATER RECORDS**

PERIOD OF RECORD.--October 1982 to current year.

GAGE.--Water-stage recorder. Datum of gage is 214.37 ft above North American Vertical Datum of 1988. January 3, 2005 to April 17, 2008 gage temporarily located 300 ft upstream at same datum, due to bridge replacement. Satellite telemetry at streamgage.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Considerable diurnal fluctuation at low flow. Water was diverted from the Neuse River Basin for Durham municipal water supply and was returned to the Cape Fear River Basin, and the Neuse River Basin. Maximum gage height for period of record occurred as a result of backwater from B. Everett Jordan Lake; maximum gage height unaffected by backwater from B. Everett Jordan Lake, 14.05 ft, September 6, 1996. Minimum discharge for period of record as a result of regulation also occurred October 5, 22, 1996. Minimum discharge unregulated prior to 1988, 4.2 ft<sup>3</sup>/s, April 28, 29, May 1, 2, and July 10, 1985. Minimum discharge for current water year as a result of regulation. Maximum discharge for period of record 12,700 ft<sup>3</sup>/s, from rating curve extended above 3,500 ft<sup>3</sup>/s by logarithmic plotting. Maximum gage height for current water year occurred as a result of backwater from B. Everett Jordan Lake. Maximum gage height for current water year (unaffected by backwater from B. Everett Jordan Lake) 9.80 ft, December 3.

## 02097314 NEW HOPE CREEK NEAR BLANDS, 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	17	52	35	93	e68	79	102	18	89	13	17	14
2	13	132	66	81	e90	69	79	17	112	12	21	15
3	11	60	738	70	e283	77	63	18	64	12	15	14
4	9.7	25	903	61	e256	91	50	17	46	11	14	13
5	9.9	18	531	54	e281	84	43	17	34	11	74	12
6	10	18	325	50	e669	72	39	17	27	12	97	12
7	10	17	191	47	e1,090	63	37	16	28	12	38	13
8	10	17	113	44	e403	58	34	16	25	12	22	13
9	10	18	202	41	e238	54	34	15	20	12	18	13
10	9.8	18	399	40	e215	90	36	14	19	12	16	13
11	9.3	147	432	37	e310	134	30	13	19	12	15	13
12	10	503	283	36	e203	106	29	13	17	12	16	13
13	12	787	159	35	e163	202	27	14	38	18	16	13
14	13	685	170	34	e143	251	26	14	48	50	14	13
15	15	448	157	33	e125	165	24	14	28	35	13	13
16	17	247	104	31	e110	112	25	14	21	20	14	13
17	15	135	21	98	e99	87	24	40	96	15	14	13
18	13	74	22	312	e79	73	22	388	41	26	14	13
19	13	57	133	408	e75	65	22	794	23	43	14	13
20	14	65	281	238	81	57	21	446	18	24	16	13
21	14	48	277	159	74	51	22	83	16	19	17	13
22	13	31	181	202	75	48	35	45	15	16	14	9.8
23	14	98	139	224	109	47	28	167	17	14	57	7.9
24	15	236	113	180	164	43	23	290	18	13	74	8.9
25	24	253	115	333	162	41	31	148	17	12	44	11
26	24	188	288	1,120	138	41	41	56	15	12	21	12
27	19	98	574	e147	112	43	28	37	14	16	18	50
28	42	57	388	e97	92	39	24	29	14	56	15	104
29	55	39	195	e78	---	171	21	163	13	22	14	79
30	31	33	136	e91	---	271	19	338	14	27	15	207
31	22	---	110	e74	---	163	---	154	---	22	14	---
<b>Total</b>	514.7	4,604	7,781	4,548	5,907	2,947	1,039	3,425	966	603	781	764.6
<b>Mean</b>	16.6	153	251	147	211	95.1	34.6	110	32.2	19.5	25.2	25.5
<b>Max</b>	55	787	903	1,120	1,090	271	102	794	112	56	97	207
<b>Min</b>	9.3	17	21	31	68	39	19	13	13	11	13	7.9
<b>Cfsm</b>	0.22	2.02	3.31	1.93	2.78	1.25	0.46	1.46	0.42	0.26	0.33	0.34
<b>In.</b>	0.25	2.26	3.81	2.23	2.90	1.44	0.51	1.68	0.47	0.30	0.38	0.37

**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 2010, BY WATER YEAR (WY)**

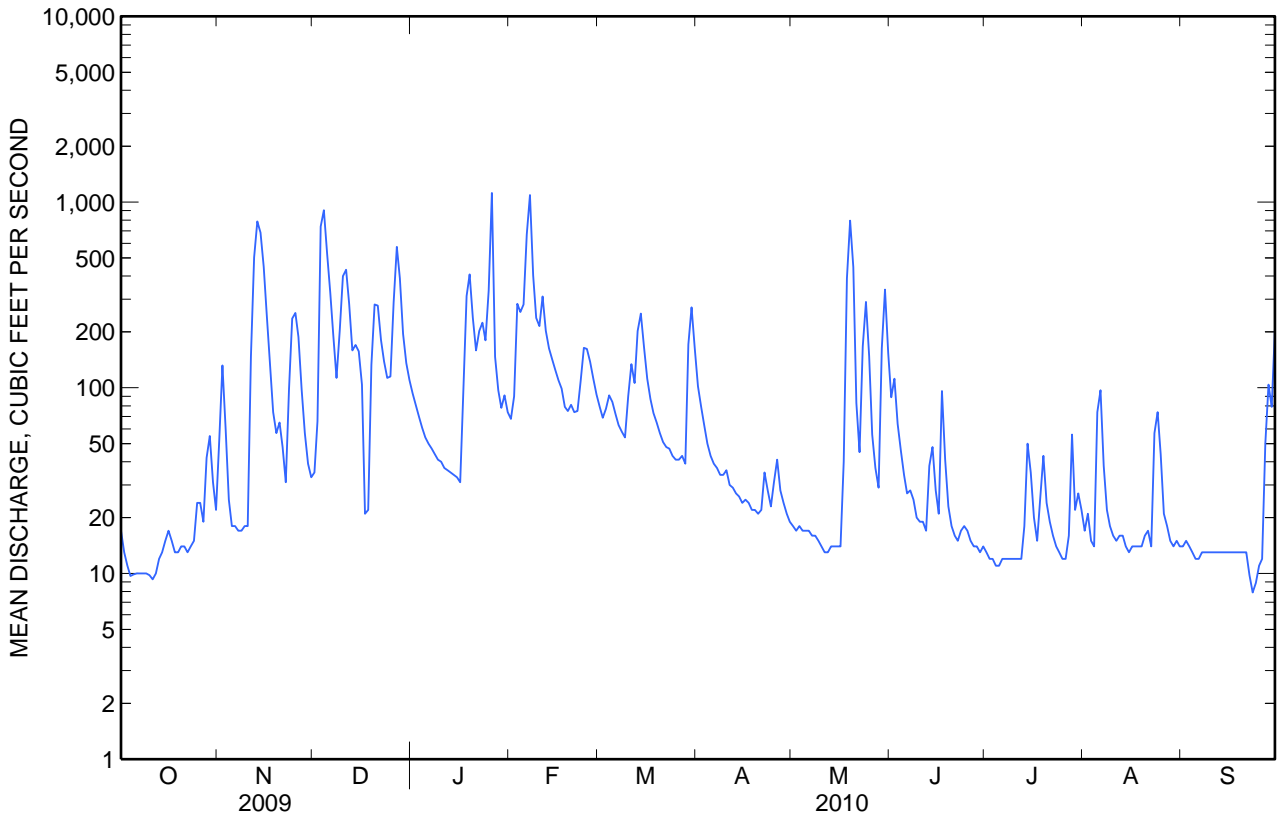
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
<b>Mean</b>	47.4	84.3	89.6	138	174	190	142	81.2	46.3	45.3	43.1	68.3
<b>Max</b>	231	477	264	509	463	493	618	411	154	156	121	507
<b>(WY)</b>	(2003)	(2007)	(1984)	(1991)	(1998)	(1998)	(1987)	(1997)	(1995)	(1995)	(2004)	(1999)
<b>Min</b>	12.8	12.6	17.0	31.6	58.2	42.0	13.5	18.1	13.1	12.9	12.4	10.8
<b>(WY)</b>	(1987)	(2008)	(1989)	(2001)	(2002)	(1985)	(1985)	(2002)	(2002)	(1993)	(2006)	(1984)

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SUMMARY STATISTICS

	Calendar Year 2009		Water Year 2010		Water Years 1983 - 2010	
<b>Annual total</b>	35,457.7		33,880.3			
<b>Annual mean</b>	97.1		92.8		95.3	
<b>Highest annual mean</b>					180	2003
<b>Lowest annual mean</b>					38.3	2002
<b>Highest daily mean</b>	903	Dec 4	1,120	Jan 26	6,300	Sep 6, 1996
<b>Lowest daily mean</b>	9.3	Oct 11	7.9	Sep 23	0.39	Dec 30, 1988
<b>Annual seven-day minimum</b>	9.9	Oct 5	9.9	Oct 5	4.1	Dec 20, 2001
<b>Maximum peak flow</b>			Not Determined		<sup>a</sup> 12,700	Sep 6, 1996
<b>Maximum peak stage</b>			<sup>a</sup> 12.67	Feb 7	<sup>a</sup> 18.96	Apr 15, 2003
<b>Instantaneous low flow</b>			<sup>a</sup> 6.2	Sep 22	<sup>a</sup> 0.00	Oct 4, 1996
<b>Annual runoff (cfsm)</b>	1.28		1.22		1.26	
<b>Annual runoff (inches)</b>	17.38		16.61		17.06	
<b>10 percent exceeds</b>	266		242		210	
<b>50 percent exceeds</b>	39		35		33	
<b>90 percent exceeds</b>	15		13		13	

<sup>a</sup> See Remarks.



## 02097314 NEW HOPE CREEK NEAR BLANDS, NC—Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1983-86, 1989-95, 1997-99, 2001, 2004, 2006-10.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: December 1982 to September 1985.

WATER TEMPERATURE: December 1982 to September 1985.

INSTRUMENTATION.--Water-quality monitor from October 1982 to September 1985.

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

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 535 microsiemens, September 30, 1984; minimum, 38 microsiemens, March 6, 7, 1984.

WATER TEMPERATURE: Maximum, 27.5°C, August 23, 1983; minimum, 0.0°C, January 21, 22, 1985.

## 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)
11-12-2009	1030	Surface water	Regular	753	150	475	7.2	68	7.0	86

## 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)
11-12-2009	12.0	76	22.6	5.79	1.98	4.04	6.94	14.4	17.5

## 02097314 NEW HOPE CREEK NEAR BLANDS, 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	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)
11-12-2009	6.40	E .08	6.02	11.0	.91	< .020	.568	.005	.117

**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)
11-12-2009	.268	876	.07	1.8	.78	5.7	1,330	3.43	192	.018

**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)
11-12-2009	.3	2.3	.05	20.6	1.2	.13	14.0	71