

Water-Data Report 2011

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 mi².

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.--No estimated daily discharges. Records fair. 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 ft³/s, April 28, 29, May 1, 2, and July 10, 1985. Minimum discharge for current water year as a result of regulation, also occurred on September 5. Maximum discharge for period of record 12,700 ft³/s, from rating curve extended above 3,500 ft³/s by logarithmic plotting. Maximum gage height for current water year (unaffected by backwater from B. Everett Jordan Lake) 9.07 ft.

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DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011
DAILY MEAN VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	396	22	26	24	25	118	194	14	33	26	41	14
2	337	19	39	28	25	111	92	13	27	18	19	13
3	132	18	39	45	26	52	58	13	23	15	14	12
4	42	20	36	41	28	35	43	109	20	14	13	11
5	26	54	35	35	143	28	50	134	18	263	12	11
6	23	57	36	31	318	26	60	53	18	113	38	56
7	20	43	35	29	160	70	37	71	17	99	57	380
8	17	33	33	27	71	63	29	55	17	316	18	365
9	15	28	31	24	48	43	34	41	16	508	14	54
10	14	24	29	23	36	87	208	26	16	518	13	25
11	14	22	28	22	31	137	162	22	18	89	12	18
12	14	21	29	22	28	98	91	21	42	35	12	16
13	14	20	39	22	24	67	55	56	30	25	16	15
14	38	20	44	22	100	47	39	72	21	21	42	13
15	128	19	30	22	184	38	30	131	16	19	22	13
16	57	19	9.5	21	163	49	26	56	15	16	17	14
17	27	22	12	20	68	46	180	32	14	14	14	15
18	21	27	14	20	26	34	129	31	13	14	13	14
19	18	27	19	21	22	27	60	24	13	14	12	14
20	17	25	23	21	20	23	38	18	16	14	11	13
21	17	23	22	21	20	20	29	15	15	13	11	14
22	16	22	23	20	19	19	24	13	14	13	12	187
23	15	22	23	20	19	20	56	13	14	12	13	102
24	14	22	22	19	19	96	37	15	14	12	12	170
25	15	22	21	19	20	88	27	12	13	12	12	68
26	18	21	21	25	20	49	23	12	12	21	12	26
27	12	21	25	69	20	78	21	77	13	14	12	20
28	16	21	28	56	21	84	22	710	17	11	14	39
29	26	22	28	40	---	60	21	622	172	13	16	38
30	26	22	27	33	---	115	19	94	52	12	20	21
31	24	---	25	28	---	366	---	44	---	24	19	---
Total	1,569	758	851.5	870	1,704	2,194	1,894	2,619	739	2,308	563	1,771
Mean	50.6	25.3	27.5	28.1	60.9	70.8	63.1	84.5	24.6	74.5	18.2	59.0
Max	396	57	44	69	318	366	208	710	172	518	57	380
Min	12	18	9.5	19	19	19	19	12	12	11	11	11
Cfsm	0.67	0.33	0.36	0.37	0.80	0.93	0.83	1.11	0.32	0.98	0.24	0.78
In.	0.77	0.37	0.42	0.43	0.84	1.08	0.93	1.28	0.36	1.13	0.28	0.87

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 2011, BY WATER YEAR (WY)

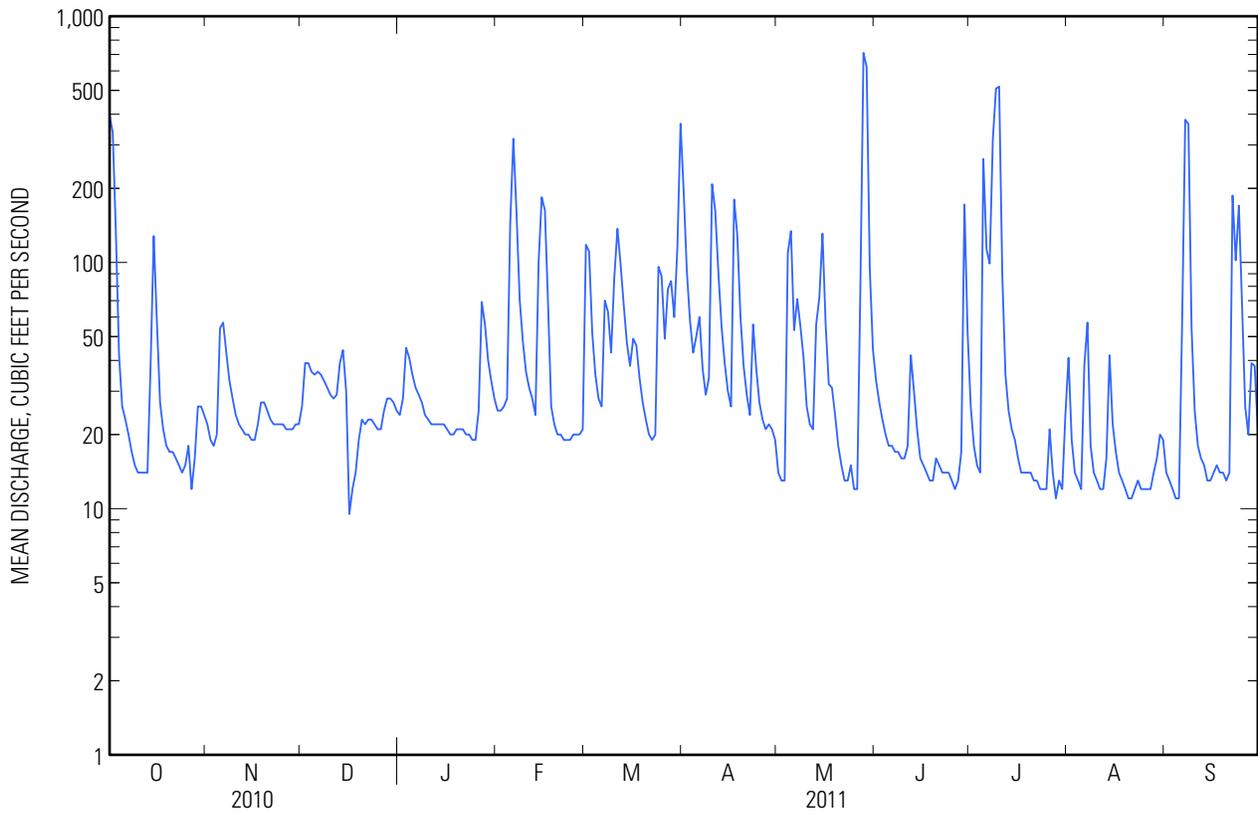
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	47.5	82.3	87.5	134	170	186	139	81.3	45.6	46.3	42.2	68.0
Max	231	477	264	509	463	493	618	411	154	156	121	507
(WY)	(2003)	(2007)	(1984)	(1991)	(1998)	(1998)	(1987)	(1997)	(1995)	(1995)	(2004)	(1999)
Min	12.8	12.6	17.0	28.1	58.2	42.0	13.5	18.1	13.1	12.9	12.4	10.8
(WY)	(1987)	(2008)	(1989)	(2011)	(2002)	(1985)	(1985)	(2002)	(2002)	(1993)	(2006)	(1984)

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SUMMARY STATISTICS

	Calendar Year 2010		Water Year 2011		Water Years 1983 - 2011	
Annual total	24,159.1		17,840.5			
Annual mean	66.2		48.9		93.7	
Highest annual mean					180	2003
Lowest annual mean					38.3	2002
Highest daily mean	1,120	Jan 26	710	May 28	6,300	Sep 6, 1996
Lowest daily mean	7.9	Sep 23	9.5	Dec 16	0.39	Dec 30, 1988
Annual seven-day minimum	11	Sep 20	12	Aug 19	4.1	Dec 20, 2001
Maximum peak flow			953	May 28	^a 12,700	Sep 6, 1996
Maximum peak stage			^a 9.07	May 28	^a 18.96	Apr 15, 2003
Instantaneous low flow			^a 7.4	Aug 21	^a 0.00	Oct 4, 1996
Annual runoff (cfsm)	0.872		0.644		1.23	
Annual runoff (inches)	11.84		8.74		16.77	
10 percent exceeds	162		99		206	
50 percent exceeds	26		23		33	
90 percent exceeds	13		13		13	

^a See Remarks.



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WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1983-86, 1989-95, 1997-99, 2001, 2004, 2006-11.

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 2010 TO SEPTEMBER 2011

Part 1 of 6

[%, percent; ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; P, phosphorus; SiO₂, silicon dioxide; ft³/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]

Date	Sample start time	Medium name	Sample type	Barometric pressure, mm Hg (00025)	Color, water, filtered, platinum cobalt units (00080)	Discharge, instantaneous, ft ³ /s (00061)	Dissolved oxygen, water, unfiltered, mg/L (00300)	Dissolved oxygen, water, unfiltered, % saturation (00301)	pH, water, unfiltered, field, standard units (00400)
03-31-2011	0815	Surface water	Regular	755	150	376	7.9	68	6.7

WATER-QUALITY DATA

WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011

Part 2 of 6

[%, percent; ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; P, phosphorus; SiO₂, silicon dioxide; ft³/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]

Date	Sample start time	Specific conductance, water, unfiltered, µS/cm at 25 °C (00095)	Temperature, water, °C (00010)	Dissolved solids dried at 180 °C, water, filtered, mg/L (70300)	Hardness, water, mg/L as CaCO ₃ (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 ₃ (00419)
03-31-2011	0815	122	8.7	79	29.8	7.72	2.54	2.35	12.2	23.3

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WATER-QUALITY DATA
WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011

Part 3 of 6

[%, percent; ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; P, phosphorus; SiO₂, silicon dioxide; ft³/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]

Date	Sample start time	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 ₂ (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)

WATER-QUALITY DATA
WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011

Part 4 of 6

[%, percent; ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; P, phosphorus; SiO₂, silicon dioxide; ft³/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]

Date	Sample start time	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)

WATER-QUALITY DATA
WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011

Part 5 of 6

[%, percent; ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; P, phosphorus; SiO₂, silicon dioxide; ft³/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]

Date	Sample start time	Lead, water, unfiltered, recoverable, µg/L (01051)	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)

02097314 NEW HOPE CREEK NEAR BLANDS, NC—Continued

**WATER-QUALITY DATA
WATER YEAR OCTOBER 2010 TO SEPTEMBER
2011**

Part 6 of 6

[%, percent; ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; P, phosphorus; SiO₂, silicon dioxide; ft³/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]

Date	Sample start time	Organic carbon, water, unfiltered, mg/L (00680)	Suspended sediment concentration, mg/L (80154)
03-31-2011	0815	15.9	65