

Water-Data Report 2007

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 215.19 ft above NGVD of 1929. Satellite telemetry at station.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Considerable diurnal fluctuation at low flow. An average of 39.6 ft³/s was diverted from the Neuse River Basin for Durham municipal water supply; 16.1 ft³/s was returned to the Cape Fear River Basin, and about 13.1 ft³/s was returned to 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 not determined due to regulation. Minimum discharge unregulated, 4.2 ft³/s, April 28, 29, May 1, 2, and July 10, 1985. Minimum discharge for current water year due to regulation. Maximum discharge for period of record 12,700 ft³/s, from rating curve extended above 3,500 ft³/s by logarithmic plotting.

02097314 NEW HOPE CREEK NEAR BLANDS, NC—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

[e, estimated]

| Day | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
|--------------|-------|--------|-------|-------|-------|-------|-------|-------|------|------|------|-------|
| 1 | 12 | 13 | 86 | 88 | 42 | 55 | 27 | 27 | 17 | 23 | 14 | 12 |
| 2 | 11 | 13 | 88 | 161 | 64 | 224 | 27 | 26 | 17 | 15 | 14 | 12 |
| 3 | 11 | 14 | 67 | 134 | 74 | 460 | 24 | 25 | 83 | 14 | 13 | 12 |
| 4 | 11 | 14 | 51 | 102 | 68 | 411 | 25 | 24 | 133 | 13 | 12 | 13 |
| 5 | 12 | 14 | 42 | 80 | e57 | 249 | 23 | 24 | 37 | 13 | 12 | 13 |
| 6 | 13 | 14 | 34 | 116 | e50 | 143 | 22 | 24 | 29 | 13 | 12 | 12 |
| 7 | 31 | 45 | 25 | 254 | 45 | 72 | 22 | 24 | 24 | 12 | 12 | 13 |
| 8 | 33 | 269 | 20 | 332 | 41 | 57 | 24 | 24 | 19 | 11 | 13 | 12 |
| 9 | 27 | 344 | 19 | 414 | 38 | 48 | 20 | 34 | 18 | 12 | 13 | 12 |
| 10 | 16 | 202 | 17 | 327 | 35 | 42 | 21 | 89 | 31 | 13 | 12 | 12 |
| 11 | 13 | 98 | 18 | 166 | 33 | 39 | 22 | 43 | 22 | 13 | 12 | 13 |
| 12 | 12 | 197 | 17 | 111 | 33 | 36 | 289 | 76 | 18 | 15 | 12 | 13 |
| 13 | 12 | 378 | 16 | 84 | 32 | 33 | 380 | 304 | 27 | 15 | 12 | 13 |
| 14 | 11 | 331 | 16 | 70 | 128 | 42 | 82 | 85 | 39 | 13 | 12 | 15 |
| 15 | 11 | 164 | 16 | 62 | 225 | 32 | 186 | 41 | 26 | 12 | 13 | 54 |
| 16 | 11 | 224 | 16 | 53 | 235 | 96 | 628 | 30 | 19 | 12 | 13 | 22 |
| 17 | 14 | 435 | 16 | 46 | 183 | 400 | 940 | 26 | 17 | 13 | 13 | 15 |
| 18 | 204 | 365 | 17 | 44 | 106 | 378 | 734 | 24 | 18 | 41 | 12 | 13 |
| 19 | 85 | 189 | 18 | 53 | 66 | 127 | 468 | 22 | 17 | 25 | 13 | 13 |
| 20 | 33 | 102 | 18 | 55 | 53 | 79 | 283 | 20 | 17 | 16 | 13 | 13 |
| 21 | 27 | 71 | 18 | 50 | 47 | 64 | 172 | 21 | 19 | 13 | 13 | 14 |
| 22 | 17 | 433 | 23 | 198 | 44 | 52 | 99 | 20 | 18 | 12 | 16 | 13 |
| 23 | 20 | 1,640 | 121 | 304 | 40 | 46 | 61 | 19 | 17 | 12 | 30 | 12 |
| 24 | 17 | 1,670 | 125 | 196 | 36 | 40 | 46 | 20 | 16 | 12 | 22 | 10 |
| 25 | 14 | 2,080 | 190 | 126 | 39 | 36 | 40 | 19 | 30 | 12 | 15 | 7.2 |
| 26 | 12 | 2,380 | 579 | 93 | 173 | 33 | 36 | 18 | 24 | 12 | 14 | 7.3 |
| 27 | 13 | 1,560 | 610 | 74 | 169 | 30 | 36 | 17 | 19 | 27 | 13 | 7.4 |
| 28 | 197 | 611 | 343 | 61 | 78 | 31 | 32 | 17 | 18 | 138 | 14 | 7.4 |
| 29 | 197 | 287 | 161 | 54 | --- | 32 | 29 | 18 | 17 | 32 | 14 | 8.1 |
| 30 | 46 | 152 | 111 | 48 | --- | 40 | 28 | 17 | 64 | 18 | 13 | 8.6 |
| 31 | 25 | --- | 84 | 43 | --- | 31 | --- | 17 | --- | 15 | 13 | --- |
| Total | 1,168 | 14,309 | 2,982 | 3,999 | 2,234 | 3,458 | 4,826 | 1,195 | 870 | 617 | 429 | 402.0 |
| Mean | 37.7 | 477 | 96.2 | 129 | 79.8 | 112 | 161 | 38.5 | 29.0 | 19.9 | 13.8 | 13.4 |
| Max | 204 | 2,380 | 610 | 414 | 235 | 460 | 940 | 304 | 133 | 138 | 30 | 54 |
| Min | 11 | 13 | 16 | 43 | 32 | 30 | 20 | 17 | 16 | 11 | 12 | 7.2 |
| Cfsm | 0.50 | 6.28 | 1.27 | 1.70 | 1.05 | 1.47 | 2.12 | 0.51 | 0.38 | 0.26 | 0.18 | 0.18 |
| In. | 0.57 | 7.01 | 1.46 | 1.96 | 1.09 | 1.69 | 2.37 | 0.59 | 0.43 | 0.30 | 0.21 | 0.20 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 2007, BY WATER YEAR (WY)

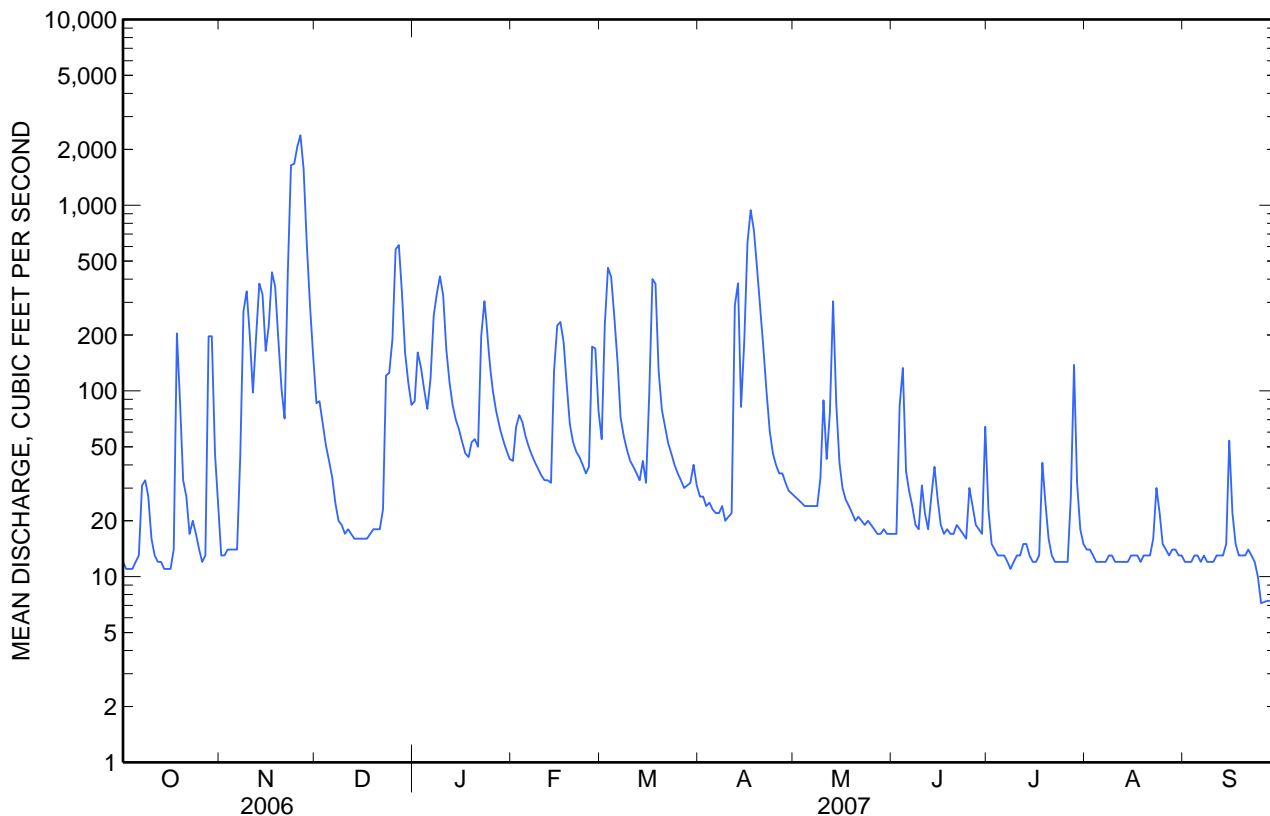
| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
|-------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Mean | 50.5 | 86.3 | 84.0 | 144 | 181 | 191 | 148 | 81.9 | 46.1 | 45.5 | 43.6 | 63.2 |
| Max | 231 | 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 | 16.1 | 17.0 | 31.6 | 58.2 | 42.0 | 13.5 | 18.1 | 13.1 | 12.9 | 12.4 | 10.8 |
| (WY) | (1987) | (1985) | (1989) | (2001) | (2002) | (1985) | (1985) | (2002) | (2002) | (1993) | (2006) | (1984) |

02097314 NEW HOPE CREEK NEAR BLANDS, NC—Continued

SUMMARY STATISTICS

| | Calendar Year 2006 | | Water Year 2007 | | Water Years 1983 - 2007 | |
|---------------------------------|--------------------|--------|------------------|--------|-----------------------------|--------------|
| Annual total | 31,722.4 | | 36,489.0 | | | |
| Annual mean | 86.9 | | 100 | | 96.5 | |
| Highest annual mean | | | | | 180 | 2003 |
| Lowest annual mean | | | | | 38.3 | 2002 |
| Highest daily mean | 2,380 | Nov 26 | 2,380 | Nov 26 | 6,300 | Sep 6, 1996 |
| Lowest daily mean | 7.9 | Aug 13 | 7.2 | Sep 25 | 0.39 | Dec 30, 1988 |
| Annual seven-day minimum | 8.7 | Aug 10 | 8.0 | Sep 24 | 4.1 | Dec 20, 2001 |
| Maximum peak flow | | | 2,560 | Nov 26 | ^a 12,700 | Sep 6, 1996 |
| Maximum peak stage | | | 10.59 | Nov 26 | ^a 18.96 | Apr 15, 2003 |
| Instantaneous low flow | | | ^a 6.4 | Sep 24 | ^a NOT DETERMINED | |
| Annual runoff (cfsm) | 1.15 | | 1.32 | | 1.27 | |
| Annual runoff (inches) | 15.55 | | 17.88 | | 17.28 | |
| 10 percent exceeds | 185 | | 229 | | 211 | |
| 50 percent exceeds | 28 | | 27 | | 34 | |
| 90 percent exceeds | 11 | | 12 | | 13 | |

^a See Remarks.



02097314 NEW HOPE CREEK NEAR BLANDS, NC—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1983-86, 1989-1995, 1997-1999, 2001, 2004, 2006-07.

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 2006 TO SEPTEMBER 2007**

Part 1 of 4

| Date | Time | Instan- taneous dis- charge, cfs (00061) | Color, water, fltrd, Pt-Co units (00080) | Baro- metric pres- sure, mm Hg (00025) | Dis- solved oxygen, mg/L (00300) | Dis- solved oxygen, percent of sat- uration (00301) | pH, water, unfltrd field, std units (00400) | Specif- ic conduc- tance, wat unf µS/cm 25 degC (00095) | Temper- ature, water, deg C (00010) | Hard- ness, water, mg/L as CaCO3 (00900) | Calcium water, fltrd, mg/L (00915) | Magnes- ium, water, fltrd, mg/L (00925) | Potas- sium, water, fltrd, mg/L (00935) |
|--------------|------|---|---|---|--|---|---|--|---|---|--|--|--|
| Jan 08... | 1500 | 337 | 100 | 753 | 7.3 | 71 | 5.5 | 117 | 13.3 | 33 | 8.75 | 2.75 | 2.09 |

**WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007**

Part 2 of 4

| Date | Sodium, water, fltrd, mg/L (00930) | ANC, wat unf incrm. titr., field, mg/L as CaCO3 (00419) | Bicar- bonate, wat unf incrm. titr., field, mg/L (00450) | Chlor- ide, water, fltrd, mg/L (00940) | Fluor- ide, water, fltrd, mg/L (00950) | Silica, water, fltrd, mg/L (00955) | Sulfate water, fltrd, mg/L (00945) | Residue on evap. at 180degC wat flt mg/L (70300) | Ammonia + org-N, water, unfltrd mg/L as N (00625) | Ammonia water, fltrd, mg/L as N (00608) | Nitrite + nitrate water fltrd, mg/L as N (00631) | Nitrite water, fltrd, mg/L as N (00613) | Ortho- phos- phate, water, fltrd, mg/L as P (00671) |
|--------------|--|--|---|---|---|--|--|---|--|--|---|--|--|
| Jan 08... | 7.92 | 28 | 35 | 8.61 | .14 | 9.62 | 9.22 | 97 | .67 | .027 | .200 | .003 | .031 |

02097314 NEW HOPE CREEK NEAR BLANDS, NC—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 3 of 4

| Date | Phosphorus, water, unfltrd mg/L (00665) | Organic carbon, water, unfltrd mg/L (00680) | Aluminum, water, unfltrd recover-able, µg/L (01105) | Arsenic, water, unfltrd µg/L (01002) | Cadmium, water, unfltrd µg/L (01027) | Chromium, water, unfltrd recover-able, µg/L (01034) | Cobalt, water, unfltrd recover-able, µg/L (01037) | Copper, water, unfltrd recover-able, µg/L (01042) | Iron, water, unfltrd recover-able, µg/L (01045) | Lead, water, unfltrd recover-able, µg/L (01051) | Manganese, water, unfltrd recover-able, µg/L (01055) | Mercury, water, unfltrd recover-able, µg/L (71900) | Molybdenum, water, unfltrd recover-able, µg/L (01062) |
|-----------|---|---|---|--|--|---|---|---|---|---|--|--|---|
| Jan 08... | .140 | 12.5 | 628 | .76 | .02 | 1.3 | .493 | 3.8 | 1,110 | 1.60 | 85.8 | .013 | .8 |

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 4 of 4

| Date | Nickel, water, unfltrd recover-able, µg/L (01067) | Selenium, water, unfltrd µg/L (01147) | Silver, water, unfltrd recover-able, µg/L (01077) | Zinc, water, unfltrd recover-able, µg/L (01092) | Suspended sediment concentration mg/L (80154) |
|-----------|---|---|---|---|---|
| Jan 08... | 1.47 | .12 | .03 | 9 | 24 |