

The Central Coastal Plain Water Use Area (CCPCUA) 2007

The survey was conducted to document water use for the agricultural sector in Beaufort, Carteret, Craven, Duplin, Edgecombe, Greene, Jones, Lenoir, Martin, Onslow, Pamlico, Pitt, Washington, Wayne, and Wilson Counties. CCPCUA and associated rules were created in May, 2001 to help manage water resources within the 15 county area (General Statute 143-215-22H). Because limited information was available on agricultural water use, the North Carolina Department of Agriculture and Consumer Services was requested to collect information from farmers who withdraw 10,000 to 100,000 gallons in any one day. Individual responses remain confidential and are only used in combination with other reports to produce county totals.

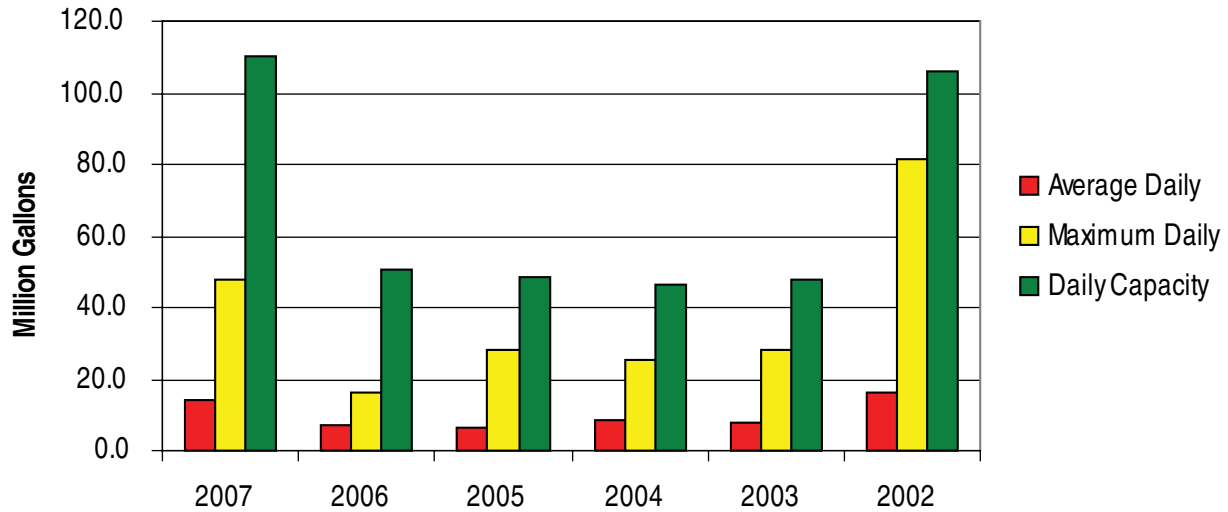
Farmers who use over 100,000 gallons in any one day are required to report their water usage directly to the Department of Environment and Natural Resources (DENR). Data for 2007 was furnished by DENR and are summarized on the last page of this report.

Of the farms surveyed in the 15 county area, 229 withdrew between 10,000 and 100,000 gallons of water in any one day in 2007 compared with 148 farms in 2006. Substantial drought began in May and continued throughout 2007, dramatically increasing water usage over 2006. However, average and maximum daily water use remained well below the daily withdrawal capacity. July was the largest water use month in 2007, averaging 40.0 million gallons daily, with a maximum daily withdrawal of 47.8 million gallons. June was the largest water use month in 2006, averaging 15.1 million gallons daily, with a maximum daily withdrawal of 16.3 million gallons. July was the largest water use month in 2002 (the year of the most recent substantial drought), averaging 42.6 million gallons daily, with a maximum daily withdrawal of 81.3 million gallons. The annual average daily water uses for 2007, 2006 and 2002 respectively are 14.3 million, 6.7 million and 16.1 million gallons. The daily withdrawal capacity for the 229 operations totals 110.2 million, 50.4 million and 102.3 million gallons in 2007, 2006 and 2002 respectively.

Contractors in the region were contacted by email and phone. In addition, a questionnaire was mailed to operations which had previously reported, or had potential for, large water usage in the 15 county area. Operations that did not respond were contacted by telephone follow-up. For non-responses and refusals, the size and type of each operation was reviewed in order to estimate the farm's approximate water usage.

The total number of operations by type, as well as the monthly total across operations for average and maximum daily water use was summarized in each county. The average daily water use for all operations was summed for each month. The resulting annual average of these monthly totals is also published. The type of operations will not add to the total in all counties, because some operations had irrigated cropland and livestock. The daily withdrawal capacity is the potential amount of ground and/or surface water that could be utilized in a 24-hour period. The published capacity represents the sum of capacities for all reporting operations in that county. Data was not disclosed if there were less than three operations in any category or if one report comprised 60 percent or more of the total.

Water Use Comparisons Ground and Surface Combined



Central Coastal Plain Total Water Use by Month

2007

| Month | # Operations | Total Avg. Daily-Ground (gallons) | Total Avg. Daily-Surface (gallons) | Total Max Daily-Ground (gallons) | Total Max Daily-Surface (gallons) |
|----------------|--------------|---|--|--|---|
| Jan | 145 | 1,835,028 | 570,000 | 1,952,316 | 595,000 |
| Feb | 148 | 2,062,407 | 567,321 | 2,234,325 | 601,000 |
| March | 157 | 3,678,249 | 629,698 | 3,920,601 | 1,037,594 |
| April | 167 | 3,169,567 | 7,894,748 | 3,496,449 | 8,525,250 |
| May | 182 | 3,558,951 | 13,790,380 | 4,068,547 | 14,918,602 |
| June | 215 | 8,815,874 | 30,215,807 | 9,844,338 | 34,168,673 |
| July | 221 | 8,223,442 | 31,826,296 | 9,211,628 | 38,600,775 |
| Aug | 195 | 5,398,664 | 24,575,620 | 5,616,804 | 29,777,250 |
| Sept | 170 | 3,222,386 | 6,482,940 | 3,319,214 | 7,846,750 |
| Oct | 159 | 2,523,826 | 4,145,000 | 2,829,388 | 4,695,549 |
| Nov | 157 | 2,397,906 | 1,674,448 | 2,514,675 | 1,721,154 |
| Dec | 154 | 2,533,818 | 1,578,114 | 2,642,029 | 1,603,154 |
| Annual Average | | 3,951,677 | 10,329,198 | | |

Operations:

229 total operations
 148 livestock
 94 irrigation
 5 aquaculture

Daily Withdrawal Capacity (incl. ground and surface):

110,263,019 (gallons)

2006

| Month | # Operations | Total Avg. Daily-Ground (gallons) | Total Avg. Daily-Surface (gallons) | Total Max Daily-Ground (gallons) | Total Max Daily-Surface (gallons) |
|----------------|--------------|---|--|--|---|
| Jan | 122 | 1,625,047 | 240,000 | 1,848,028 | 265,000 |
| Feb | 124 | 1,763,838 | 256,071 | 2,003,462 | 265,000 |
| March | 127 | 1,909,680 | 1,492,290 | 2,208,388 | 1,826,000 |
| April | 134 | 2,126,004 | 8,497,225 | 2,850,359 | 8,836,997 |
| May | 138 | 2,799,653 | 10,921,663 | 3,475,885 | 11,322,864 |
| June | 141 | 3,612,831 | 11,492,957 | 4,306,480 | 11,963,968 |
| July | 139 | 3,277,799 | 7,275,989 | 3,084,621 | 7,946,027 |
| Aug | 140 | 3,107,474 | 6,236,063 | 3,553,266 | 7,277,182 |
| Sept | 129 | 2,453,107 | 1,719,843 | 2,731,260 | 1,756,979 |
| Oct | 126 | 1,961,715 | 1,431,682 | 2,190,109 | 1,461,905 |
| Nov | 124 | 1,769,291 | 1,351,995 | 1,998,980 | 1,372,611 |
| Dec | 122 | 1,827,889 | 1,251,421 | 2,106,292 | 1,276,777 |
| Annual Average | | 4,364,628 | 4,347,267 | | |

Operations:

148 total operations

119 livestock

31 irrigation

4 aquaculture

Daily Withdrawal Capacity (incl. ground and surface):

50,368,476 (gallons)

2002

| Month | # Operations | Total Avg. Daily-Ground (gallons) | Total Avg. Daily-Surface (gallons) | Total Max Daily-Ground (gallons) | Total Max Daily-Surface (gallons) |
|----------------|--------------|---|--|--|---|
| Jan | 176 | 2,369,221 | 1,288,790 | 3,052,623 | 1,326,000 |
| Feb | 183 | 2,475,708 | 1,429,550 | 3,153,464 | 1,496,000 |
| March | 195 | 2,887,374 | 1,726,070 | 3,666,590 | 1,823,760 |
| April | 210 | 3,303,190 | 6,048,854 | 4,189,099 | 6,489,364 |
| May | 237 | 3,938,320 | 22,205,908 | 4,963,797 | 29,267,388 |
| June | 269 | 5,053,872 | 43,233,863 | 6,172,900 | 50,565,971 |
| July | 282 | 5,617,843 | 36,993,443 | 6,830,971 | 74,498,500 |
| Aug | 245 | 4,820,987 | 25,283,835 | 5,987,555 | 46,987,277 |
| Sept | 202 | 4,202,644 | 7,644,633 | 5,317,756 | 8,779,559 |
| Oct | 196 | 3,417,141 | 1,381,594 | 4,530,838 | 1,726,904 |
| Nov | 180 | 2,776,970 | 1,368,790 | 3,607,327 | 1,432,000 |
| Dec | 177 | 2,596,442 | 1,666,790 | 3,316,155 | 1,728,000 |
| Annual Average | | 3,621,643 | 12,522,677 | | |

Operations:

314 total operations

171 livestock

151 irrigation

9 aquaculture

Daily Withdrawal Capacity (incl ground and surface):

106,274,540 (gallons)

Duplin - Water Use by Month 2007

| Month | # Operations | Avg. # Days Ground | Avg. # Days Surface | Total Avg. Daily Ground (gallons) | Total Avg. Daily Surface (gallons) | Total Max Daily Ground (gallons) | Total Max Daily Surface (gallons) |
|-------|--------------|-----------------------|------------------------|--|---|---|--|
| Jan | 71 | 31 | * | 892,895 | * | 914,037 | * |
| Feb | 71 | 28 | * | 1,034,876 | * | 1,055,865 | * |
| March | 71 | 31 | * | 1,152,178 | * | 1,185,194 | * |
| April | 72 | 30 | * | 1,038,665 | * | 1,062,871 | * |
| May | 72 | 31 | * | 1,081,242 | * | 1,103,144 | * |
| June | 73 | 29 | * | 2,755,257 | * | 2,800,994 | * |
| July | 74 | 30 | * | 2,520,330 | * | 2,568,051 | * |
| Aug | 74 | 30 | * | 2,071,016 | * | 2,102,957 | * |
| Sept | 72 | 30 | * | 1,552,586 | * | 1,564,790 | * |
| Oct | 72 | 31 | * | 1,246,903 | * | 1,263,720 | * |
| Nov | 75 | 30 | * | 1,241,126 | * | 1,262,034 | * |
| Dec | 75 | 31 | * | 1,241,009 | * | 1,264,006 | * |

Operations:

82 total operations

74 livestock

8 irrigation

* disclosure - one operation is greater than 60% of total OR less than 3 operations

Daily Withdrawal Capacity (incl. ground and surface):

4,565,348 (gallons)

Greene - Water Use by Month 2007

| Month | # Operations | Avg. # Days Ground | Avg. # Days Surface | Total Avg. Daily Ground (gallons) | Total Avg. Daily Surface (gallons) | Total Max Daily Ground (gallons) | Total Max Daily Surface (gallons) |
|-------|--------------|-----------------------|------------------------|--|---|---|--|
| Jan | 11 | 31 | * | 183,708 | * | 190,093 | * |
| Feb | 11 | 28 | * | 203,814 | * | 212,055 | * |
| March | 11 | 31 | * | 227,335 | * | 233,406 | * |
| April | 12 | 29 | * | 198,258 | * | 210,687 | * |
| May | 12 | 30 | * | 202,591 | * | 218,855 | * |
| June | 19 | 28 | 16 | 700,435 | 1,282,617 | 907,614 | 1,323,935 |
| July | 4 | * | 13 | * | 1,135,674 | * | 1,140,049 |
| Aug | * | * | * | * | * | * | * |
| Sept | 12 | 28 | * | 257,099 | * | 265,689 | * |
| Oct | 10 | 31 | * | 209,963 | * | 224,561 | * |
| Nov | 11 | 30 | * | 186,341 | * | 197,807 | * |
| Dec | 11 | 31 | * | 204,927 | * | 211,393 | * |

Operations:

17 total operations

13 livestock

8 irrigation and aquaculture

* disclosure - one operation is greater than 60% of total OR less than 3 operations

Daily Withdrawal Capacity (incl. ground and surface):

5,238,325 (gallons)

Jones - Water Use by Month 2007

| Month | # Operations | Avg. # Days Ground | Avg. # Days Surface | Total Avg. Daily Ground (gallons) | Total Avg. Daily Surface (gallons) | Total Max Daily Ground (gallons) | Total Max Daily Surface (gallons) |
|-------|--------------|-----------------------|------------------------|--|---|---|--|
| Jan | 10 | 31 | * | 125,593 | * | 126,463 | * |
| Feb | 10 | 28 | * | 132,346 | * | 133,239 | * |
| March | 10 | 31 | * | 156,252 | * | 157,277 | * |
| April | 10 | 30 | * | 140,930 | * | 143,851 | * |
| May | 10 | 31 | * | 138,833 | * | 140,424 | * |
| June | 10 | 30 | * | 236,773 | * | 237,484 | * |
| July | 10 | 31 | * | 197,457 | * | 201,389 | * |
| Aug | 10 | 31 | * | 217,648 | * | 220,948 | * |
| Sept | 10 | 30 | * | 254,920 | * | 257,232 | * |
| Oct | 10 | 31 | * | 184,681 | * | 185,970 | * |
| Nov | 11 | 30 | * | 175,517 | * | 176,764 | * |
| Dec | 11 | 31 | * | 220,645 | * | 221,711 | * |

Operations:

11 total operations

11 livestock

* disclosure - one operation is greater than 60% of total OR less than 3 operations

Daily Withdrawal Capacity (incl. ground and surface):

374,714 (gallons)

Lenoir - Water Use by Month 2007

| Month | # Operations | Avg. # Days Ground | Avg. # Days Surface | Total Avg. Daily Ground (gallons) | Total Avg. Daily Surface (gallons) | Total Max Daily Ground (gallons) | Total Max Daily Surface (gallons) |
|-------|--------------|-----------------------|------------------------|--|---|---|--|
| Jan | 4 | 26 | * | 43,642 | * | 47,032 | * |
| Feb | * | * | * | * | * | * | * |
| March | 4 | 27 | * | 43,696 | * | 47,200 | * |
| April | 10 | 18 | 8 | 1,001,253 | 4,950,918 | 1,003,300 | 5,540,680 |
| May | 11 | 15 | * | 1,249,000 | * | 1,253,229 | * |
| June | 13 | 16 | 9 | 1,294,661 | 5,680,704 | 1,350,143 | 5,975,532 |
| July | 12 | 16 | 14 | 1,231,174 | 4,917,990 | 1,318,470 | 4,917,990 |
| Aug | 11 | 17 | 9 | 1,061,205 | 5,591,497 | 1,069,092 | 5,609,497 |
| Sept | 7 | 21 | * | 69,935 | * | 77,393 | * |
| Oct | 5 | 23 | * | 54,854 | * | 63,894 | * |
| Nov | 4 | 25 | * | 52,086 | * | 65,439 | * |
| Dec | 4 | 26 | * | 53,697 | * | 66,225 | * |

Operations:

10 total operations

4 livestock

7 irrigation and aquaculture

* disclosure - one operation is greater than 60% of total OR less than 3 operations

Daily Withdrawal Capacity (incl. ground and surface):

9,806,000 (gallons)

Pitt - Water Use by Month 2007

| Month | # Operations | Avg. # Days Ground | Avg. # Days Surface | Total Avg. Daily Ground (gallons) | Total Avg. Daily Surface (gallons) | Total Max Daily Ground (gallons) | Total Max Daily Surface (gallons) |
|-------|--------------|-----------------------|------------------------|--|---|---|--|
| Jan | 8 | 31 | * | 89,481 | * | 94,931 | * |
| Feb | 8 | 28 | * | 125,614 | * | 131,054 | * |
| March | 8 | 31 | * | 109,387 | * | 114,621 | * |
| April | 8 | 30 | * | 107,565 | * | 112,795 | * |
| May | 10 | 28 | * | 154,310 | * | 159,957 | * |
| June | 14 | 24 | * | 349,111 | * | 356,837 | * |
| July | 18 | 25 | 11 | 340,077 | 749,595 | 349,102 | 803,125 |
| Aug | 14 | 26 | * | 373,485 | * | 383,617 | * |
| Sept | 12 | 26 | * | 347,665 | * | 358,075 | * |
| Oct | 9 | 31 | * | 188,831 | * | 199,864 | * |
| Nov | 9 | 30 | * | 177,947 | * | 186,251 | * |
| Dec | 9 | 31 | * | 178,961 | * | 186,906 | * |

Operations:

20 total operations

8 livestock

12 irrigation and aquaculture

* disclosure - one operation is greater than 60% of total OR less than 3 operations

Daily Withdrawal Capacity (incl. ground and surface):

5,609,161 (gallons)

Washington - Water Use by Month 2007

| Month | # Operations | Avg. # Days Ground | Avg. # Days Surface | Total Avg. Daily Ground (gallons) | Total Avg. Daily Surface (gallons) | Total Max Daily Ground (gallons) | Total Max Daily Surface (gallons) |
|-------|--------------|-----------------------|------------------------|--|---|---|--|
| Jan | | | | | | | |
| Feb | | | | | | | |
| March | 3 | 31 | * | 33,374 | * | 33,374 | * |
| April | 3 | 30 | * | 29,870 | * | 29,870 | * |
| May | 4 | 26 | * | 47,461 | * | 47,461 | * |
| June | * | * | * | * | * | * | * |
| July | * | * | * | * | * | * | * |
| Aug | 3 | 31 | * | 52,712 | * | 52,712 | * |
| Sept | 3 | 30 | * | 68,300 | * | 68,300 | * |
| Oct | 3 | 31 | * | 45,771 | * | 45,771 | * |
| Nov | 3 | 30 | * | 42,610 | * | 42,610 | * |
| Dec | * | * | * | * | * | * | * |

Operations:

5 total operations

5 livestock and irrigation

* disclosure - one operation is greater than 60% of total OR less than 3 operations

Daily Withdrawal Capacity (incl. ground and surface):

559,805 (gallons)

Wayne- Water Use by Month 2007

| Month | # Operations | Avg. # Days Ground | Avg. # Days Surface | Total Avg. Daily Ground (gallons) | Total Avg. Daily Surface (gallons) | Total Max Daily Ground (gallons) | Total Max Daily Surface (gallons) |
|-------|--------------|-----------------------|------------------------|--|---|---|--|
| Jan | 21 | 31 | * | 290,862 | * | 368,843 | * |
| Feb | 21 | 28 | * | 314,112 | * | 442,659 | * |
| March | 22 | 30 | * | 406,377 | * | 529,668 | * |
| April | 21 | 29 | * | 397,613 | * | 604,476 | * |
| May | 26 | 30 | 12 | 409,244 | 575,794 | 748,628 | 654,240 |
| June | 31 | 29 | 14 | 2,507,807 | 3,126,841 | 3,159,277 | 4,242,106 |
| July | 33 | 29 | 13 | 2,310,234 | 3,507,717 | 2,854,536 | 5,174,325 |
| Aug | 25 | 30 | 16 | 541,197 | 503,467 | 654,918 | 503,467 |
| Sept | 23 | 29 | * | 461,306 | * | 512,260 | * |
| Oct | 22 | 31 | * | 345,663 | * | 413,469 | * |
| Nov | 22 | 30 | * | 351,512 | * | 399,121 | * |
| Dec | 22 | 31 | * | 376,161 | * | 410,751 | * |

Operations:

34 total operations

23 livestock

19 irrigation and aquaculture

* disclosure - one operation is greater than 60% of total OR less than 3 operations

Daily Withdrawal Capacity (incl. ground and surface):

17,553,273 (gallons)

Wilson- Water Use by Month 2007

| Month | # Operations | Avg. # Days Ground | Avg. # Days Surface | Total Avg. Daily Ground (gallons) | Total Avg. Daily Surface (gallons) | Total Max Daily Ground (gallons) | Total Max Daily Surface (gallons) |
|-------|--------------|-----------------------|------------------------|--|---|---|--|
| Jan | * | * | * | * | * | * | * |
| Feb | 5 | 17 | * | 13,964 | * | 15,250 | * |
| March | 5 | 18 | * | 11,800 | * | 11,800 | * |
| April | 5 | 22 | * | 11,833 | * | 13,600 | * |
| May | 10 | 21 | 13 | 12,233 | 2,525,603 | 13,500 | 2,727,772 |
| June | 16 | 22 | 15 | 13,500 | 6,859,104 | 15,000 | 7,708,143 |
| July | 11 | * | 12 | * | 7,209,935 | * | 7,868,092 |
| Aug | 5 | * | 17 | * | 2,390,814 | * | 2,561,172 |
| Sept | * | * | * | * | * | * | * |
| Oct | * | * | * | * | * | * | * |
| Nov | * | * | * | * | * | * | * |
| Dec | * | * | * | * | * | * | * |

Operations:

20 total operations

22 livestock, irrigation and aquaculture

* disclosure - one operation is greater than 60% of total OR less than 3 operations

Daily Withdrawal Capacity (incl. ground and surface):

60,742,615 (gallons)

Other Counties - Water Use by Month 2007¹

| Month | # Operations | Total Avg. Daily Ground <i>(gallons)</i> | Total Avg. Daily Surface <i>(gallons)</i> | Total Max Daily Ground <i>(gallons)</i> | Total Max Daily Surface <i>(gallons)</i> |
|-------|--------------|---|--|--|---|
| Jan | 19 | 208,847 | 570,000 | 210,916 | 595,000 |
| Feb | 28 | 237,678 | 567,321 | 244,203 | 601,000 |
| March | 29 | 230,150 | 1,937,398 | 300,359 | 2,345,294 |
| April | 31 | 243,579 | 2,943,831 | 315,000 | 2,984,570 |
| May | 33 | 264,037 | 10,688,982 | 383,349 | 11,536,590 |
| June | 39 | 958,331 | 13,266,542 | 1,016,990 | 14,918,957 |
| July | 63 | 1,624,172 | 12,947,669 | 1,920,080 | 17,339,479 |
| Aug | 56 | 1,081,402 | 14,732,127 | 1,132,558 | 19,745,399 |
| Sept | 33 | 210,574 | 6,482,940 | 215,476 | 7,846,750 |
| Oct | 27 | 247,162 | 4,144,999 | 432,138 | 4,695,548 |
| Nov | 22 | 170,768 | 1,674,447 | 184,649 | 1,721,154 |
| Dec | 22 | 258,417 | 1,578,114 | 281,037 | 1,603,154 |

Operations:

30 total operations
 10 livestock
 23 irrigation

Daily Withdrawal Capacity (incl. ground and surface):

5,813,778 (gallons)

¹ Other counties include all data for Beaufort, Carteret, Craven, Edgecombe, Martin, Onslow, and Pamlico as well as non-disclosed data from the published counties.

Department of Environment and Natural Resources Water Use Exceeding 100,000 Gallons Per Day¹ (permit required)

Farmers that use in excess of 100,000 gallons of ground water in any one day are required to obtain a permit from the Department of Environment and to obtain a permit from the Department of Environment and Natural Resources.

Permits Issued:

25 aquaculture operations with 36,821,440 gallons per day permitted capacity and withdrawals totaling 1,275,435,600 gallons reported in 2007.

24 agricultural irrigation operations² with 31,723,521 gallons per day permitted capacity and withdrawals totaling 403,190,422 gallons reported in 2007.

¹ Data supplied by Department of Environment and Natural Resources. The data is for calendar year 2007.

² Includes operations with a combination of irrigation, aquaculture and/or livestock.