



Central Coastal Plain Water Use Study



2004

The Central Coastal Plain Water Use Area (CCPCUA) 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 that 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 that use in excess of 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 2004 were furnished by DENR and is summarized on the last page of this report.

Of the farms surveyed in the 15 county area, 170 withdrew between 10,000 and 100,000 gallons of water in any one day. The data reflects a year of opposite conditions when compared with 2003. April through July were drier than the previous year while the last part of 2004 was much wetter as the result of five hurricanes, a tropical storm, and overall soggy conditions. July was the largest water use month in 2004, averaging 20.5 million gallons daily, with a maximum daily withdrawal of 25.0 million gallons. The largest water use month in 2003 was July, averaging 20.9 million gallons daily, with a maximum daily withdrawal of 28.0 million gallons.

A questionnaire was mailed at the end of December 2004 to 279 operations which had previously reported large water usage in the 15 county area. Operations that did not respond were sent a second questionnaire and were contacted by telephone if their water use information was not received by mail. Data collection was finalized in early April. The table below quantifies the response of those farms. For the 33 non-response operations and the 4 refusals, the size and type of operation for each was reviewed, and determined that the farm could not withdraw 10,000 gallons per day.

121	mail
121	phone
4	refusal
33	non-response

For each county, the total number of operations by type with total and average daily withdrawal capacity was summarized by month. 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. In nearly all cases, this capacity was never met. Data was not disclosed if there were less than three operations in any category or if one report comprised more than 60 percent of the total. Water use data for Beaufort, Carteret, Craven, Edgecombe, Greene, Lenoir, Martin, Pamlico, and Wilson counties were combined and summarized in the Other County table to avoid disclosure of individual data.

Central Coastal Plain Total Water Use by Month 2004

Month	# Operations	Total Avg. Daily-Ground	Total Avg. Daily-Surface	Total Max Daily-Grounds	Total Max Max Daily-surface
Jan	143	2,318,084	1,184,122	2,444,284	1,222,330
Feb	146	2,057,311	1,326,003	2,192,300	1,346,860
March	151	2,737,804	1,877,520	2,851,725	1,936,841
April	156	3,888,190	6,806,312	4,111,880	7,553,560
May	157	3,763,145	7,554,191	4,102,039	8,492,632
June	161	5,667,627	9,344,743	6,564,263	10,171,032
July	162	4,506,399	16,043,319	5,146,324	19,805,936
Aug	156	3,944,526	9,164,300	4,674,028	12,011,548
Sept	149	2,844,583	3,162,966	2,956,769	3,928,645
Oct	150	2,477,553	2,849,072	2,634,662	3,265,001
Nov	144	2,276,544	2,365,372	2,452,417	2,601,470
Dec	143	2,247,244	1,853,641	2,374,862	2,092,330

Operations:

170
136 livestock
34 irrigation
4 aquaculture

Daily Withdrawal Capacity (incl. gound and surface):

total operations 46,402,777

Central Coastal Plain Total Water Use by Month 2003¹

Month	# Operations	Total Avg. Daily-Ground	Total Avg. Daily-Surface	Total Max Daily-Ground	Total Max Max Daily-surface
Jan	184	2,624,332	982,245	3,920,838	1,094,330
Feb	185	2,644,546	982,245	3,800,588	1,094,330
March	193	2,903,635	1,897,245	4,252,389	2,009,330
April	195	3,350,055	2,375,904	4,830,178	2,839,000
May	201	3,444,669	4,113,753	5,132,655	5,669,972
June	209	3,999,089	12,767,675	6,066,389	16,816,416
July	212	4,207,479	16,741,924	6,212,764	21,741,429
Aug	206	4,227,678	8,945,604	6,444,119	11,927,361
Sept	192	3,843,712	3,449,101	5,631,319	4,157,267
Oct	189	3,649,289	1,243,691	5,244,423	1,576,564
Nov	188	3,005,937	662,845	4,272,004	874,930
Dec	188	2,735,672	662,345	4,073,040	874,430

Operations:

223 total operations
179 livestock
48 irrigation
5 aquaculture

Daily Withdrawal Capacity (incl. gound and surface):

47,583,612 (gallons)

¹ 2003 was revised to reflect late reports

Duplin - Water Use by Month 2004

Month	# Operations	Avg. # Days Ground	Avg. # Days Surface	Total Avg. Daily-Ground	Total Avg. Daily-Surface	Total Max Daily-Ground	Total Max Daily-surface
Jan	76	30	*	1,221,964	*	1,264,535	*
Feb	76	27	*	1,044,299	*	1,126,319	*
March	76	30	*	1,123,204	*	1,164,378	*
April	76	30	*	1,150,285	*	1,186,047	*
May	76	31	*	1,391,776	*	1,435,856	*
June	76	30	*	1,549,564	*	1,590,683	*
July	76	31	*	1,544,611	*	1,608,044	*
Aug	76	31	*	1,451,041	*	1,509,915	*
Sept	76	30	*	1,463,247	*	1,514,440	*
Oct	76	31	*	1,300,473	*	1,346,279	*
Nov	76	29	*	1,169,811	*	1,212,245	*
Dec	76	30	*	1,141,144	*	1,180,575	*

Operations:

76 total operations
 74 livestock
 3 irrigation and aquaculture

Daily Withdrawal Capacity (incl. gound and surface):

3,757,604

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

Jones - Water Use by Month 2004

Month	# Operations	Avg. # Days Ground	Avg. # Days Surface	Total Avg. Daily-Ground	Total Avg. Daily-Surface	Total Max Daily-Ground	Total Max Daily-surface
Jan	9	31	0	173,156	0	173,456	0
Feb	9	28	0	148,653	0	148,954	0
March	9	31	0	178,761	0	179,019	0
April	9	30	0	155,036	0	155,983	0
May	9	31	0	174,606	0	175,398	0
June	9	30	0	249,747	0	251,704	0
July	9	31	0	201,456	0	202,955	0
Aug	9	31	0	181,607	0	183,745	0
Sept	9	30	0	222,178	0	222,779	0
Oct	9	31	0	146,860	0	148,328	0
Nov	9	30	0	144,267	0	146,037	0
Dec	9	31	0	156,307	0	156,307	0

Operations:

9 total operations
 9 livestock

Daily Withdrawal Capacity (incl. gound and surface):

340,626

Pitt - Water Use by Month 2004

Month	# Operations	Avg. # Days Ground	Avg. # Days Surface	Total Avg. Daily-Ground	Total Avg. Daily-Surface	Total Max Daily-Ground	Total Max Daily-surface
Jan	6	27	*	96,035	*	105,610	*
Feb	6	25	*	90,689	*	99,064	*
March	6	28	*	100,027	*	109,432	*
April	6	28	*	103,858	*	117,925	*
May	6	29	*	126,945	*	158,247	*
June	7	27	*	226,394	*	240,144	*
July	6	27	*	146,844	*	161,195	*
Aug	6	27	*	142,752	*	158,618	*
Sept	6	29	*	118,639	*	128,165	*
Oct	6	29	*	108,916	*	119,716	*
Nov	6	27	*	100,182	*	109,492	*
Dec	6	27	*	94,228	*	103,886	*

Operations:

8 total operations
 4 livestock
 4 irrigation and aquaculture

Daily Withdrawal Capacity (incl. ground and surface):

1,180,659

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

Washington - Water Use by Month 2004

Month	# Operations	Avg. # Days Ground	Avg. # Days Surface	Total Avg. Daily-Ground	Total Avg. Daily-Surface	Total Max Daily-Ground	Total Max Daily-surface
Jan	9	31	0	75,734	0	75,734	0
Feb	9	28	0	73,938	0	73,938	0
March	9	31	0	86,512	0	86,512	0
April	9	30	0	82,978	0	82,978	0
May	9	31	0	96,917	0	96,917	0
June	9	30	0	125,734	0	125,734	0
July	9	31	0	165,837	0	165,837	0
Aug	9	31	0	151,206	0	151,206	0
Sept	9	30	0	145,536	0	145,536	0
Oct	9	31	0	143,116	0	143,116	0
Nov	9	30	0	100,321	0	100,321	0
Dec	9	31	0	105,232	0	105,232	0

Operations:

9 total operations
 9 livestock

Daily Withdrawal Capacity (incl. ground and surface):

363,166

Wayne - Water Use by Month 2004

Month	# Operations	Avg. # Days Ground	Avg. # Days Surface	Total Avg. Daily-Ground	Total Avg. Daily-Surface	Total Max Daily-Ground	Total Max Daily-surface
Jan	16	31	*	296,800	*	312,721	*
Feb	16	28	*	270,160	*	292,386	*
March	16	31	*	298,291	*	313,668	*
April	16	30	*	287,121	*	335,130	*
May	16	31	*	316,180	*	390,680	*
June	16	30	*	410,873	*	863,877	*
July	16	31	*	378,404	*	467,853	*
Aug	16	31	*	370,641	*	467,300	*
Sept	16	30	*	405,685	*	418,335	*
Oct	16	31	*	285,032	*	331,323	*
Nov	16	30	*	288,350	*	337,062	*
Dec	16	31	*	316,409	*	352,031	*

Operations:

16 total operations
16 livestock

Daily Withdrawal Capacity (incl. ground and surface):

4,033,840

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

Other Counties - Water Use by Month 2004¹

Month	# Operations	Avg. # Days Ground	Avg. # Days Surface	Total Avg. Daily-Ground	Total Avg. Daily-Surface	Total Max Daily-Ground	Total Max Daily-surface
Jan	27	31	23	454,395	1,184,122	512,228	1,222,330
Feb	30	27	18	429,572	1,326,003	451,639	1,346,860
March	35	27	17	951,009	1,877,520	998,716	1,936,841
April	40	27	22	2,108,912	6,806,312	2,233,817	7,553,560
May	41	29	20	1,656,721	7,554,191	1,844,941	8,492,632
June	52	28	20	2,155,049	9,344,743	2,237,855	10,171,032
July	46	28	18	2,069,247	16,043,319	2,540,440	19,805,936
Aug	40	29	18	1,647,279	9,164,300	2,203,244	12,011,548
Sept	33	29	22	489,298	3,162,966	527,514	3,928,645
Oct	34	29	16	493,156	2,849,072	545,900	3,265,001
Nov	28	30	20	473,613	2,365,372	547,260	2,601,470
Dec	27	31	22	433,924	1,853,641	476,831	2,092,330

Operations:

51 total operations
25 livestock and aquaculture
29 irrigation

Daily Withdrawal Capacity (incl. ground and surface):

30,633,881

¹ Other Counties include all data for Beaufort, Carteret, Craven, Edgecombe, Greene, Lenoir, Martin, Pamlico,

***Department of Environment and Natural Resources-
Water Use Exceeding 100,000 Gallons Per Day ¹
(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. Fifty agricultural operations have applied for these permits. To date, forty-nine permits have been issued. The remaining operation has a permit pending.

Permits Issued:

27 aquaculture operations with 35,832,440 gallons per day permitted capacity
948,024,943 gallons total reported usage in 2004

22 agricultural irrigation operations² with 26,316,622 gallons per day permitted capacity
241,963,449 gallons total reported usage in 2004

¹ Data supplied by Department of Environment and Natural Resources. The data is for calendar year 2004

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