

# Central Coastal Plain Capacity Use Area Status Report



October 2014

Ground Water Management Branch

Division of Water Resources

North Carolina Department of Environment and Natural Resources



## Central Coastal Plain Capacity Use Area Status Report

### Introduction

Rule 15A NCAC 02E .0506 requires that the Division of Water Resources (DWR) publish a status report on the Central Coastal Plain Capacity Use Area (CCPCUA) two years after the effective date of the CCPCUA rules, August 1, 2004, and at five year intervals thereafter. This document is the third CCPCUA status report. Its purpose is to inform interested persons about how the CCPCUA is bringing about the use of more sustainable water sources. Figure 1 and the cover page illustrate the CCPCUA, which includes the following 15 counties: Beaufort, Carteret, Craven, Duplin, Edgecombe, Greene, Jones, Lenoir, Martin, Onslow, Pamlico, Pitt, Washington, Wayne and Wilson.

**Figure 1. Central Coastal Plain Capacity Use Area**



The main objective of the CCPCUA rules is to reduce ground water withdrawals to a sustainable level and make large users invest in other sustainable sources of water. The overused aquifers (Black Creek and Upper Cape Fear) are still being overdrawn by some water users in the fifteen county area. All large ground water sources in the 15 county area are regulated through permit or registration so that the over-pumping problem is not shifted to other aquifers.

Effects of the over-pumping include dewatering, declining water levels, and salt water encroachment. These effects and the proposed capacity use designation were discussed at length in the Division's *Central Coastal Plain Capacity Use Investigation Report*, November 1998 downloadable off the Division's website at the following link [http://www.ncwater.org/Reports\\_and\\_Publications/GWMS\\_Reports/cuainvestigation121598.pdf](http://www.ncwater.org/Reports_and_Publications/GWMS_Reports/cuainvestigation121598.pdf). The recent November 2013 Central Coastal Plain Capacity Use Area Assessment Report discussed the latest condition of the CCP aquifers in detail. The DWR concluded after reviewing the aquifer situation that the Environmental Management Commission (EMC) should not take action to alter CCPCUA rule language or

reduction zone boundaries, however, it is becoming more evident some water users are using the Cretaceous aquifers in a sustainable way. The EMC agreed that DWR may now issue temporary permits to permit holders who meet certain requirements under the 15A NCAC 2E .0502(p) provision. Those permittees may avoid future water withdrawal reductions, but temporary permits place additional constraints on reduction wells.

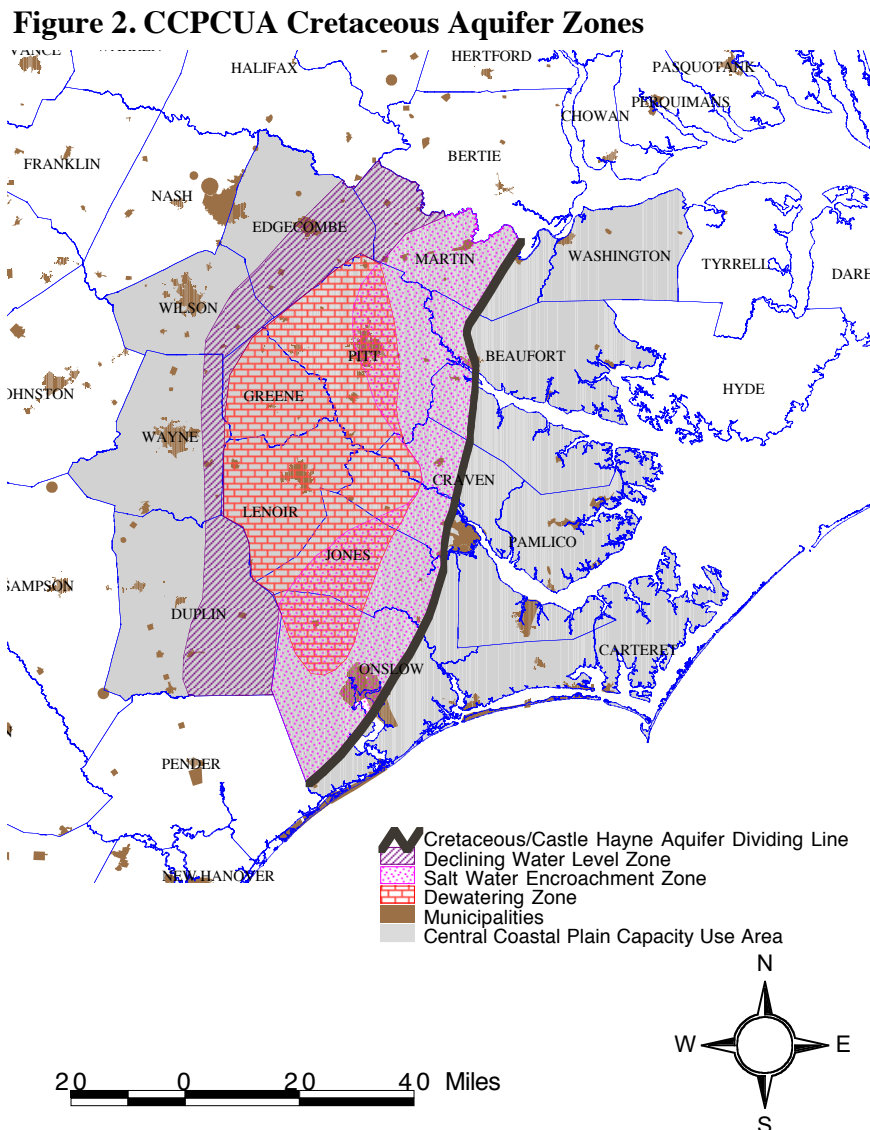
This report can be downloaded from the Division’s website at the following link:

[http://www.ncwater.org/Reports\\_and\\_Publications/GWMS\\_Reports/CCP\\_Assessment\\_2013.pdf](http://www.ncwater.org/Reports_and_Publications/GWMS_Reports/CCP_Assessment_2013.pdf)

Permitting and Registration

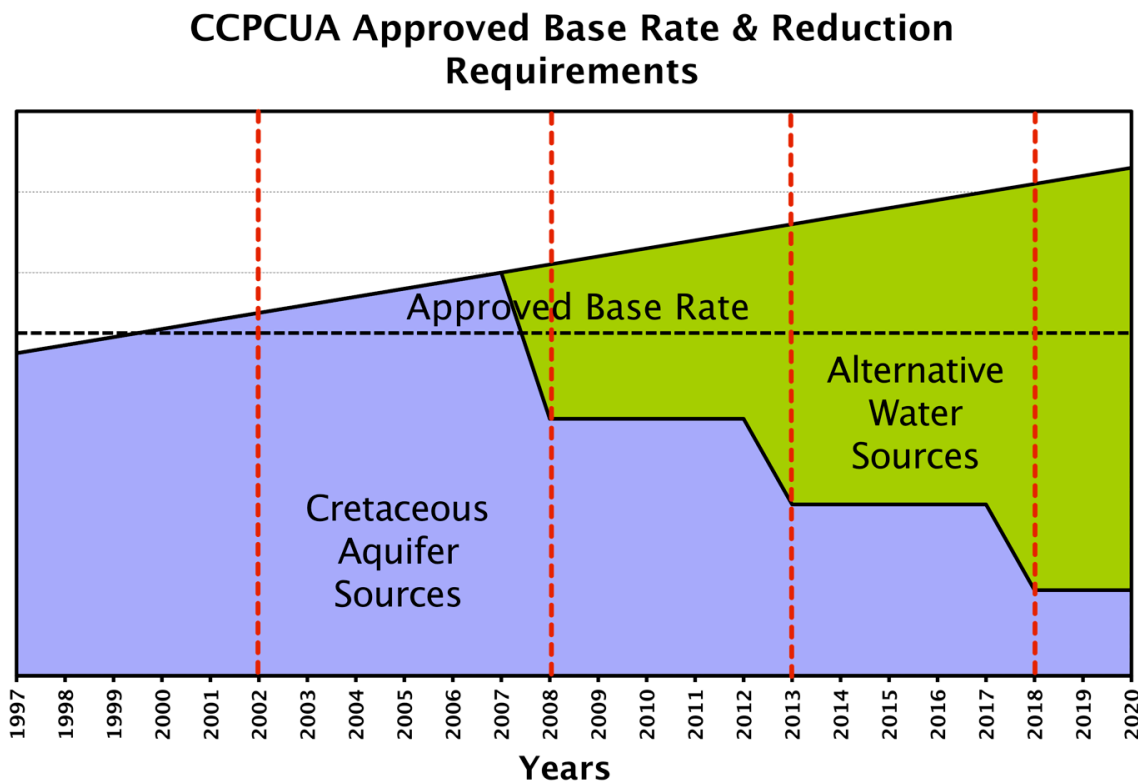
One important result of the CCPCUA rules was the formation of the water use permitting process which establishes water withdrawal requirements for users of more than 100,000 gallons of ground water a day (any day of the year). Permits are issued with maximum withdrawal per day requirements for those facilities using non-endangered aquifers – ground water sources outside the limits of the Cretaceous Aquifer Zones.

Users that withdraw ground water from the endangered aquifers – the aquifers described by the CCPCUA Cretaceous Aquifer Zones map (see figure 2) and DWR’s hydrogeologic database – are issued permits with maximum withdrawal per year requirements.



Permit holders with yearly withdrawals limits will be reduced from each of their Approved Base Rates (ABR) according to schedules set up in rule 15A NCAC 02E .0503. Phased reductions toward the required 75% or 30% cutback occur over a 16 year period (2002 through 2018). Reductions vary depending upon location (which Cretaceous Aquifer Zone applies). A typical example is illustrated in figure 3. ABRs were determined from historical annual usage in 1997 or August 1, 1999 through July 31, 2000, whichever was greater. All 55 annual limit permits have been issued that require an Approved Base Rate calculation and setting of reduction schedules.

Figure 3. Example Reduction Schedule



In this illustration, the applicant has established their approved base rate (ABR) as their August 1, 1999 through July 31, 2000 annual water use and is located in the Dewatering Zone. In 2008, the first 25% reduction is phased in and demand is met by a combination of 75% of the ABR from the Cretaceous aquifer wells and alternative supplies. Further reductions and changes in the levels of use of alternative supplies occur in 2013 and in 2018. In 2018, the permittee has shifted most of their demand to alternative supplies and withdraws a sustainable 25% of the ABR from their Cretaceous wells.

The permitting process achieves a schedule for each permittee toward withdrawal requirements, a better understanding of their ground water situation, plans for future water supplies, water conservation methods and plans, and reporting demands which place a heavier burden on each permittee to monitor the condition of their water supplies. Appendix -Table 1 lists current permit holders.

Permit holders who meet the following well requirements, which demonstrate a sustainable rate of withdrawal, may obtain a temporary permit. A temporary permit allows the permit holder exemption from further reductions as long as the requirements continue to be met. Table 2 lists current temporary permit holders.

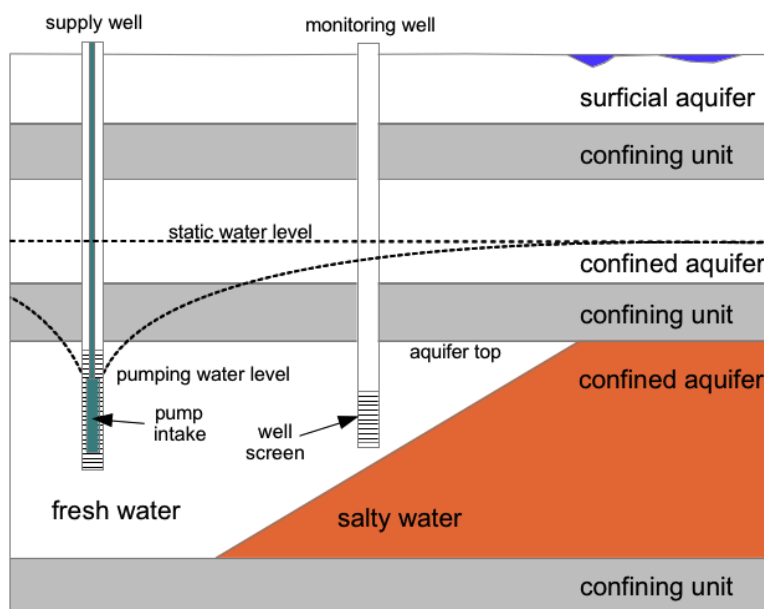
**Table 2. Temporary Permits Issued**

Permit Holder	CCPCUA Permit #	Date Temporary Permit Issued	Annual Permit Amount (GPY)
Belfast-Patetown Sanitary District	CU3082	04/17/2014	272,710,333
Fork Township Sanitary District	CU3001	06/04/2014	221,119,500
Green County Regional Water System	CU3092	01/03/2014	607,401,750
Northwestern Wayne Sanitary District	CU3083	06/04/2014	59,871,333
Southeastern Wayne Sanitary District	CU3006	07/11/2014	146,419,000
Town of La Grange	CU3003	01/16/2014	106,016,250

The temporary permit requirements and corresponding CCPCUA rule provision are as follows:

- Static water level trends must be level or upward trending after January 1, 2012 or over the previous year from present day and may involve construction and measurement of monitoring wells by permit holders [.0502 (c)], see figure 4,
- Pump intakes must be above the top of the shallowest Cretaceous aquifer screened by the well [.0502 (c) & (j)], see figure 4,
- Present day pumping water levels must be above the top of the shallowest Cretaceous aquifer screened by the well [.0502 (c) & (j)], see figure 4, and
- If applicable, chloride concentrations obtained from monitoring wells or unused production wells screened and gravel packed in one Cretaceous aquifer are fresh (< 250 mg/l) for 3 previous years from present day and do not trend toward higher concentrations or other site specific data which will allow determination of susceptibility to salt water encroachment [.0502 (c), (i) & (l)].

**Figure 4: Temporary Permit Criteria**



Registrations are required for those surface and ground water withdrawers of more than 10,000 gallons per day. Registration information received by the Division is available on the CCPCUA website (Table 3 shows the results of registration for 2013). The Department of Agriculture and Consumer Services, Agricultural Statistics Division has completed CCP water use surveys for 2002 through 2012. Their previous reports are available as PDF files at the Division’s website ([www.ncwater.org/CCPCUA](http://www.ncwater.org/CCPCUA) under the miscellaneous link).

**Table 3. List of Current Registrations**

North Carolina Department of Environment and Natural Resources About DWR Contact Us Jobs News Calendar Staff  
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Choose a year...  
 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013  
[return to CCPCUA page](#)

**Registered Facilities in the Central Coastal Plain Capacity Use Area for 2012**

[Links to Plots of Monthly Average and Maximum Day Water Withdrawals by Registered Facilities for 2012](#)  
[Beaufort](#) [Carteret](#) [Craven](#) [Duplin](#) [Edgecombe](#) [Greene](#) [Jones](#) [Lenoir](#) [Martin](#) [Onslow](#) [Pamlico](#) [Pitt](#) [Washington](#) [Wayne](#) [Wilson](#) [All](#)  
plots through 2009 include agricultural registration data from Department of Agriculture surveys

Registration	ID	County	Number of Days Used	Average Daily Use (in MGD)	Maximum Daily Use (in MGD)	Surface or Ground Water	Type of Use
Barnett Mine 7-56	CUR0113	Beaufort	69	0.084	0.084	G	Mining
Davis Mine	CUR0059	Beaufort	25	0.073	0.094	G	Mining
National Spinning	CUR0109	Beaufort	250	0.016	0.818	G	Industrial
NCSU Pamlico Aquaculture Field Lab	CUR0060	Beaufort	329	0.274	0.274	S	Aquaculture
Southern States-Sasnett Facility	CUR0107	Beaufort	366	0.020	0.050	G	Aquaculture
Whitleys MHP	CUR0005	Beaufort	366	0.003	0.042	G	Public Water System
Atlantic MHP	CUR0104	Carteret	366	0.009	0.018	G	Public Water System
Atlantic MHP II	CUR0078	Carteret	349	0.008	0.019	G	Public Water System
Atlantic Village MHP	CUR0032	Carteret	366	0.009	0.020	G	Public Water System
Ballou MHP	CUR0105	Carteret	366	0.006	0.014	G	Public Water System
Goose Creek Resort	CUR0031	Carteret	366	0.033	0.154	G	Public Water System
Hunting Estates MHP	CUR0057	Carteret	366	0.005	0.009	G	Public Water System
Merrimon Community	CUR0083	Carteret	158	0.013	0.031	G	Public Water System
Newport Ridge MHP	CUR0033	Carteret	366	0.005	0.016	G	Public Water System
Ocean Spray	CUR0030	Carteret	366	0.013	0.055	G	Public Water System
Otway Sand Mine, Inc	CUR0128	Carteret	22	0.087	0.095	G	Mining
Snug Harbor on Nelson Bay	CUR0008	Carteret	366	0.016	0.034	G	Public Water System
Star Hill Golf Club	CUR0099	Carteret	106	0.543	1.200	B	Golf Course Irrigation
Bridgeton Soil	CUR0132	Craven	0	0.000	0.000	G	Mining
Morris Street Ferry Road Pit	CUR0101	Craven	0	0.000	0.000	G	Temporary Dewatering, Mining
NCASI Southeastern Aquatic Biology Facility	CUR0002	Craven	0	0.000	0.000	S	Other, Aquatic Productivity Research
RJ BUSHHOGGING INC	CUR0086	Craven	0	0.000	0.000	G	Mining
Weyerhaeuser	CUR0052	Craven	361	14.528	19.750	S	Industrial, Public Water System
Bay Valley Foods, LLC	CUR0110	Duplin	25	0.059	0.413	G	Industrial
Warsaw Feed Mill	CUR0070	Duplin	365	0.025	0.037	G	Industrial, Mining
A.T. Thompson Farms	CUR0080	Edgecombe	9	0.850	0.850	S	Agricultural Irrigation
Linwood Allen Webb Farms	CUR0071	Edgecombe	17	2.304	4.176	S	Agricultural Irrigation
Silas Smith Farms	CUR0014	Edgecombe	71	25.015	30.528	S	Agricultural Irrigation
Town of Tarboro Water Treatment Plant	CUR0015	Edgecombe	396	0.598	3.063	S	Public Water System

Winstead Mobile Terrace	CUR0026	Edgecombe	366	0.011	0.017	G	Public Water System
J.B. Rose and Sons	CUR0127	Edgecombe&Nash	66	0.518	4.631	S	Agricultural Irrigation
Harris Farms	CUR0013	Greene	44	0.468	7.020	S	Agricultural Irrigation
Holloman Farm	CUR0102	Greene	120	0.006	0.006	G	Agricultural Irrigation
Jason Water Corporation	CUR0117	Greene	732	0.016	0.096	G	Public Water System
Shine Water Corporation	CUR0027	Greene	365	0.046	0.341	G	Public Water System
Vanderford Farm	CUR0103	Greene	120	0.006	0.006	G	Agricultural Irrigation
Neuse Regional Water and Sewer Authority	CUR0111	Lenoir	365	7.621	14.636	S	Public Water System
TC Smith Produce Farm Inc.	CUR0130	Lenoir	225	12.516	0.850	S	Agricultural Irrigation
Domtar Paper Company LLC	CUR0053	Martin	366	59.492	93.430	S	Industrial
Town of Jamesville	CUR0028	Martin	366	0.029	0.046	G	Public Water System
Beacham Apartments #1	CUR0040	Onslow	365	0.026	0.041	G	Public Water System
Beacham Apartments #2	CUR0039	Onslow	360	0.021	0.049	G	Public Water System
Morton Mine	CUR0119	Onslow	366	0.057	0.124	G	Mining
North Shore Country Club	CUR0092	Onslow	264	0.053	0.526	G	Golf Course Irrigation
Sherwood MHP	CUR0012	Onslow	366	0.039	0.059	G	Public Water System
Willis Pit	CUR0115	Onslow	92	0.068	0.068	G	Mining
Eagle Farm (Hudson Bros. Fish Farm)	CUR0011	Pitt	0	0.000	0.000	G	Aquaculture
Greenville Utilities Commission WTP	CUR0064	Pitt	366	12.849	17.289	S	Public Water System
JP Davenport & Son	CUR0018	Pitt	3	3.373	6.192	S	Agricultural Irrigation
Laughinghouse Farms, Inc.	CUR0020	Pitt	0	0.000	0.000	B	Agricultural Irrigation
Town of Grimesland	CUR0003	Pitt	366	0.034	0.134	G	Public Water System
Weyerhaeuser Greenville Lumber Facility	CUR0019	Pitt	197	0.016	0.040	G	Industrial
Darrell Davenport Sand Mine	CUR0122	Washington	3	0.012	0.012	G	Mining
Town of Creswell	CUR0058	Washington	366	0.043	0.101	B	Public Water System, Other, Flood Control
Goldsboro Water Treatment Plant	CUR0062	Wayne	366	4.608	8.192	S	Public Water System
H. F. Lee Steam Electric Plant	CUR0001	Wayne	136	0.018	0.018	B	Industrial, Temporary Dewatering, Other, Thermal Electric Power
Lane Tree Golf Club	CUR0098	Wayne	135	0.211	0.410	S	Golf Course Irrigation
Walnut Creek Country Club	CUR0050	Wayne	151	0.402	0.705	S	Golf Course Irrigation
City of Wilson Water Treatment Plant	CUR0063	Wilson	366	8.677	11.485	S	Public Water System
Fairview Nursery, Inc.	CUR0079	Wilson	141	0.923	1.086	S	Agricultural Irrigation
Old Saratoga, Inc.	CUR0022	Wilson	322	0.025	0.071	G	Industrial
Sharp Farms, Inc.	CUR0043	Wilson	414	0.076	0.272	B	Agricultural Irrigation, Livestock, Other, spraying crops
Town of Saratoga	CUR0036	Wilson	366	0.037	0.136	G	Public Water System
Wilson Country Club	CUR0095	Wilson	86	0.174	0.591	S	Golf Course Irrigation
Zelenka Nursery LLC - Farm C	CUR0067	Wilson	264	0.189	0.395	S	Agricultural Irrigation
<b>Total Average Daily Registered Water Withdrawals:</b>					123.326		
<b>Total Average Daily Registered Ground Water Withdrawals:</b>					0.621		
<b>Total Average Daily Registered Surface Water Withdrawals:</b>					122.704		
<b>Total number of active registrations:</b>					65		

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**Compliance and Enforcement**

In the CCPCUA, compliance means that water users stay within their permitted water withdrawal limits after applying for and receiving a permit to use ground water. Compliance is tracked through the permit holder recording and reporting their daily withdrawals, monthly water levels, and, in some cases, annual chloride sampling results. Each permit is awarded for a time period of between five and ten years and is required to be renewed at the end of that period. When compliance to these requirements is not met then our understanding of where and how ground water is being withdrawn is not as complete and our ability to track the status of the CCP aquifer system suffers. Strict accounting of withdrawals in combination with the measurements of aquifer response from the network of DWR monitoring wells and CCPCUA production wells will allow a complete understanding of the CCP aquifer capabilities and will document areas in the CCP where equilibrium between ground water withdrawals and natural ground water recharge is achieved.

When compliance is incomplete the Division employs enforcement measures including contacting and visiting permit holders, issuing of Notices of Violation, and Assessment penalties as needed to hold ground water users in the CCPCUA accountable. Table 4 summarizes the enforcement proceedings to date.

**Table 4. Notices of Violations and Penalty Assessments**

<b>Permit Holder</b>	<b>Notice of Violation issued</b>	<b>Outcome</b>
Chinquapin Water Association	(2010-11) 01/18/2012	Water withdrawals over permitted annual amount -\$588.32 paid
Coastal USA Fish Company	02/17/2012	Operating with an expired permit –Dismissed and permit rescinded, No longer in operation
Craven County	(2009-10) 11/18/2010	Dismissed NOV. Craven County Will clear out negative balance by Aug 2018
DSM Pharmaceuticals	01/18/2012	Water withdrawals over permitted annual amount Dismissed –1st offense
ER Lewis Construction (Rosewood Mine)	01-29-2010	Operating with an expired permit –Dismissed, renewal application received 03/02/2010
Jones County	(2008-09) 11/19/2009  (2009-10) 11/22/2010  (2010-11) 01/18/2012	Water withdrawals over permitted annual amount -6292.65 paid  Water withdrawals over permitted annual amount -824.15 paid  Water withdrawals over permitted annual amount -585.03 paid
One Fish, Two Fish Catfish LLC	04/11/2011	Operating with an expired permit –Dismissed, renewal application received 01/18/2012
Parson Mine	02/17/2012	Operating with an expired permit –Dismissed and permit rescinded, No longer in operation
RJ Bushhogging (Willis Neck Mine)	06/24/2011	Operating with an expired permit –Dismissed, renewal application received 07/15/2011
Spencer Farm	01-29-2010	Operating with an expired permit –Dismissed, renewal application received 02/08/2010
Stokes Regional	(2008-09) 01/06/2010  (2012-13) 01/03/2014  (2011-12) 01/02/ 2013	Water withdrawals over permitted annual amount -\$6384.55 paid  Water withdrawals over permitted annual amount Dismissed –problem with SCADA system which they fixed.  Water withdrawals over permitted annual amount Dismissed –due to Bethel buying water from GUC
Town of Bethel	(2009-10) 11/18/ 2010	Water withdrawals over permitted annual amount -\$2166.34 paid
W. Haden Harris Farms, Inc.	07/11/2011	Operating with an expired permit –Dismissed, renewal application received 12/08/2011

The 2009 legislative session introduced a change to CCPCUA enforcement by adjusting language in the Water Use Act of 1967 to state that fines can be levied up to \$1,000 per day. This is a change from the preexisting \$250 per day limit.



Water Use

Registration information and permitting requirements have allowed the Division to compile water use information in various ways. Examples of water use data can be found on the Division’s web site and in several tables and plots in this report. Use the links provided under the *Query the Data* portion of the Division’s CCPCUA web page to access the information on-line ([www.ncwater.org/CCPCUA](http://www.ncwater.org/CCPCUA)). Table 5 is extracted from the website and shows each CCPCUA county’s average daily water use totals for 2012, which is the latest year that includes Department of Agriculture and Consumer Services survey results. It is important to notice the relatively high component of use by permitted users (those withdrawing more than 100,000 gallons per day) compared to registered or surveyed ground water users. Ground water use by permitted users equals over 96% of reported ground water use. Table 5 also shows CCPCUA average daily water use in 2012 aggregated by types of use and aquifer.

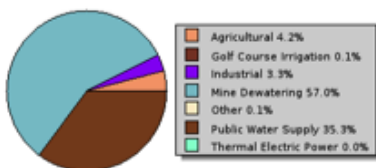
Table 5. Water Use Summary

**Central Coastal Plain Capacity Use Area 2012 Water Withdrawal Summary Tables**  
Tables compiled 09-30-2014, units are gallons per day

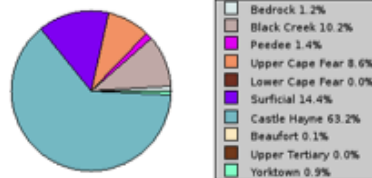
County	Permitted Current Permit Limits			Reported for 2012 Ground Water			Surface Water	Type of Use	Permitted Current Permit Limits			Reported for 2012 Ground Water			Surface Water
	max daily	yearly (ABRs)	yearly (2018)	by all permits	by yearly permits	by registrations	by registrations		max daily	yearly (ABRs)	yearly (2018)	by all permits	by yearly permits	by registrations	by registrations
Beaufort	172,760,400			72,802,270		54,585	246,615	Agricultural	188,526,320	520,611	300,003	7,068,244	146,978	6,028,025	15,916,482
Cartersville	28,445,480			6,009,788		263,282	146,988	Golf Course Irrigation	4,002,000	85,589	85,589	217,108	14,419	89,849	391,129
Craven	68,743,300	6,956,526	1,814,132	22,469,344	3,936,518		14,368,303	Industrial	14,958,400	4,969,508	2,789,327	5,604,257	2,183,105	70,870	74,023,464
Duplin	36,935,200	3,402,140	2,714,730	8,711,389	2,291,757	2,693,844	64,211	Mine Dewatering	233,009,240			96,926,296		206,880	
Edgecombe	9,804,000	527,697	429,388	1,554,514	319,778	335,533	5,412,375	Other	5,860,480	268,560	200,002	157,477	118,085		
Greene	108,000	3,058,197	914,551	1,400,658	1,400,658	292,467	56,416	Public Water Supply	131,890,380	50,538,560	15,601,016	60,013,293	20,798,930	661,413	34,245,022
Jones	49,816,400	679,282	169,821	18,912,097	405,240			Thermal Electric Power							6,547
Lenoir	3,556,320	13,522,312	3,522,953	3,960,643	3,915,435	183,868	15,336,532	Totals:	578,246,820	56,382,827	18,975,938	170,006,675	23,261,517	7,057,037	124,582,643
Martin	3,504,000	4,795,505	2,126,325	2,219,243	1,603,468	29,359	59,655,161								
Onslow	67,899,320	9,845,143	2,461,286	20,199,942	5,487,028	356,259									
Pamlico	35,712,200			1,712,551											
Pitt	8,704,800	8,651,572	2,521,003	2,153,917	1,815,731	313,234	12,911,425								
Washington	69,635,200			1,184,088		184,289									
Wayne	13,937,400	4,385,570	1,910,531	5,325,657	1,746,630	639,225	4,871,657								
Wilson	8,684,800	558,883	391,218	1,390,573	339,278	168,115	9,212,296								
Totals:	578,246,820	56,382,827	18,975,938	170,006,675	23,261,517	7,057,037	124,489,068								

\*Totals may include additional water use not reported in county tables because of Department of Agriculture non-disclosure policy.

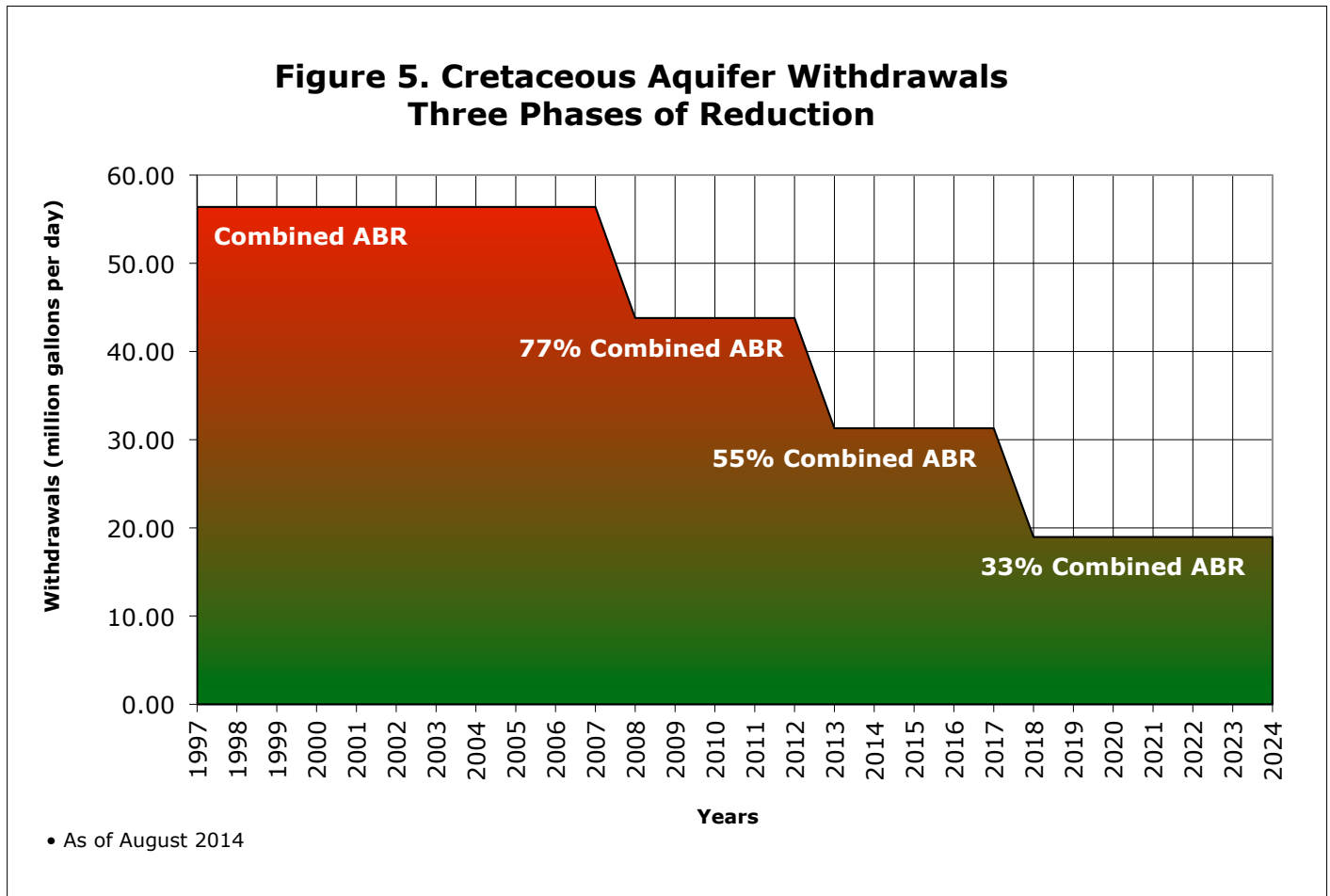
CCPCUA Reported Ground Water Withdrawals by Type of Use



CCPCUA Reported Ground Water Withdrawals by Aquifer



An important goal for the CCPCUA rules is the reduction of Cretaceous aquifer use and increased use of other sources of water. Figure 5 illustrates how current projections produce a reduction by about 67% from the combined ABRs by 2018. The Division will require that permit holders bridge the gap between their demands and their Cretaceous allocation by using alternative water supplies.



Evaluation of Water Resources

Each permit requires reporting of withdrawals, ground water levels, and in some cases chloride sampling results so that water users will track that information and then DWR makes it available to the public through the Division’s website. To access this data, use the links provided under the *Query the Data* area of the CCPCUA web page. Beyond that source of data, DWR is responsible for improving, operating, and maintaining a monitoring well network to gain knowledge of the hydrogeologic framework and to evaluate aquifer use. DWR gives the public access to our understanding of the three-dimensional distribution of aquifers and confining units as well as other information on the Division’s website [www.ncwater.org](http://www.ncwater.org) under the Topics tab there is a link to Ground Water then Data. Potentiometric surface maps of each major aquifer are available as well as water level data through time for each of the Division’s monitoring wells through the branch’s Mapserver. The November 2013 Central Coastal Plain Capacity Use Area Assessment Report, mentioned previously in this document, also contains a good deal of information about the aquifers.

Beginning in 2008, the first phase of reductions were implemented. In our analysis, DWR found significant areas of recovery in water levels, especially once the Neuse Regional Water and Sewer Authority came online in 2008 and had its customers reduce the full 75% from their ABR usage. These significant areas of recovery leads to a reduced concern about aquifer dewatering, however, salt water encroachment is still a difficult issue for several permit holders which will likely require continued reductions before a sustainable rate of withdrawal is achieved.

There are portions of the CCPCUA where water levels are relatively stable which led DWR to develop a more rigorous method of permit review beyond the prescribed phased reductions. The results are a new review process and the potential of a temporary permit with a stable withdrawal amount. To qualify for a temporary permit, a water user must pass a set of four criteria and maintain those conditions or be removed from temporary permit status and put back on the reduction permit protocol.

The requirements for temporary permits are (1) static water level trends must be level or upward trending after January 1, 2012, (2) pump intakes must be above the top of the shallowest Cretaceous aquifer screened by the well, (3) pumping water levels must be above the top of the shallowest Cretaceous aquifer screened by the well, and (4) where applicable, chloride concentrations must not show increases in salt water concentration. (Figure 4 schematic depicts criteria for Temporary Permit Requirements)

Those users who obtain a stable withdrawal rate through a temporary permit will not be able to add credits to their Cretaceous water bank unless transferred from another user's bank. This differs from a reduction schedule permit holder who is allowed to credit their Cretaceous water bank with unused permitted water until July 31, 2018.

The EMC has agreed that both the Water Use Act and the CCPCUA rules allow the Division to issue temporary permits. The adjustments to the water use permitting process described in the assessment report do not undo the reduction based approach which forces investment in alternative, sustainable water sources while reducing reliance on the Cretaceous aquifers. These adjustments do allow DWR to perform individual permit holder analysis of aquifer conditions and give temporary relief from reductions. If monitoring reports reveal problems then DWR will re-open that permit and shift it back to a reduction schedule.

Salt water encroachment or the threat of encroachment is still a serious issue. In September and October of 2004, 2007 and 2012, DWR collected rounds of samples from more than 150 wells in the coastal plain to compare to a similar set of samples analyzed in 1999. Those comparisons along with data from our Time-Domain Electromagnetic (TDEM) soundings, continue to help us map out current fresh water – salt water transition zones in the major aquifers. TDEM is a surface geophysical method of measuring subsurface resistivity described on the Division's website ([www.ncwater.org](http://www.ncwater.org)), at the link to Topics under Educational & Technical Assistance area then click on the ground water link.

#### Updates to Hydrogeologic Framework

Water level data and new boreholes and geophysical logs help DWR improve our understanding of the hydrogeological framework. Also, many CCPCUA water users provide DWR with information from wells they have installed. This framework establishes the elevations and thicknesses of all the aquifers in the coastal plain. Like the water use information, the DWR hydrogeologic database is available on the Division's website ([www.ncwater.org](http://www.ncwater.org)), at the link to the Ground Water Data. In addition, the September 2013 Central Coastal Plain Capacity Use Area Assessment Report documents the Division's hydrogeologic framework knowledge and discusses suggested modifications to the Cretaceous reduction zone boundaries made by permit holders.

#### Summary of Alternative Water Sources by Region

There are significant alternative water sources available to water users in the CCPCUA. Some involve considerable investment such as surface water treatment plants. Others are more financially practical, yet involve water treatment beyond the disinfection-only requirements of the Black Creek and Upper Cape Fear aquifers. The *North Carolina Central Coastal Plain Capacity Use Area: Regional Water Resource Study*,

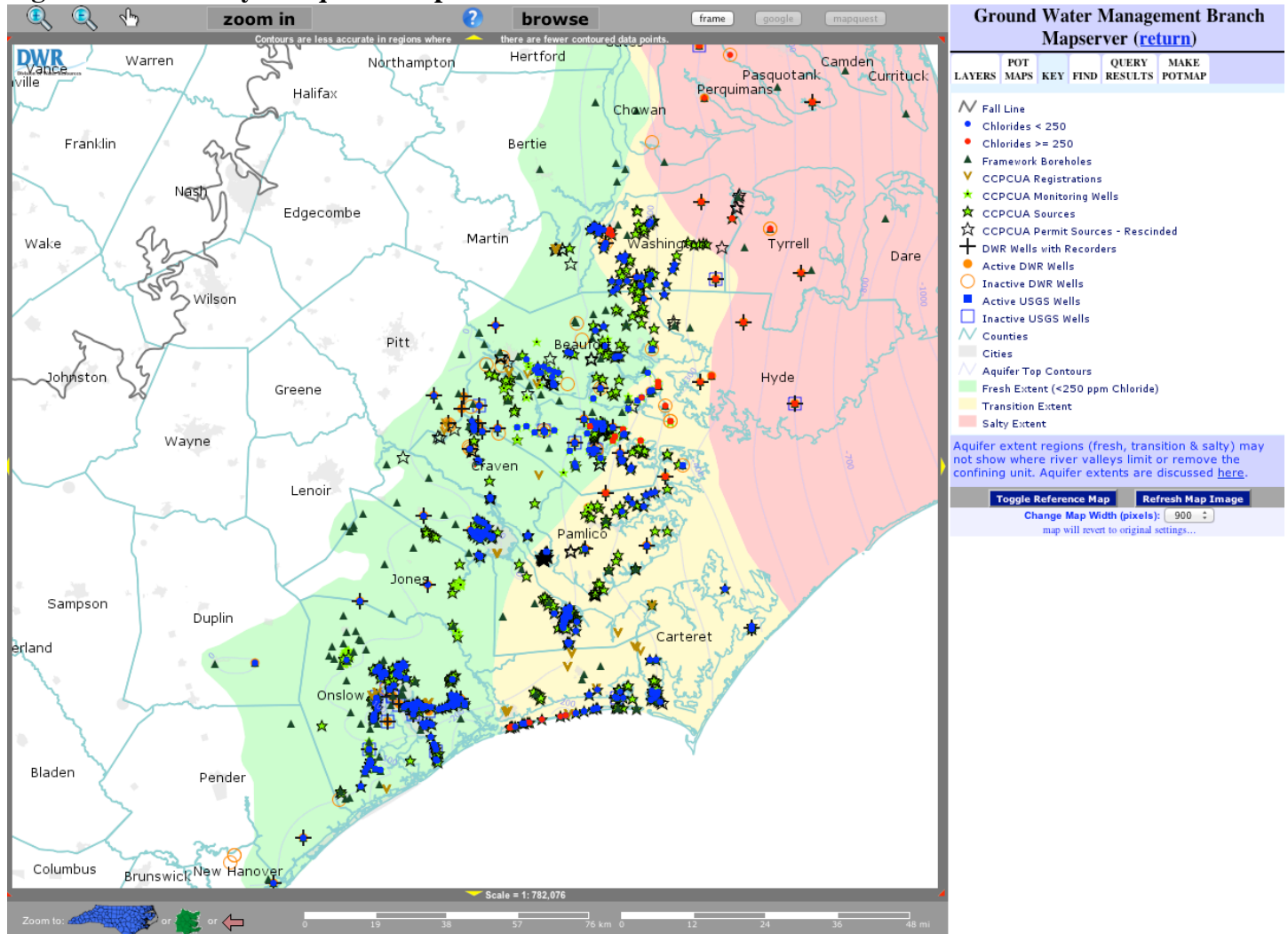
written by Golder Associates in 2002, provides helpful information on this subject. Also, the Division publishes a PDF document on the CCPCUA web page that describes the latest plans and projects associated with CCP water users

([http://www.ncwater.org/Permits\\_and\\_Registration/Capacity\\_Use/Central\\_Coastal\\_Plain/staltaltsupply\\_030111.pdf](http://www.ncwater.org/Permits_and_Registration/Capacity_Use/Central_Coastal_Plain/staltaltsupply_030111.pdf)).

On average, from 2002 to 2009 Cretaceous aquifers supplied 51% of reported public supply needs in the CCPCUA and about 22% of all reported ground water needs. So, even though the Cretaceous aquifers provide a large portion of public supply water, overall, it is a modest amount of the total ground water use. Hence, other ground water sources are available to meet demands with proper planning and water treatment.

The Castle Hayne aquifer is available to water providers where it exists or it becomes part of the surficial aquifer. Figure 6 illustrates the current understanding of the Castle Hayne aquifer’s limits. Significant portions of withdrawals from the Cretaceous aquifers can be shifted to the Castle Hayne without harming existing users. Craven County, New Bern, Jacksonville and Onslow County Water and Sewer are using the Castle Hayne aquifer as an alternate water source.

**Figure 6. Castle Hayne Aquifer Map**

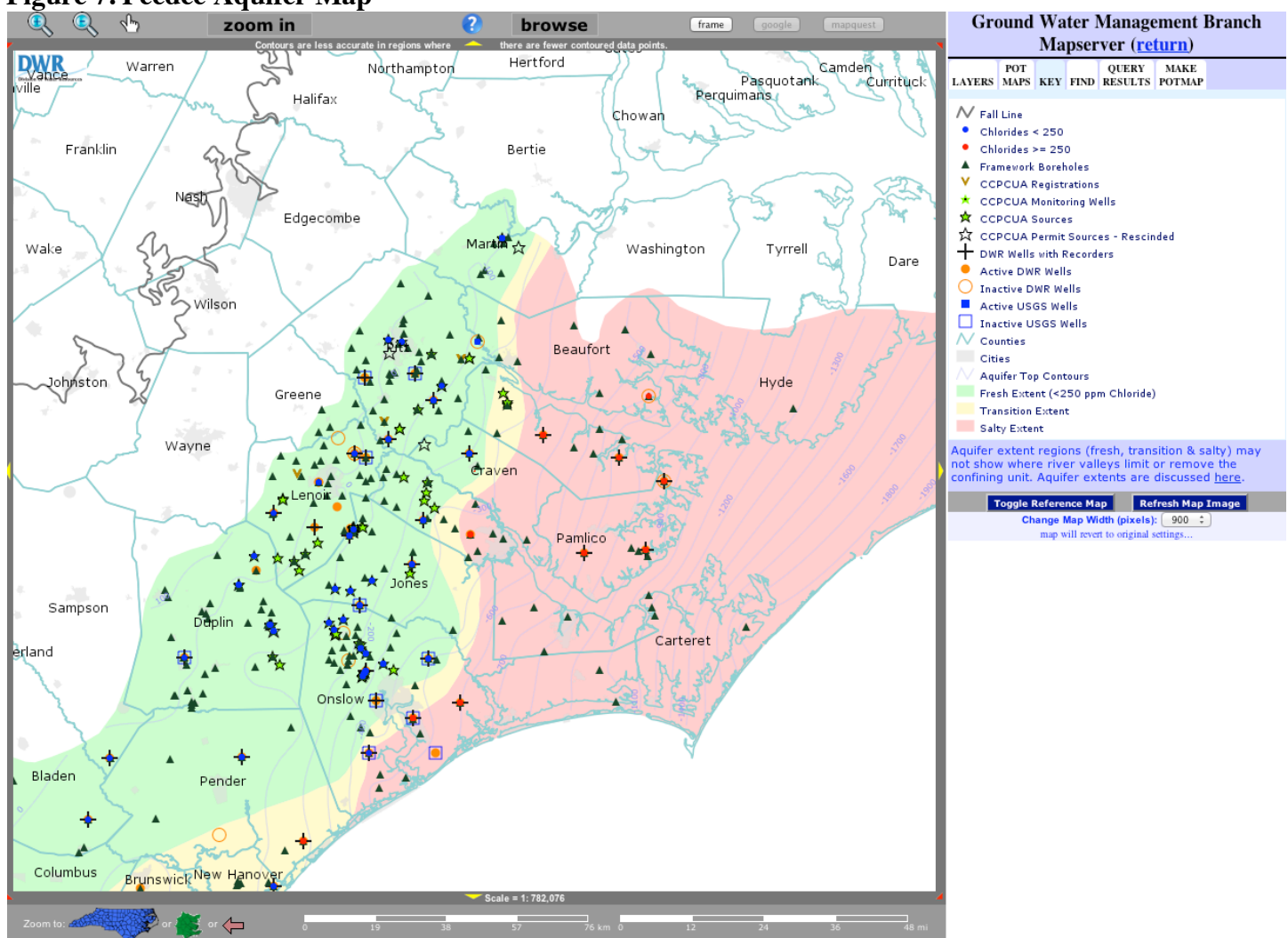


Surface water supplies are available from the Neuse, Tar, and Roanoke Rivers. Regional cooperation by many participants are needed to afford this type of solution. Within the CCP, the Tar River is currently being used by Greenville, Tarboro and Rocky Mount. The Neuse River is used by Goldsboro, and in the Fall of 2008, Kinston and other water providers associated with the Neuse Regional Water and Sewer Authority (NRWASA) brought a surface water intake and treatment plant on-line. In 2015 a surface water treatment plant on the Roanoke River will supply water to members of the Martin County Regional Water and Sewer Authority.

Bedrock wells are a supply option for some of the western portion of the CCP, including Wayne, Wilson and Edgecombe counties.

The Peedee aquifer is available as shown in figure 7, however, significant testing of sands in this aquifer will be required. There are portions of this aquifer that contain isolated sand units. These sands have very limited connection to the rest of the aquifer and thus only offer small users a source of water.

**Figure 7. Peedee Aquifer Map**



Although the Division has limited information about Yorktown aquifer water availability in the CCP, it may be an alternative water source in Martin, Pitt, Edgecombe, Wilson and Greene Counties.

The surficial aquifer in portions of Wayne, Wilson, Greene, Duplin, and Edgecombe Counties may offer significant yields, especially where it contains sand units that become the confined Black Creek or Upper Cape Fear closer to the coast.

### Actions to Develop Alternative Water Supplies

The following is a list of those alternatives being developed:

- Neuse Regional Water and Sewer Authority serves Lenoir County, and part of Pitt County with treated Neuse River water. This project became operational in Fall 2008.
- Greenville Utilities supply treated Tar River water to several customers including Greene County and the Town of Farmville. Aquifer Storage and Recovery (ASR) is in place in Pitt County, which allows them to store vast amounts of treated surface water in confined aquifers.
- Onslow County has constructed well fields in the Castle Hayne and surficial aquifers to augment their water supply. They are continuing to expand those well fields.
- New Bern constructed a Castle Hayne well field and treatment plant.
- Wayne Water Districts have developed bedrock and surficial aquifer well fields.
- City of Jacksonville added Castle Hayne and surficial aquifer well fields and a water treatment plant that became operational in 2010.
- Several agricultural users plan to construct surface water impoundments.
- Martin County and the Town of Williamston water systems are pursuing a water treatment plant and intake on the Roanoke River which will become operational in 2015.
- Craven County has constructed new Peedee aquifer wells and a Castle Hayne well field and treatment plant.
- Several water users plan to purchase water from other systems.
- Water reuse and conservation have been proposed by several industries.
- Coastal Clean Power of Duplin County constructed Peedee aquifer wells

The Division will maintain a PDF document (as described earlier), which has more complete descriptions and costs of the alternative water supplies planned and achieved. DWR has provided a link to the UNC Environmental Finance Center for NC Municipal water rates, which may be accessed off of the CCPCUA webpage under the Miscellaneous link to help the public compare their water rates to other communities throughout the state. For example: the City of Kinston's monthly water bill is \$36.40 for 5,000 gallons, the Town of Williamston's monthly water bill is \$30.75 per 5,000 gallons, and the Town of La Grange's monthly water bill is \$36.50 per 5,000 gallons.

### Conclusions

Although the threats of declining water levels, dewatering, and salt water encroachment to the ground water situation in the CCPCUA have not diminished since 2004, significant progress is being made by water users to plan and construct sustainable, alternative water supplies. Whether alternative water supplies are obtained by individual systems using different aquifers, or brought about by groups of users forming alliances to allow for planning and operation of a surface water treatment system, the results will lead to measurable improvements in ground water conditions. The Division will continue to record use of alternative water supplies, carefully track water withdrawals, and measure ground water level improvements using our expanding network of monitoring wells.

# APPENDIX

# Table 1 - List of Current CCPCUA Permit Holders

North Carolina Department of Environment and Natural Resources

About DWR ■ Contact Us ■ Jobs ■ News ■ Calendar ■ Staff

## Division of Water Resources



### Permit Holders in the Central Coastal Plain Capacity Use Area

#	Permittee	Permit #	County	Maximum Day Permitted Rates (gpd)	Reported Average Withdrawal (gpd)	Annual Permitted Rates (gpy)	Reported Average Withdrawal (gpd)	Type of Use	Aquifer
1	3B Farms Inc. (Baynor Farm)	CU3175	Washington	2,160,000	55,233			Irrigation, Agricultural	S, Tch
2	3B Farms Inc. (Leon Respass Farm)	CU3174	Beaufort	504,000	3,896			Irrigation, Agricultural	Tch
3	3B Farms Inc. (Number Four Farm)	CU3201	Washington	2,592,000	44,433			Irrigation, Agricultural	Tch
4	3B Farms Inc. (Pillee Farm)	CU3202	Beaufort	2,592,000				Irrigation, Agricultural	Tch
5	3B Farms Inc. (Stotesbury Farm)	CU3198	Washington	1,440,000	11,178			Irrigation, Agricultural	Tch
6	3B Farms Inc. (Wenona Farm)	CU3244	Washington	1,440,000				Irrigation, Agricultural	Tch
7	3B Farms, Inc. (Five Points Farm)	CU3192	Beaufort	936,000				Irrigation, Agricultural	Tch
8	3B Farms, Inc. (Henry Boyd Farm)	CU3182	Beaufort	1,008,000				Irrigation, Agricultural	Tch
9	3B Farms, Inc. (Lake Phelps Farm)	CU3180	Washington	6,336,000	105,370			Irrigation, Agricultural	Tch
10	3B Farms, Inc. (Waters Farm)	CU3181	Beaufort	1,224,000	34,233			Irrigation, Agricultural	Tch
11	AgCoA (Somerset Farm)	CU3253	Washington	7,200,000				Irrigation, Agricultural	Ty
12	Albemarle Beach Farm	CU3146	Washington	1,152,000				Irrigation, Agricultural	Tch
13	Alma Farms, Inc.	CU3211	Onslow	216,000				Other	S
14	Alston Spruill Farms	CU1121	Pamlico	2,448,000				Irrigation, Agricultural	Tch
15	American Materials Co., LLC (Pinner Pit)	CU3117	Pitt	1,400,000	37,726			Mine Dewatering	S
16	American Materials Company LLC (Dupree Pit)	CU3238	Pitt	1,440,000				Mine Dewatering	S
17	American Turf Grass Corporation	CU1122	Washington	3,456,000	292,576			Irrigation, Agricultural	Ty
18	Anderson & Co., Inc. - Anderson Sand Pit	CU3135	Edgecombe	2,880,000				Mine Dewatering	S
19	Atlantic Veneer Corporation	CU3127	Carteret	432,000	24,572			Industrial, Public Supply	Tch
20	Aurora Fisheries & Hatchery	CU3116	Beaufort	705,600				Aquaculture	Tch
21	Austin Bros. Fisheries, Inc.	CU1103	Beaufort	3,744,000				Aquaculture	Tch
22	Barnhill Contracting Co. (Boseman Pit)	CU3110	Edgecombe	936,000				Mine Dewatering	S
23	Barnhill Contracting Co. (Rhodes Pit)	CU3240	Lenoir	468,000				Mine Dewatering	S
24	Barnhill Contracting Company (Harris Pit)	CU3246	Pitt	936,000				Mine Dewatering	S

25	Barnhill Contracting Company (Howard Pit)	CU3254	Onslow	936,000				Mine Dewatering	S
26	Barnhill Contracting Company (Logsboro Pit)	CU3239	Edgecombe	468,000	23,079			Mine Dewatering	S
27	Barnhill Contracting Company - Williams Pit	CU3264	Craven	936,000				Mine Dewatering	S
28	Beaufort Co. Water Districts VI & VII	CU1119	Beaufort	3,240,000	594,301			Public Supply	Tch, Kpd
29	Belfast-Patetown Sanitary District	CU3082	Wayne	190,800	34,756	272,710,333	708,312	Public Supply	Kucf, Br
30	Bell Arthur Water Corporation	CU3077	Pitt			257,230,500	64,464	Public Supply	Kucf
31	Bernard F. Konegay - Declar. of Trust (Norman Allen)	CU1081	Washington	504,000				Irrigation, Agricultural	Tch
32	BFN Operations L.L.C.	CU3103	Wilson	700,000	92,281			Irrigation, Agricultural	Br
33	Blue Treasure, LLC	CU3151	Carteret	1,488,000				Public Supply	Tch
34	Bogue Banks Water Corporation	CU3076	Carteret	5,760,000	1,208,227			Public Supply	Ty, Tch
35	Bradshaw Farms	CU3247	Duplin	1,296,000				Irrigation, Agricultural	Kbc, Kucf
36	Britt Family Farms - Broadhurst Bridge Farm	CU3232	Wayne	720,000				Irrigation, Agricultural	Kucf
37	Britt Family Farms - Deaver Lane Farm	CU3216	Duplin	1,584,000				Irrigation, Agricultural	Kbc, Kucf
38	Burch Farms, LLC	CU3262	Duplin	150,000				Irrigation, Agricultural	Kbc, Kucf
39	Butterball, LLC	CU3019	Duplin	2,700,000	848,868			Industrial	Kucf
40	C.E. Jr. and Maurice Manning Farm	CU3252	Washington	1,584,000	21,699			Irrigation, Agricultural	Tch
41	Carolina Classics Catfish, Inc.	CU3054	Pitt	684,000				Aquaculture	Kpd, Kbc
42	Carolina Classics-Lake Country Farm	CU1004	Beaufort	2,160,000				Aquaculture	Tch
43	Carolina Creek LLC	CU3140	Craven	720,000				Irrigation, Golf Course	Tch
44	Carolina Fisheries	CU1058	Beaufort	5,160,000				Aquaculture	Tch
45	Carolina H2O Service - Brandywine Bay	CU3043	Carteret	500,000	95,829			Public Supply	Tch
46	Carolina Stone, LLC (Ange Mine)	CU3249	Craven	3,000,000	59,836			Mine Dewatering	S
47	Casey Nursery, Inc.	CU3062	Wayne	310,000	29,040			Irrigation, Agricultural	S
48	Cashwell Farms, LLC.	CU3217	Wayne	720,000				Irrigation, Agricultural	Kucf
49	Castle Hayne Fisheries, Inc.	CU1073	Beaufort	2,780,000				Aquaculture	Tch
50	Chinquapin Water Assoc. Inc.	CU3014	Duplin	727,200	178,584	45,960,400	94,630	Public Supply	Kbc, Kpd
51	Cieszko Const. Co. (White Hall Pit)	CU3143	Craven	1,440,000				Mine Dewatering	S
52	City of Havelock	CU1029	Craven	2,800,000	1,101,397			Public Supply	Tch
53	City of Jacksonville	CU3073	Onslow	6,577,200	2,326,891	740,947,050	1,422,367	Public Supply	Kpd, Kbc, Tch
54	City of Kinston	CU3024	Lenoir			1,272,513,600	1,441,784	Public Supply	Kbc, Kucf
55	City of New Bern	CU3071	Craven	5,500,000	1,226,807	774,920,500	1,587,811	Public Supply	Kbc, Kucf



**Table 1 - List of Current CCPCUA Permit Holders (cont.)**

									Tch
56	City of Washington	CU1009	Beaufort	6,200,000	2,634,000				Public Supply Tch
57	Coastal Carolina Clean Power	CU3160	Duplin	547,200	237,912	174,146,666	207,944	Industrial	Kbc, Kpd
58	Coastal Plains Catfish	CU1108	Craven	518,400	205,666			Aquaculture	Tch
59	Colton Wells Limestone	CU3112	Duplin	480,000				Mine Dewatering	S
60	Conetoe Community Water Assoc., Inc.	CU3089	Edgecombe			36,500,365	3,685	Public Supply	Kucf
61	Cottle Farms	CU3214	Duplin	210,000				Irrigation, Agricultural	Kucf
62	Country Club of Plymouth, Inc.	CU1123	Washington	200,000	3,601			Irrigation, Golf Course	Tch
63	Craven County Water	CU3108	Craven	3,733,500	349,656	476,395,350	1,661,747	Public Supply	Kbc, Kucf, Kpd, Tch
64	Craven County Wood Energy, L.P.	CU3055	Craven	1,800,000	935,902			Industrial	Tch
65	Craven Pond Inc.	CU1112	Craven	1,008,000				Aquaculture	Tch
66	CWS Systems, Inc. - Fairfield Harbour	CU1087	Craven	1,050,000	285,162			Public Supply	Tch
67	Cypress Landing Golf Club	CU1128	Beaufort	520,000	1,567			Irrigation, Golf Course	Tch
68	Cypress Swamp Aquafarm, LLC	CU1101	Beaufort	2,000,000				Aquaculture	Tch
69	David Waters Farm	CU1094	Beaufort	864,000				Irrigation, Agricultural	Tch
70	Deep Run Water Corporation	CU3050	Lenoir	580,320	34,066	281,377,554	157,284	Public Supply	Kpd, Kbc
71	DKR Farms, LLC.	CU3203	Washington	2,329,200				Irrigation, Agricultural	Tch
72	Domtar Paper Company, LLC	CU1120	Martin	3,000,000	291,264			Industrial	S, Ty, Tch
73	Don Lee Farms, Inc.	CU3154	Pamlico	4,400,000				Irrigation, Agricultural	Tch
74	Down East Farms, Inc.	CU3208	Jones	1,728,000				Irrigation, Agricultural	Tch
75	Duplin County Regional Water System	CU3114	Duplin	2,278,800	521,970	363,410,880	534,170	Public Supply	Kbc, Kucf, Kpd
76	E. I. Dupont de Nemours	CU3022	Lenoir			402,608,160	272,085	Industrial	Kbc, Kucf
77	Eagle Water Company, LLC	CU1130	Beaufort	58,000,000				Public Water Supplier	Tch
78	East Carolina University - Health Sciences Campus	CU3132	Pitt	105,120	862	36,500,365	38,331	Other	Kucf, Kpd
79	East Carolina University - Main Campus	CU3133	Pitt	99,360	7,782	36,500,365	18,617	Other	Kbc, Kucf, Kpd
80	Eastern Pines Water Corporation	CU3102	Pitt	720,000	21,005	371,022,500	134,274	Public Supply	Kpd, Kbc, Kucf
81	Eastern Wayne Sanitary District	CU3081	Wayne	900,000	231,121	366,741,100	897,572	Public Supply	Kbc, Kucf, S
82	ECU - North Recreational Complex	CU3147	Pitt	400,000	10,082			Other	Ty
								Irrigation,	

83	Eden Blueberry Farms	CU3224	Duplin	288,000	225				Agricultural	Kucf
84	Emerald Golf Course	CU3155	Craven	750,000	46,585				Irrigation, Golf Course	Tch
85	First Craven Sanitary District	CU1105	Craven	1,476,000	442,477				Public Supply	Tch
86	Fork Township Sanitary District	CU3001	Wayne	1,119,600	287,274	221,119,500	417,534	Public Supply	Kucf, Br	
87	Georgia-Pacific Dudley Complex	CU3235	Wayne	691,200	104,041				Industrial	Kbc, Kucf
88	GHW Weyerhaeuser Nursery	CU1006	Beaufort	2,000,000	31,673				Irrigation, Agricultural	Ty, Tch
89	Goodson & Wells Farm, Inc. (Bazemore Farm)	CU3258	Duplin	500,000					Irrigation, Agricultural	Kbc, Kucf
90	Goodson & Wells Farm, Inc. (Brock Farm)	CU3219	Duplin	2,160,000					Irrigation, Agricultural	Kucf
91	Goodson & Wells Farm, Inc. (Rackley/Wells Farm)	CU3220	Duplin	2,592,000					Irrigation, Agricultural	Kucf
92	Goodson & Wells Farms (Garner Tram Rd)	CU3259	Duplin	600,000					Irrigation, Agricultural	Kbc, Kucf
93	Goodson and Wells Farms, Inc. (Dail Farm)	CU3248	Duplin	650,000					Irrigation, Agricultural	Kbc
94	Goodson and Wells Farms, Inc. (Gurley Farm)	CU3196	Duplin	2,880,000	219,307				Irrigation, Agricultural	Kucf
95	Goodson and Wells Farms, Inc. (Hill Farm)	CU3195	Duplin	1,152,000	29,951				Irrigation, Agricultural	Kucf
96	Goodson and Wells Farms, Inc. (Jackson Farm)	CU3241	Duplin	3,240,000	16				Irrigation, Agricultural	Kucf
97	Great Pit-Pretty Good Sand Co.	CU3038	Edgecombe	1,200,000	73,666				Mine Dewatering	S
98	Greene County Regional Water System	CU3092	Greene			607,401,750	393,681	Public Supply	Kucf	
99	Greenville Utilities Commission	CU3004	Pitt		495	219,832,200	18,144	Public Supply	Kbc, Kucf	
100	Grimesland Plantation, LLC	CU3173	Pitt	446,400					Irrigation, Agricultural	Kpd
101	Guilford Mills Inc., Guilford East Plant	CU3094	Duplin			368,931,677	699,211	Industrial	Kbc	
102	H. A. Respass Farms, LLC	CU1093	Washington	4,438,000					Irrigation, Agricultural	Tch
103	Hanson Agg. SE (Elm City Quarry)	CU3078	Wilson	2,160,000					Mine Dewatering	Br
104	Hanson Aggregates Southeast (Neverson Quarry)	CU3029	Wilson	1,653,120	326,473				Mine Dewatering	Br
105	Hanson Aggregates Southeast (Rocky Mount Quarry)	CU3030	Edgecombe	4,320,000	808,588				Mine Dewatering	Br
106	Hardy Farms, LLC	CU3176	Greene			36,500,365			Irrigation, Agricultural	Kbc
107	Harkers Island Sanitary District	CU3130	Carteret	504,000	88,036				Public Supply	Ty
108	Harris Farms, Inc. (Harris Mine)	CU3141	Washington	504,000					Mine Dewatering	S
109	Harvey Farms	CU3040	Jones	2,589,600					Irrigation, Agricultural	Kpd
110	Haugen Co. (Catherine Lake Fill Dirt)	CU3060	Onslow	1,728,000	279,803				Mine Dewatering	S



**Table 1 - List of Current CCPCUA Permit Holders (cont.)**

165	NCDOT - K3800	CU4031	Beaufort							Dewatering	S
166	NCDOT - R-3620	CU4032	Beaufort							Mine Dewatering	S
167	NCDOT R-2510C	CU4024	Beaufort	4,500,000						Mine Dewatering	S
168	NCDOT R-2554 BB & C	CU4030	Wayne		755					Mine Dewatering	S
169	NCDOT R-2554A	CU4028	Wayne		1,971					Mine Dewatering	S
170	NCDOT R-3307	CU4026	Carteret							Mine Dewatering	S
171	NCDOT U-3810	CU4027	Onslow							Mine Dewatering	S
172	NCDOT U-4007A	CU4025	Onslow	4,500,000						Mine Dewatering	S
173	NCDOT U-4007B	CU4023	Onslow	2,304,000						Mine Dewatering	S
174	NCDOT U-5132	CU4029	Onslow							Mine Dewatering	S
175	NCSU Pamlico Aquaculture Field Lab	CU1031	Beaufort	1,008,000	209,684					Aquaculture	Tch
176	Newland Family Farms	CU3200	Washington	1,440,000						Irrigation, Agricultural	Tch
177	North Lenoir Water Corporation	CU3025	Lenoir			406,775,000	215,888			Public Supply	Kbc, Kucf
178	North River Club G.C.	CU3158	Carteret	244,800	9,555					Irrigation, Golf Course	Tch
179	North River Club Mine, Guide Group LLC	CU3231	Carteret	275,000						Mine Dewatering	S
180	North River Mill Creek Water Service District	CU1109	Carteret	676,800	183,723					Public Supply	Tch
181	Northwest Onslow Water Association	CU3005	Onslow	453,600	119,166					Public Supply	Kpd
182	Northwestern Wayne Sanitary District	CU3083	Wayne	1,062,000	348,104	59,871,333	89,153			Public Supply	Kucf, Br
183	One Fish, Two Fish Catfish LLC	CU1114	Beaufort	1,440,000						Aquaculture	Tch
184	Onslow Water and Sewer Authority	CU3027	Onslow	11,461,000	5,656,274	1,055,791,500	1,879,534			Public Supply	Kpd, Kbc, S, Tch
185	ONWASA-Northwest Regional Reclamation Facility	CU3230	Onslow	504,000						Other	S
186	ONWASA-Test Well Exploration	CU5000	Onslow	720,000						Other	Tch
187	Pamlico County Water System	CU1125	Pamlico	3,456,000	725,121					Public Supply	Tch
188	Pamlico Packing Co. Inc.	CU1034	Pamlico	517,000						Industrial	Tch
189	Pathemon Manufacturing Services, LLC	CU3074	Pitt			36,500,365	45,140			Industrial	Kbc, Kucf
190	Paul Farms, Inc	CU1057	Pamlico	1,584,000	5					Irrigation, Agricultural	Tch
191	PCS Phosphate Co	CU1007	Beaufort	8,000,000	1,836,584					Mine Dewatering	S, Ty
192	PCS Phosphate, Inc.	CU1003	Beaufort	78,000,000	44,290,840					Mine Dewatering	Tch
193	Penco Products, Inc.	CU3149	Martin			295,988,666				Industrial	Kucf
194	Perfect Turf Inc.	CU3045	Martin			36,500,365	2,104			Irrigation, Agricultural	Kucf
195	Plymouth Farms, LLC	CU1018	Washington	1,296,000						Aquaculture	Tch
196	Pocosin Lakes Wildlife Refuge	CU1131	Washington	2,160,000						Waterfowl Impoundments	Tch
197	Poole Farms, Inc.	CU3255	Beaufort	4,320,000						Irrigation, Agricultural	Tch
198	Pungo Fisheries	CU1117	Beaufort	4,418,400	1,169,863					Aquaculture	Tch
199	R. H. Bishop, Jr. Farm	CU3185	Beaufort	950,000						Irrigation, Agricultural	Tch
200	R. J. Bushhogging (Willis Neck Mine 1)	CU3167	Craven	2,880,000	2,361,948					Mine Dewatering	S
201	R.B.J. Associates (Newport Mine)	CU3122	Carteret	1,440,000						Mine Dewatering	S
202	Riddick Farms, Inc.	CU3184	Beaufort	1,440,000						Irrigation, Agricultural	Tch
203	River Bend Country Club	CU3179	Craven	331,200						Irrigation, Golf Course	Tch
204	Riverside Sand Co., Inc. (Riverside Sand Pit 3)	CU3068	Duplin	120,000	16,438					Mine Dewatering	S
205	RJ Bushhogging, Inc.- Mine No.2	CU3131	Craven	2,880,000						Mine Dewatering	S
206	Roanoke Country Club	CU3044	Martin	288,000						Irrigation, Golf Course	Kucf
207	Sackett Potatoes	CU3251	Pamlico	1,440,000	51,273					Irrigation, Agricultural	Tch
208	Sawyer Catfish Farm	CU1127	Washington	442,000						Aquaculture	Tch
209	Scientific Water and Sewerage Corp.	CU3227	Onslow	500,000	44,272					Public Supply	S, Tch
210	Scott James B-1 Farm	CU3237	Washington	1,440,000						Irrigation, Agricultural	Tch
211	Scott James Farms	CU3221	Washington	1,500,000						Irrigation, Agricultural	Tch
212	Selvie James Farm	CU1104	Washington	2,664,000						Irrigation, Agricultural	Ty, Tch
213	Sexton Farms (Home Farm)	CU3256	Washington	864,000						Irrigation, Agricultural	Ty
214	Sexton Farms (Turnpike Farm)	CU3111	Washington	2,160,000						Irrigation, Agricultural	Tch
215	Smith Farm of Vanceboro LLC	CU3008	Craven	792,000	26,022					Aquaculture	Tch
216	Southeastern Wayne Sanitary District	CU3006	Wayne	2,116,800	477,854	146,419,000	411,307			Public Supply	Kucf, Kbc
217	Southern Produce	CU3215	Duplin	240,000						Irrigation, Agricultural	Kbc, Kucf
218	Southern Wayne Sanitary District	CU3106	Wayne	1,499,000	494,433					Public Supply	Kbc, Kucf
219	Southwestern Wayne Sanitary District	CU3084	Wayne	1,033,200	266,208					Public Supply	Kucf, Br
220	Spencer Farms, Inc.	CU3109	Pamlico	1,692,000	8,860					Irrigation, Agricultural	Tch
221	Spring Creek Timber Co., Inc.	CU3169	Pamlico	324,000	2,841					Irrigation, Agricultural	Tch
222	Spring Hope Fisheries	CU3087	Craven	360,000	31,562					Aquaculture	Tch
223	Steve Grady Farm	CU3225	Duplin	432,000						Irrigation, Agricultural	Kucf
224	Stokes Regional Water Corporation	CU3088	Pitt			36,500,365	67,679			Public Supply	Kucf
225	Swindell Fish Farms	CU1002	Beaufort	576,000	17,359					Aquaculture	Tch
226	T. L. Harris, Jr. Farm	CU1010	Washington	1,872,000						Irrigation,	Tch

**Table 1 - List of Current CCPCUA Permit Holders (cont.)**

								Agricultural	
227	Taberna Country Club	CU3168 Craven	378,000					Irrigation, Golf Course	Tch
228	TCB Farms, LLC	CU3243 Onslow	500,000	159				Irrigation, Agricultural	Kpd
229	Town of Atlantic Beach	CU3057 Carteret	2,500,000	323,121				Public Supply	Tch
230	Town of Aurora	CU1011 Beaufort	250,000	35,792				Public Supply	Tch
231	Town of Ayden	CU3026 Pitt			103,818,100	64,282	Public Supply	Kbc, Kucf	
232	Town of Beaufort	CU1015 Carteret	2,700,000	363,699				Public Supply	Tch
233	Town of Belhaven	CU1008 Beaufort	1,080,000	126,977				Public Supply	Ty
234	Town of Bethel	CU3070 Pitt			36,500,365	23,824	Public Supply	Kbc, Kucf	
235	Town of Beulaville	CU3086 Duplin	180,000		85,561,200	103,430	Public Supply	Kpd, Kbc	
236	Town of Black Creek	CU3059 Wilson	1,058,400	440,100				Public Supply	Br
237	Town of Calypso	CU3142 Duplin	250,000					Public Supply	Kucf
238	Town of Chocowinity	CU1051 Beaufort	702,000	161,874				Public Supply	Tch
239	Town of Creswell	CU1046 Washington	288,000	32,528				Public Supply	Ty
240	Town of Dover	CU3186 Craven			36,500,365	5,826	Public Supply	Kbc	
241	Town of Elm City	CU3067 Wilson	535,680	44,285				Public Supply	Br
242	Town of Faison	CU3058 Duplin	1,674,000	431,000				Public Supply	Kbc, Kucf
243	Town of Farmville	CU3096 Pitt			287,069,325	275,872	Public Supply	Kbc, Kucf	
244	Town of Greenevers	CU3099 Duplin			36,500,365	56,205	Public Supply	Kbc	
245	Town of Grifton	CU3049 Pitt			51,674,000	36,249	Public Supply	Kbc, Kucf	
246	Town of Hamilton	CU3166 Martin			36,500,365	24,761	Public Supply	Kucf	
247	Town of Hookerton	CU3137 Greene			36,500,365	34,008	Public Supply	Kucf	
248	Town of Kenansville	CU3091 Duplin	538,000	106,682				Public Supply	Kbc
249	Town of La Grange	CU3003 Lenoir	252,000	35,436	106,016,250	203,436	Public Supply	Kbc, Kucf, S, Kubc	
250	Town of Lucama	CU3041 Wilson	273,600	80,108				Public Supply	Br
251	Town of Macclesfield	CU3128 Edgecombe			36,500,365	32,104	Public Supply	Kucf, Kicf	
252	Town of Magnolia	CU3012 Duplin	270,000	51,283				Public Supply	Kbc
253	Town of Maysville	CU3051 Jones	172,800	38,392				Public Supply	Tch
254	Town of Morehead City	CU1014 Carteret	3,000,000	978,904				Public Supply	Tch
255	Town of Mount Olive	CU3020 Wayne	2,448,000	234,112				Public Supply	Kucf
256	Town of Newport	CU1012 Carteret	1,392,480	462,480				Public Supply	S
257	Town of Oriental	CU1022 Pamlico	439,200	97,805				Public Supply	Tch
258	Town of Pine Knoll Shores	CU3105 Carteret	1,200,000	279,658				Public Supply	Tch
259	Town of Pinetops	CU3053 Edgecombe			95,686,920	180,844	Public Supply	Kucf	
260	Town of Pink Hill	CU3021 Lenoir			36,500,365	2,600	Public Supply	Kbc	
261	Town of Plymouth	CU1001 Washington	1,200,000	301,503				Public Supply	Tch
262	Town of Pollocksville	CU3125 Jones	216,000					Public Supply	Tch
263	Town of River Bend	CU3052 Craven	1,000,000	221,142				Public Supply	Tch
264	Town of Robersonville	CU3016 Martin			234,529,500			Public Supply	Kucf
265	Town of Roper	CU1086 Washington	350,000					Public Supply	Tch
266	Town of Rose Hill	CU3010 Duplin	1,440,000	208,762				Public Supply	Kbc,

										Kucf	
267	Town of Snow Hill	CU3072 Greene	108,000					116,686,000	174,052	Public Supply	Kucf, S, Kbc
268	Town of Stantonburg	CU3101 Wilson						163,193,840	252,411	Public Supply	Kucf
269	Town of Vanceboro	CU1097 Craven	412,000	160,755						Public Supply	Tch
270	Town of Wallace	CU3013 Duplin	2,524,000	526,166						Public Supply	Kbc
271	Town of Warsaw	CU3085 Duplin	1,152,000	382,244						Public Supply	Kbc, Kucf
272	Town of Williamston	CU3066 Martin						196,871,875	579,523	Public Supply	Kbc, Kpd, Kucf
273	Town of Winterville	CU3121 Pitt						90,354,552	230,093	Public Supply	Kbc
274	Turnpike Farms, LLC. (Dannenber Farms)	CU1044 Washington	1,188,000							Irrigation, Agricultural	Tch
275	US Marine Corps - Cherry Point	CU1060 Craven	8,000,000	627,203						Public Supply	Tch
276	Valley Proteins, Inc.	CU3207 Duplin	216,000					8,038		Industrial	Kbc
277	Vanguard Farms Inc.	CU1106 Craven	3,000,000	159,625						Aquaculture	Tch
278	Vick Swinson Farms	CU3128 Duplin	840,000							Irrigation, Agricultural	Kbc, Kucf
279	Village of Walnut Creek	CU3126 Wayne						42,499,095	54,125	Public Supply	Kucf
280	W. Haden Harris Farms, Inc.	CU3188 Washington	3,528,000							Irrigation, Agricultural	Tch
281	W.O. White, LLC (J.C. Holton Pit)	CU3129 Craven	2,880,000							Mine Dewatering	S
282	Washington County Water System	CU1113 Washington	1,000,000	148,632						Public Supply	Tch
283	West Carteret Water Corporation	CU3090 Carteret	2,462,400	785,570						Public Supply	Tch
284	Westside Minerals LLC (Westside Minerals Mine)	CU3178 Lenoir	1,560,000							Mine Dewatering	S, Kpd
285	Weyerhaeuser NR Company	CU1013 Craven	2,031,000	84,767						Industrial, Public Supply	Tch
286	Wheeler Farm	CU3205 Pamlico	288,000							Waterfowl Impoundments	Ty, Tch
287	White Rock Fish Farm Inc.	CU1090 Craven	432,000	78,186						Aquaculture	Tch
288	Williams Mine	CU3157 Carteret	2,160,000							Mine Dewatering	S
289	Worthington Farms, Inc.	CU3064 Pitt						58,511,054	3,052	Irrigation, Agricultural	Kbc, Kucf
<b>Total Permitted Ground Water Withdrawals not subject to .0503:</b>			634,216,420	108,314,879							<b>Legend</b>
<b>Total Annual Rates (permits subject to .0503):</b>								11,781,269,040	16,357,389		
<b>Total number of active permits:</b>			289								
The numbers in the Annual Permitted Rates column are in gallons per year whereas other withdrawal columns are in gallons per day. Reported values are averages of last 365 days.											