Central Coastal Plain Capacity Use Area
Status Report

August 2009

North Carolina
Division of Water Resources
Environmental Management Commission

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 second 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 illustrates the CCPCUA which includes the following 15 counties: Beaufort, Carteret, Craven, Duplin, Edgecombe, Greene, Jones, Lenoir, Martin, Onslow, Pamlico, Pitt, Washington, Wayne and Wilson.

The main objective of the CCPCUA rules is to force reduction of withdrawals from endangered aquifers and make large users invest in sustainable, alternative sources of water. The overused aquifers (Black Creek and Upper Cape Fear) are still being overdrawn by the many water users in the fifteen county area. All ground water sources in the 15 county area are regulated by permit 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/Ground_Water_Branch/cuainvestigation121598.pdf. The recent September 2008 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. This report can be downloaded from the Division's website at the following link: http://www.ncwater.org/Reports_and_Publications/GWMS_Reports/CCPAssessment_090308.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 57 annual limit permits have been issued that require an Approved Base Rate calculation and setting of reduction schedules.

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. Table 1 lists current permit holders.

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 2 shows the results of registration for 2008). The Department of Agriculture and Consumer Services, Agricultural Statistics Division has completed CCP water use surveys for 2002 through 2007 and plans to continue similar state-wide surveys annually, beginning in 2008. Their previous reports are available as PDF files at the Division's website (www.ncwater.org), at the link to the CCPCUA.

Compliance and Enforcement

In the CCPCUA, compliance means that water users apply for and receive a permit to use water and that they record and report 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. Over the last five years the enforcement capability of the Division has grown to meet this task. Table 3 summarizes the enforcement proceedings to date.

Table 3. Notices of Violations and Penalty Assessments

Permit #	Permit Holder	First Notice of Violation issued	Outcome	Second Notice of Violation issued	Outcome
CU1044	Dannenberg Farms	2/7/02	Received renewal application 3/23/02		
CU1102	Harrison Aquafarm	11/14/02	Permit Rescinded-no longer in operation		
CU1111	Peace and Plenty	1/7/04	Permit Rescinded 1/13/04-no longer in operation		
CU1027	Fairfield Harbor	3/19/04	Rescinded permit 05/25/04		
CU1094	David W Waters	5/25/04	Received renewal application 8/25/04		
CU1117	Pungo Fisheries	10/12/05	Received renewal application 10/19/05		
CU1123	Country Club of Plymouth	4/3/06	Received renewal application 04/18/06		
CU1128	Cypress Landing Golf Course	4/24/06	Received renewal application 07/17/06		
CU3138	Bell Pit	7/24/06	Received renewal application 07/26/06		
CU1081	Bernard Kornegay	9/7/06	Received renewal application 9/14/06		
CU1101	Cypress Swamp Aquafarm	9/7/06	Received renewal application 10/09/06		
CU3126	Village of Walnut Creek	9/22/06	Received monthly reporting forms		
CU1028	Parson Mine	10/17/06	Received renewal application 11/27/06		
CU3121	Winterville	4/25/07	Civil penalty after remission: $10,800		
CU3002	Richlands	4/26/07	Rescinded permit - joined w/ ONWASA		
CU3088	Stokes	4/30/07	Civil penalty paid $3,238.38	3/26/09	Civil penalty paid $702.08
CU3074	DSM Pharmaceuticals	11/8/07	January 2008 -- confirmed DSM's measurement of meter reading 150% of actual usage -- dropped NOV		
CU1090	White Rock Fish Farm	11/4/08	Received renewal application 12/1/08		
CU1104	Selvie James	11/14/08	Received renewal application 12/01/08		
CU3038	Great Pit	11/14/08	Civil penalty assessment of $5,523.78		
CU3067	Town of Elm City	5/18/09	Received renewal application 6/9/09		
CU3087	Spotted Dog Fish Farm	7/20/09	NOV was returned undelivered. Have not been able to contact him through mail or phone. Need to make a site visit.		

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 (http://www.ncwater.org/Permits_and_Registration/Capacity_Use/Central_Coastal_Plain/). Table 4 shows county and CCPCUA average daily water use totals for 2007 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 4 also shows CCPCUA average daily water use in 2007 aggregated by types of use and aquifer.

Water users are spread throughout the CCPCUA and often have several wells associated with their withdrawals. Figure 4 illustrates the geographic distribution of water users' wells thematically mapped by type of use.

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), at the link to the Ground Water 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. The September 2008 Central Coastal Plain Capacity Use Area Assessment Report, mentioned previously in this document, also contains a good deal of information about the aquifers.

As one might expect, since water users are still making plans to move to alternative water sources (see section below), water level decline trends documented in 1998 are still prevalent now. As illustrated in the 2008 assessment document, the same areas of dewatering and threats of dewatering documented in 1998 still exist today. Several water systems either have brought on new sources of water or will in the coming months, so progress toward ground water level rebounding is likely.

Salt water encroachment or the threat of encroachment is still a serious issue. In September and October of 2004 and 2007, 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), at the link to Ground Water under Educational & Technical Assistance area.

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), at the link to the Ground Water Data. In addition, the September 2008 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/stataltsupply_061908.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.

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 tapped by Greenville, Tarboro and Rocky Mount. The Neuse River is used by Goldsboro, and in Fall 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. Interestingly, ground water levels in a few monitoring well stations near the NRWASA service area are beginning to show improvement due to use of Neuse River water. No water provider is using the Roanoke River within the CCP.

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.

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 will supply treated Tar River water to several new customers including Greene County and the Town of Farmville. Pipelines to these two customers should be complete in late 2009. They also are actively testing the use of aquifer storage and recovery (ASR) to allow them to store vast amounts of treated surface water in confined aquifers. The ASR wellhead and pumps should be complete and in use in late 2009, also.
- Onslow County has constructed well fields in the Castle Hayne and surficial aquifers to augment their water supply. They have plans to expand those well fields.
- New Bern is constructing 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 will become operational in Fall 2010.
- Several agricultural users plan to construct surface water impoundments.
- Martin County and the Town of Williamston water systems are planning a water treatment plant and intake on the Roanoke River.
- Craven County has constructed new Peedee aquifer wells and is planning 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.
- Three permit holders are purchasing water allocations from others to allow for alternative water sources planning and implementation.
- Coastal Clean Power of Duplin County is proposing to construct 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.

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.

Figure 1. Central Coastal Plain Capacity Use Area

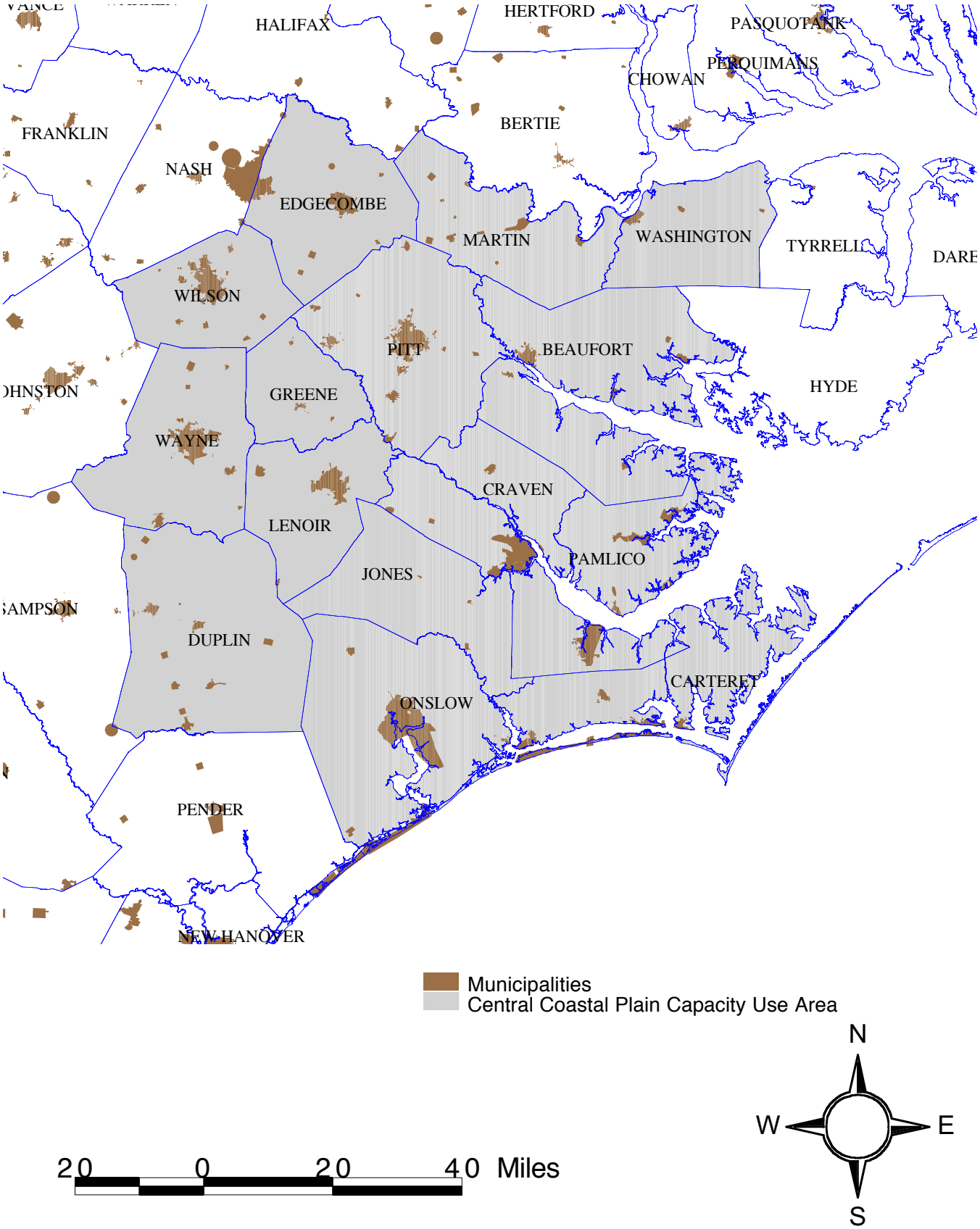


Figure 2. CCPCUA Cretaceous Aquifer Zones

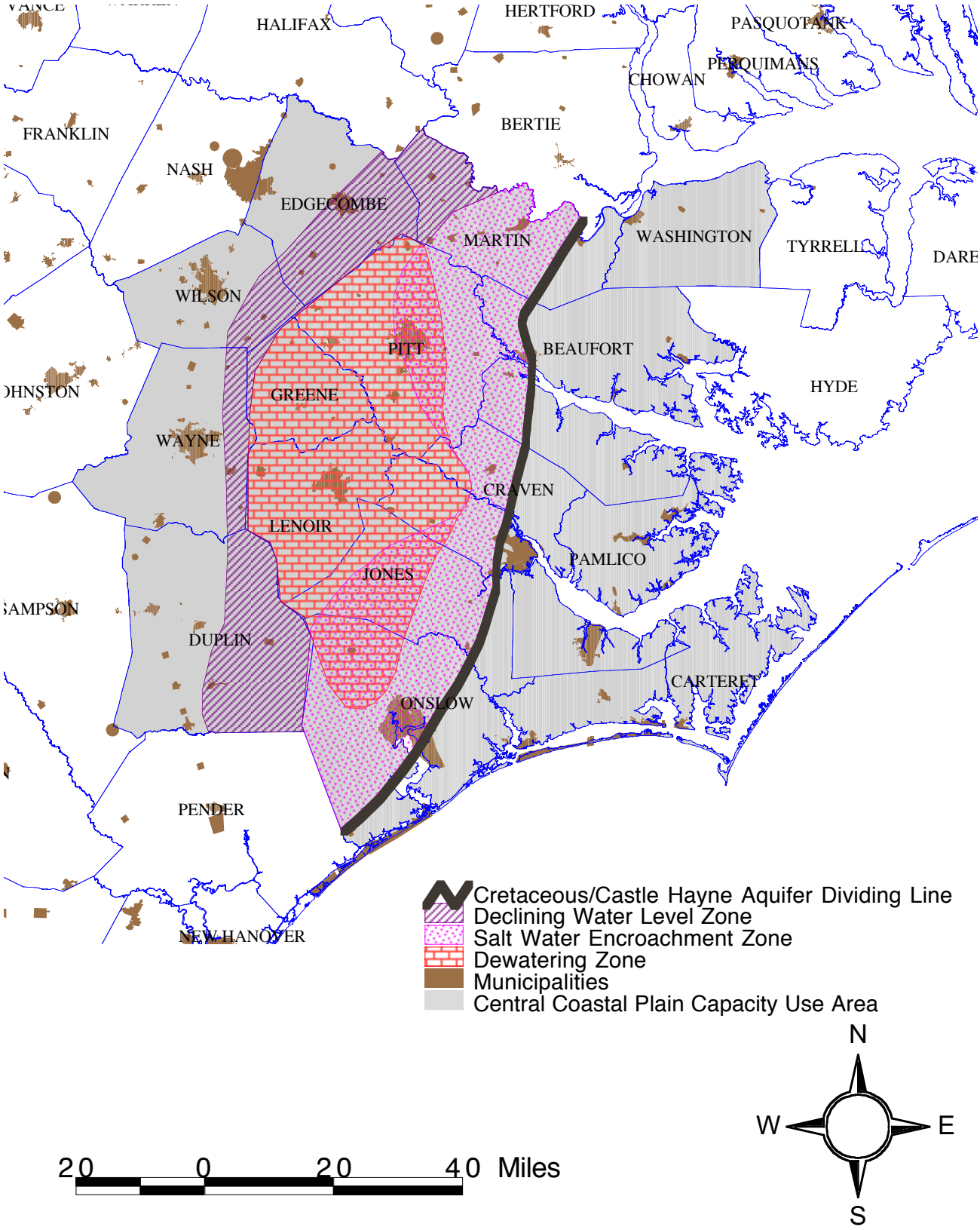
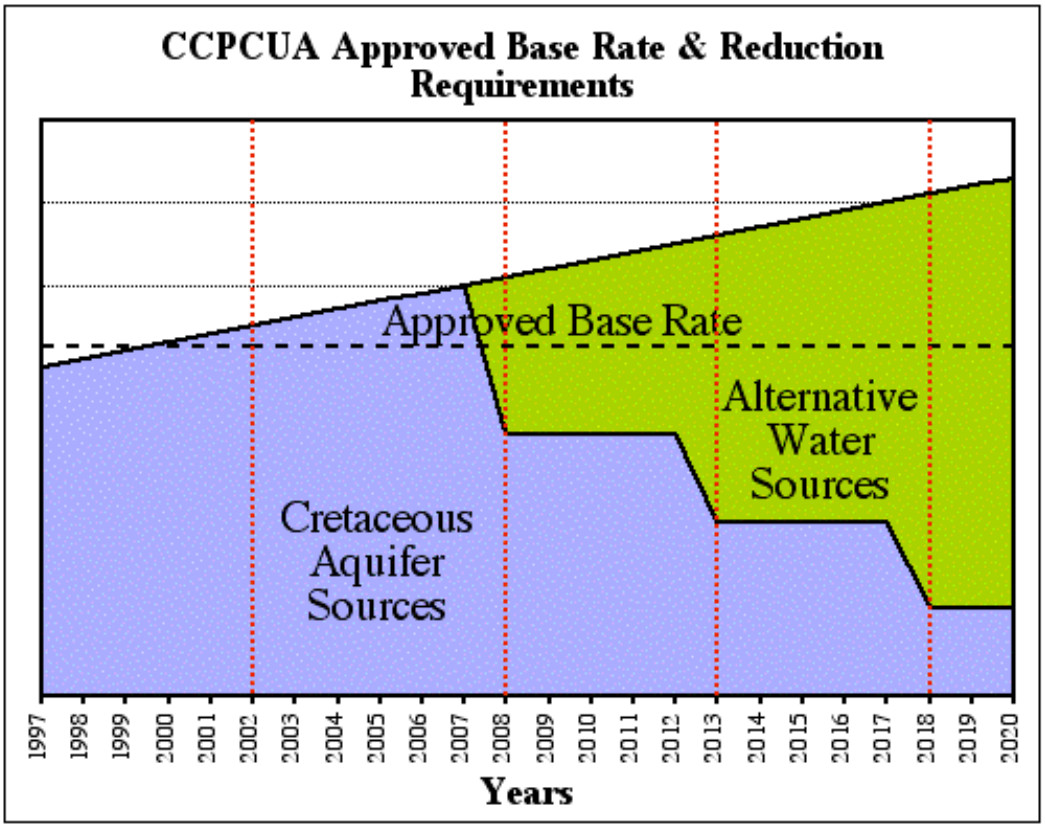


Figure 3. Example Reduction Schedule



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.

Table 1. Permit Holders in the Central Coastal Plain Capacity Use Area

#	Permittee	Permit #	County	Permitted Ground Water Withdrawal (in MGD)	Approved Base Rate (in MGY)	Type of Use	Aquifer
1	AgResource (Grace Farm)	CU1047	Washington	0.504		Irrigation, Agricultural	Tch
2	Albemarle Beach Farm	CU3146	Washington	1.520		Irrigation, Agricultural	Ty
3	Alston Spruill Farms	CU1121	Pamlico	1.440		Irrigation, Agricultural	Tch
4	American Materials Co., LLC (Pinner Pit)	CU3117	Pitt	1.400		Mine Dewatering	S
5	American Turf Grass Corporation	CU1122	Washington	3.456		Irrigation, Agricultural	Ty
6	Anderson & Co., Inc.- Anderson Sand Pit	CU3135	Edgecombe	2.880		Mine Dewatering	S
7	Atlantic Veneer Corporation	CU3127	Carteret	0.432		Industrial, Public Supply	Tch
8	Aurora Fisheries & Hatchery	CU3116	Beaufort	1.080		Aquaculture	Tch
9	Austin Bros. Fisheries, Inc.	CU1103	Beaufort	3.600		Aquaculture	Tch
10	Barnhill Contracting Co. (Boseman Pit)	CU3110	Edgecombe	0.801		Mine Dewatering	S
11	Barry Keats Farm	CU1004	Beaufort	2.160		Aquaculture	Tch
12	Beaufort Co. H2O Districts VI & VII	CU1119	Beaufort	2.520		Public Supply	Tch
13	Belfast-Patetown Sanitary District	CU3082	Wayne	0.191	315.666	Public Supply	Kucf, Br
14	Bell Arthur Water Corporation	CU3077	Pitt		514.461	Public Supply	Kucf
15	Bernard F. Kornegay - Declar. of Trust	CU1081	Washington	0.504		Irrigation, Agricultural	Tch
16	Blue Treasure, LLC	CU3151	Carteret	1.488		Public Supply	Tch
17	Bogue Banks Water Corporation	CU3076	Carteret	5.760		Public Supply	S, Tch, Ty
18	Butterball, LLC	CU3019	Duplin	2.700		Industrial	Kucf
19	Carolina Classics Catfish, Inc.	CU3054	Pitt	0.684		Aquaculture	Kpd, Kbc
20	Carolina Creek LLC	CU3140	Craven	0.720		Irrigation, Golf Course	S, Tch
21	Carolina Fisheries	CU1058	Beaufort	5.160		Aquaculture	Tch
22	Carolina H2O Service - Brandywine Bay	CU3043	Carteret	0.468		Public Supply	Ty
23	Carolina Stone, LLC (Ft.Barnwell Mine)	CU3152	Craven	1.440		Mine Dewatering	S, Tch
24	Carolina Stone, LLC (Grifton Mine)	CU1024	Craven	3.000		Mine Dewatering	S
25	Carolina Water Service - Pine Knoll Shores	CU3105	Carteret	1.200		Public Supply	Tch
26	Casey Nursery, Inc.	CU3062	Wayne	0.310		Irrigation, Agricultural	S
27	Castle Hayne Fisheries, Inc.	CU1073	Beaufort	2.780		Aquaculture	Tch
28	Chinquapin Water Assoc. Inc.	CU3014	Duplin	0.727	57.450	Public Supply	Kbc, Kpd
29	Cieszko Const. Co. (White Hall Pit)	CU3143	Craven	1.440		Mine Dewatering	S
30	City of Havelock	CU1029	Craven	2.800		Public Supply	Tch
31	City of Jacksonville	CU3073	Onslow	6.577	1,481.894	Public Supply	Kpd, Kbc, Tch
32	City of Kinston	CU3024	Lenoir		2,545.027	Public Supply	Kbc, Kucf
33	City of New Bern	CU3071	Craven	5.500	1,549.841	Public Supply	Kbc, Kucf, Tch
34	City of Washington	CU1009	Beaufort	6.200		Public Supply	Tch
35	Coastal Carolina Clean Power	CU3160	Duplin	0.065	141.978	Industrial	Kbc, Kpd
36	Coastal Plains Catfish	CU1108	Craven	0.518		Aquaculture	Tch
37	Coastal USA Fish Company	CU1096	Carteret	0.280		Aquaculture	S
38	Colton Wells Limestone	CU3112	Duplin	0.480		Mine Dewatering	S
39	Conetoe Community Water Assoc., Inc.	CU3089	Edgecombe		36.500	Public Supply	Kbc, Kucf
40	Country Club of Plymouth, Inc.	CU1123	Washington	0.200		Irrigation, Golf Course	Tch
41	Craven County Water	CU3108	Craven	0.734	952.791	Public Supply	Kbc, Kucf, Kpd
42	Craven County Wood Energy, L.P.	CU3055	Craven	1.800		Industrial	Tch
43	Craven Pond Inc.	CU1112	Craven	1.008		Aquaculture	Tch
44	CWS Systems, Inc. - Fairfield Harbour	CU1087	Craven	1.050		Public Supply	Tch
45	Cypress Landing Golf Club	CU1128	Beaufort	0.520		Irrigation, Golf Course	Tch
46	Cypress Swamp Aquafarm, LLC	CU1101	Beaufort	2.000		Aquaculture	Tch
47	David Waters Farm	CU1094	Beaufort	0.864		Irrigation, Agricultural	Tch
48	Deep Run Water Corporation	CU3050	Lenoir	0.580	562.755	Public Supply	Kpd, Kbc
49	Domtar Paper Company, LLC	CU1120	Martin	3.000		Industrial	S, Ty, Tch
50	Don Lee Farms, Inc.	CU3154	Pamlico	1.440		Irrigation, Agricultural	Tch
51	DSM Pharmaceuticals, Inc.	CU3074	Pitt		52.053	Industrial	Kbc, Kucf
52	Duplin County Regional Water System	CU3114	Duplin	2.279	454.264	Public Supply	Kbc, Kucf
53	E.I. Dupont de Nemours	CU3022	Lenoir		805.216	Industrial, Public Supply	Kbc, Kucf
54	E.R. Lewis Const. (Joyner Mine No. 1)	CU3136	Pitt	0.864		Mine Dewatering	S
55	E.R. Lewis Construction (Gaylord Mine)	CU3097	Pitt	1.728		Mine Dewatering	S
56	E.R. Lewis Construction (Rosewood Mine)	CU3118	Greene	0.864		Mine Dewatering	S
57	Eagle Water LLC	CU1130	Beaufort	58.000		Public Water Supplier	Tch
58	East Carolina University - Health Sciences Campus	CU3132	Pitt	0.105	58.604	Other	Kucf, Kpd
59	East Carolina University - Main Campus	CU3133	Pitt	0.994	39.420	Other	Kbc, Kucf, Kpd
60	Eastern Pines Water Corporation	CU3102	Pitt	0.720	742.045	Public Supply	Kpd, Kbc, Kucf
61	Eastern Wayne Sanitary District	CU3081	Wayne	0.904	677.861	Public Supply	Kbc, Kucf, S
62	ECU - North Recreational Complex	CU3147	Pitt	0.360		Other	Ty

63	Emerald Golf Course	CU3155	Craven	0.750		Irrigation, Golf Course	Tch
64	Eubanks Pit	CU3145	Carteret	2.160		Mine Dewatering	S
65	First Craven Sanitary District	CU1105	Craven	1.476		Public Supply	Tch
66	Fish and Chicks, Inc.	CU3063	Craven	0.360		Aquaculture	Kpd
67	Fork Township Sanitary District	CU3001	Wayne	1.120	294.826	Public Supply	Kucf, Br
68	GHW Weyerhaeuser Nursery	CU1006	Beaufort	2.000		Irrigation, Agricultural	Tch
69	Great Pit-Pretty Good Sand Co.	CU3038	Edgecombe	1.200		Mine Dewatering	S
70	Greene County Regional Water System	CU3092	Greene		809.869	Public Supply	Kucf
71	Greenville Country Club	CU3104	Pitt	0.200	36.500	Irrigation, Golf Course	Kucf, Kpd, Ty
72	Greenville Utilities Commission	CU3004	Pitt		439.664	Public Supply	Kbc, Kucf
73	Guilford Mills Inc., Guilford East Plant	CU3094	Duplin		368.932	Industrial	Kbc
74	H L Respass Farms	CU1093	Washington	0.406		Irrigation, Agricultural	Tch
75	Hanson Agg. SE (Elm City Quarry)	CU3078	Wilson	2.160		Mine Dewatering	Br
76	Hanson Aggregates Southeast (Neverson Quarry)	CU3029	Wilson	1.653		Mine Dewatering	Br
77	Hanson Aggregates Southeast (Rocky Mount Quarry)	CU3030	Edgecombe	2.160		Mine Dewatering	Br
78	Harkers Island Sanitary District	CU3130	Carteret	0.504		Public Supply	Tch
79	Harris Farms, Inc.	CU3141	Washington	1.008		Mine Dewatering	S
80	Harvey Farms	CU3040	Jones	2.225		Irrigation, Agricultural	Kpd
81	Haugen Co. (Catherine Lake Fill Dirt)	CU3060	Onslow	1.728		Mine Dewatering	S
82	House of Raeford - Wallace Division	CU3093	Duplin	2.000		Industrial	Kbc
83	Howard Pit - Bogue Sound Septic Grade	CU3139	Onslow	1.440		Mine Dewatering	S
84	Island Fisheries	CU1091	Pamlico	2.592		Aquaculture	Tch
85	Jimmie L. Morris & Sons, Inc. (Morris Mine)	CU1118	Pamlico	0.450		Mine Dewatering	S
86	Jones County Regional Water System	CU3023	Jones	0.396	247.938	Public Supply	Kbc, Kpd
87	Kinston Country Club	CU3018	Lenoir		31.240	Irrigation, Golf Course	Kbc
88	L.B. Page Landscaping, Inc. (Bell Pit)	CU3138	Onslow	1.440		Mine Dewatering	S
89	Landscape Design of Goldsboro, Inc. (Jericho Farms)	CU3098	Wayne	0.263		Irrigation, Agricultural	S, Br
90	Lawn Pro, Inc.	CU3124	Onslow	0.230		Irrigation, Agricultural	S
91	Lowland Impoundment	CU3153	Pamlico	0.432		Waterfowl Impoundments	Tch
92	Magnolia Golf Course	CU3115	Duplin	0.280		Irrigation, Golf Course	Kbc
93	Manning Farms Inc.	CU1085	Washington	1.296		Irrigation, Agricultural	Tch
94	Marina Village - Snug Harbor H20 Sys	CU3162	Carteret	0.180		Public Supply	Ty
95	Marine Corps Base, Camp Lejeune	CU3080	Onslow	20.500		Public Supply	S, Tch
96	Martin Co. Water and Sewer Dist. No. 1	CU3079	Martin		260.610	Public Supply	Kucf
97	Martin Co. Water and Sewer Dist. No. 2	CU1129	Martin		183.960	Public Supply	Kbc, Kucf
98	Martin Marietta (Belgrade Quarry)	CU3031	Jones	11.808		Mine Dewatering	S
99	Martin Marietta (Clarks Quarry)	CU3033	Craven	16.000		Mine Dewatering	S, Tch
100	Martin Marietta (Exploratory)	CU3148	Beaufort	1.400		Mine Dewatering	Tch
101	Martin Marietta (Fountain Quarry)	CU3034	Pitt	2.304		Mine Dewatering	Br
102	Martin Marietta (Onslow Quarry)	CU3032	Onslow	12.770		Mine Dewatering	S, Tch
103	Martin Marietta (Pollocksville Quarry)	CU3036	Jones	20.000		Mine Dewatering	S, Tch
104	Martin Marietta (Wilson Quarry)	CU3035	Wilson	2.304		Mine Dewatering	Br, S
105	McCotter Farms	CU1099	Pamlico	5.500		Irrigation, Agricultural	Tch
106	Minnesott Golf and Country Club	CU1023	Pamlico	0.300		Irrigation, Golf Course	Tch
107	Monrovia Growers	CU3061	Lenoir		267.900	Irrigation, Agricultural	Kucf
108	Morehead City Country Club	CU3156	Carteret	0.144		Irrigation, Golf Course	Tch
109	Morris Fish Farm, LLC	CU3009	Craven	0.763		Aquaculture	Tch
110	Mt. Olive Pickle Company	CU3107	Wayne	0.864		Industrial	Kucf
111	National Spinning Co.-Beulaville Plant	CU3100	Duplin		25.706	Industrial, Public Supply	Kpd, Kbc
112	NC DOT (R-2510A)	CU4015	Beaufort	0.274		Mine Dewatering	S
113	NCDA Tidewater Research Station	CU1016	Washington	2.412		Irrigation, Agricultural, Aquaculture, Livestock	Ty, Tch
114	NCDOT R-2301A	CU4016	Beaufort			Mine Dewatering	S
115	NCDOT R-2554BA	CU4017	Wayne			Mine Dewatering	
116	NCDOT R-2719A	CU4018	Lenoir			Mine Dewatering	S
117	NCDOT R-3403 A	CU4019	Craven			Mine Dewatering	S
118	NCDOT U-2928AB	CU4020	Greene			Mine Dewatering	S
119	NCDOT U-3826	CU4021	Edgecombe			Mine Dewatering	S
120	NCSU Pamlico Aquaculture Field Lab	CU1031	Beaufort	1.008		Aquaculture	Tch
121	North Lenoir Water Corporation	CU3025	Lenoir		813.550	Public Supply	Kbc, Kucf
122	North River Club G.C.	CU3158	Carteret	0.122		Irrigation, Golf Course	Tch
123	North River Community	CU1109	Carteret	0.677		Public Supply	Tch
124	Northwest Onslow Water Association	CU3005	Onslow	0.454		Public Supply	Kpd
125	Northwestern Wayne Sanitary District	CU3083	Wayne	1.062	90.966	Public Supply	Kucf, Br
126	One Fish, Two Fish Catfish LLC	CU1114	Beaufort	1.440		Aquaculture	Tch
127	Onslow Water and Sewer Authority	CU3027	Onslow	11.461	2,111.583	Public Supply	Kbc, Kpd, S, Tch
128	Pamlico County Water System	CU1125	Pamlico	3.456		Public Supply	Tch
129	Pamlico Packing Co Inc	CU1034	Pamlico	0.517		Industrial	Tch
130	Parson Mine	CU1028	Craven	1.260		Mine Dewatering	S
131	Paul Farms, Inc	CU1057	Pamlico	1.584		Irrigation, Agricultural	Tch
132	PCS Phosphate Co	CU1003	Beaufort	78.000		Mine Dewatering	Tch
133	PCS Phosphate Co	CU1007	Beaufort	8.000		Mine Dewatering	S, Tu
134	Penco Products, Inc.	CU3149	Martin		84.145	Industrial	Kucf
135	Perfect Turf Inc.	CU3045	Martin		14.904	Irrigation, Agricultural	Kbc, Kucf
136	Pitt County Memorial Hospital	CU3159	Pitt	0.385		Other	Kbc
137	Plymouth Farms, LLC	CU1018	Washington	2.880		Aquaculture	Tch
138	Pocosin Lakes Wildlife Refuge	CU1131	Washington	2.160		Waterfowl Impoundments	Tch
139	Pungo Fisheries	CU1117	Beaufort	2.000		Aquaculture	Tch

140	R.B.J. Associates (Newport Mine)	CU3122	Carteret	1.440		Mine Dewatering	S
141	Riverside Sand Co., Inc. (Riverside Sand Pit 3)	CU3068	Duplin	0.120		Mine Dewatering	S
142	RJ Bushhogging-Mine No.2	CU3131	Craven	2.880		Mine Dewatering	S
143	Roanoke Country Club	CU3044	Martin		13.824	Irrigation, Golf Course	Kucf
144	Rogers Nursery & Landscaping, Inc.	CU3056	Beaufort	0.720		Mine Dewatering	S
145	S.T. Wooten Corporation (Briley Pit)	CU3144	Beaufort	6.200		Mine Dewatering	S
146	Sawyer Catfish Farm	CU1127	Washington	0.504		Aquaculture	Tch
147	Selvie James Farm	CU1104	Washington	0.504		Irrigation, Agricultural	Ty
148	Sexton Farm	CU3111	Washington	1.080		Irrigation, Agricultural	Tch
149	Smith Farm of Vanceboro LLC	CU3008	Craven	0.792		Aquaculture	Tch
150	Southeastern Wayne Sanitary District	CU3006	Wayne	1.901	168.290	Public Supply	Kucf, Kbc
151	Southern Wayne Sanitary District	CU3106	Wayne	1.499		Public Supply	Kbc, Kucf
152	Southwestern Wayne Sanitary District	CU3084	Wayne	0.919		Public Supply	Kucf, Br
153	Spencer Farms, Inc.	CU3109	Pamlico	1.692		Irrigation, Agricultural	Tch
154	Spotted Dog Fish Farm	CU3087	Craven	0.360		Aquaculture	Tch
155	Stokes Regional Water Corporation	CU3088	Pitt		70.389	Public Supply	Kucf
156	Sullivan Fish Farm	CU1056	Beaufort	0.540		Aquaculture	Tch
157	Swindell Fish Farms	CU1002	Beaufort	0.576		Aquaculture	Tch
158	T. L. Harris Jr	CU1010	Washington	1.872		Irrigation, Agricultural	Tch
159	Town of Atlantic Beach	CU3057	Carteret	2.500		Public Supply	Tch
160	Town of Aurora	CU1011	Beaufort	0.200		Public Supply	Tch
161	Town of Ayden	CU3026	Pitt		207.636	Public Supply	Kbc, Kucf
162	Town of Beaufort	CU1015	Carteret	1.600		Public Supply	Tch
163	Town of Belhaven	CU1008	Beaufort	1.000		Public Supply	Ty
164	Town of Bethel	CU3070	Pitt		58.333	Public Supply	Kbc, Kucf
165	Town of Beulaville	CU3086	Duplin	0.180	106.951	Public Supply	Kpd, Kbc
166	Town of Black Creek	CU3059	Wilson	1.058		Public Supply	Br
167	Town of Calypso	CU3142	Duplin	0.250		Public Supply	Kucf
168	Town of Chocowinity	CU1051	Beaufort	0.702		Public Supply	Tch
169	Town of Creswell	CU1046	Washington	0.288		Public Supply	Ty
170	Town of Elm City	CU3067	Wilson	0.536		Public Supply	Br
171	Town of Faison	CU3058	Duplin	1.674		Public Supply	Kbc, Kucf
172	Town of Farmville	CU3096	Pitt		574.139	Public Supply	Kbc, Kucf
173	Town of Greenevers	CU3099	Duplin		36.500	Public Supply	Kbc
174	Town of Grifton	CU3049	Pitt		103.348	Public Supply	Kbc, Kucf
175	Town of Hookerton	CU3137	Greene		36.500	Public Supply	Kucf
176	Town of Kenansville	CU3091	Duplin	0.538		Public Supply	Kbc
177	Town of La Grange	CU3003	Lenoir		141.355	Public Supply	Kbc, Kucf
178	Town of Lucama	CU3041	Wilson	0.274		Public Supply	Br
179	Town of Macclesfield	CU3128	Edgecombe		24.118	Public Supply	Kucf, Klcf
180	Town of Magnolia	CU3012	Duplin	0.270		Public Supply	Kbc
181	Town of Maysville	CU3051	Jones	0.173		Public Supply	Tch
182	Town of Morehead City	CU1014	Carteret	3.000		Public Supply	Tch
183	Town of Mount Olive	CU3020	Wayne	2.448		Public Supply	Kucf
184	Town of Newport	CU1012	Carteret	1.069		Public Supply	Ty
185	Town of Oriental	CU1022	Pamlico	0.360		Public Supply	Tch
186	Town of Pinetops	CU3053	Edgecombe		119.609	Public Supply	Kucf
187	Town of Pink Hill	CU3021	Lenoir		36.500	Public Supply	Kbc
188	Town of Plymouth	CU1001	Washington	1.200		Public Supply	Tch
189	Town of Pollocksville	CU3125	Jones	0.216		Public Supply	Tch
190	Town of River Bend	CU3052	Craven	1.000		Public Supply	Tch
191	Town of Robersonville	CU3016	Martin		469.059	Public Supply	Kucf
192	Town of Roper	CU1086	Washington	0.350		Public Supply	Tch
193	Town of Rose Hill	CU3010	Duplin	1.440		Public Supply	Kbc, Kucf
194	Town of Snow Hill	CU3072	Greene		233.372	Public Supply	Kucf
195	Town of Stantonsburg	CU3101	Wilson		203.992	Public Supply	Kucf
196	Town of Vanceboro	CU1097	Craven	0.412		Public Supply	Tch
197	Town of Wallace	CU3013	Duplin	2.524		Public Supply	Kbc
198	Town of Warsaw	CU3085	Duplin	1.152		Public Supply	Kbc, Kucf
199	Town of Williamston	CU3066	Martin		393.744	Public Supply	Kbc, Kucf
200	Town of Winterville	CU3121	Pitt		180.709	Public Supply	Kbc
201	US Marine Corps Cherry Point	CU1060	Craven	8.000		Public Supply	Tch
202	Vanguard Farms Inc.	CU1106	Craven	3.000		Aquaculture	Tch
203	Village of Walnut Creek	CU3126	Wayne		53.124	Public Supply	Kucf
204	W.O. White Mine	CU3017	Craven	5.184		Mine Dewatering	S
205	W.O. White, LLC (J.C. Holton Pit)	CU3129	Craven	2.880		Mine Dewatering	S
206	Warner's Aquafarm	CU3007	Beaufort	0.288		Aquaculture	Tch
207	Washington County Water System	CU1113	Washington	1.000		Public Supply	Tch
208	West Carteret Water Corporation	CU3090	Carteret	2.606		Public Supply	Tch
209	Weyerhaeuser NR Company	CU1013	Craven	3.000		Industrial, Public Supply	Tch
210	White Rock Fish Farm Inc.	CU1090	Craven	0.448		Aquaculture	Tch
211	Williams Mine	CU3157	Carteret	2.160		Mine Dewatering	S
212	Worthington Farms, Inc.	CU3064	Pitt		117.022	Irrigation, Agricultural	Kbc, Kucf
213	Zelenka Caro-Green Nursery	CU3103	Wilson	0.700		Irrigation, Agricultural	Br
Total Permitted Ground Water Withdrawals not subject to .0503:				477.994			
Total Approved Base Rates:					20,418.636		Legend
Total number of active permits:		213					

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Table 2. Registered Facilities in the Central Coastal Plain Capacity Use Area for 2008

Links to Plots of Monthly Average and Maximum Day Water Withdrawals by Registered Facilities for 2008
Beaufort | Carteret | Craven | Duplin | Edgecombe | Greene | Jones | Lenoir | Martin | Onslow | Pamlico | Pitt | Washington | Wayne | Wilson | All
plots through 2007 include agricultural registration data from Department of Agriculture CCPCUA 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	14	0.090	0.090	G	Mining
Brinn Mine	CUR0108	Beaufort	0	0.000	0.000	G	Mining
Davis Mine	CUR0059	Beaufort	38	0.070	0.086	G	Mining
National Spinning	CUR0109	Beaufort	237	0.013	0.098	G	Industrial
NCSU Pamlico Aquaculture Field Lab	CUR0060	Beaufort	366	0.000	0.000	S	Aquaculture
Southern States-Sasnett Facility	CUR0107	Beaufort	366	0.025	0.040	G	Aquaculture
Atlantic MHP	CUR0104	Carteret	362	0.004	0.027	G	Public Water System
Atlantic MHP II	CUR0078	Carteret	366	0.007	0.023	G	Public Water System
Atlantic Village MHP (Formerly Mann Village MHP)	CUR0032	Carteret	366	0.013	0.037	G	Public Water System
Ballou MHP	CUR0105	Carteret	366	0.010	0.037	G	Public Water System
Coastal USA Fish Company	CUR0061	Carteret	176	1.463	2.016	S	Aquaculture
Dixon Pit	CUR0069	Carteret	363	0.086	0.086	G	Mining
Goose Creek Resort	CUR0031	Carteret	366	0.016	0.053	G	Public Water System
Hunting Estates MHP	CUR0057	Carteret	366	0.005	0.018	G	Public Water System
Merrimon Community	CUR0083	Carteret	366	0.009	0.017	G	Public Water System
Newport Ridge MHP	CUR0033	Carteret	366	0.005	0.017	G	Public Water System
Ocean Spray	CUR0030	Carteret	338	0.011	0.040	G	Public Water System
Snug Harbor on Nelson Bay	CUR0008	Carteret	366	0.016	0.026	G	Public Water System
Star Hill Golf Club	CUR0099	Carteret	125	0.350	0.600	B	Golf Course Irrigation
Carolina Pines Golf Club	CUR0044	Craven	52	0.038	0.038	G	Golf Course Irrigation
Links at Plantation Harbor	CUR0097	Craven	134	0.010	0.041	B	Golf Course Irrigation
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
River Bend Country Club	CUR0090	Craven	214	0.066	0.091	G	Golf Course Irrigation
RJ BUSHHOGGING INC	CUR0086	Craven	0	0.000	0.000	G	Mining
Taberna Country Club	CUR0114	Craven	199	0.100	0.380	B	Golf Course Irrigation
Weyerhaeuser	CUR0052	Craven	362	15.765	22.186	S	Industrial, Public Water System
National Spinning Co. LLC - Warsaw	CUR0021	Duplin	47	0.002	0.010	G	Other, Changed from a PWS(04-31-463) to fire protection
Warsaw Feed Mill	CUR0070	Duplin	366	0.030	0.042	G	Industrial, Mining
A.T. Thompson Farms	CUR0080	Edgecombe	36	1.250	2.240	S	Agricultural Irrigation
Linwood Allen Webb Farms	CUR0071	Edgecombe	57	2.736	4.176	S	Agricultural Irrigation
Silas Smith Farms	CUR0014	Edgecombe	66	1.215	4.320	S	Agricultural Irrigation
Town of Tarboro Water Treatment Plant	CUR0015	Edgecombe	366	2.649	3.675	S	Public Water System
Winstead Mobile Terrace	CUR0026	Edgecombe	366	0.012	0.031	G	Public Water System
Holloman Farm	CUR0102	Greene	96	0.024	0.032	G	Agricultural Irrigation
Jason Water Corporation	CUR0117	Greene	366	0.016	0.022	G	Public Water System
Shine Water Corporation	CUR0027	Greene	366	0.052	0.066	G	Public Water System
Tripp Brothers No. 1 Mine	CUR0087	Greene	111	0.008	0.009	G	Mining
Vanderford Farm	CUR0103	Greene	96	0.028	0.038	G	Agricultural Irrigation
Falling Creek Country Club	CUR0094	Lenoir	91	0.058	0.058	G	Golf Course Irrigation
Neuse Regional Water and Sewer Athority	CUR0111	Lenoir	123	6.299	13.729	S	Public Water System
Domtar Paper Company LLC	CUR0053	Martin	366	63.792	102.640	S	Industrial
Town of Jamesville	CUR0028	Martin	366	0.038	0.069	G	Public Water System
Beacham Apartments #1	CUR0040	Onslow	366	0.035	0.060	G	Public Water System
Beacham Apartments #2	CUR0039	Onslow	366	0.031	0.058	G	Public Water System
M&M Land Development	CUR0106	Onslow	235	0.072	0.090	G	Other, filling pond
North Shore Country Club	CUR0092	Onslow	240	0.053	0.053	G	Golf Course Irrigation
Sherwood MHP	CUR0012	Onslow	366	0.030	0.059	G	Public Water System
Willis Pit	CUR0115	Onslow	144	0.068	0.068	G	Mining
Richard G. Stilley Mine	CUR0100	Pamlico	102	0.009	0.010	G	Mining
Brook Valley Country Club	CUR0085	Pitt	88	0.387	0.800	S	Golf Course Irrigation
Greenville Utilities Commission	CUR0064	Pitt	366	13.143	20.152	S	Public Water

Water Treatment Plant	CUR0004	Pitt	366	15.145	26.152	S	System
JP Davenport & Son	CUR0018	Pitt	9	2.282	2.282	S	Agricultural Irrigation
Laughinghouse Farms, Inc.	CUR0020	Pitt	60	0.041	0.061	B	Agricultural Irrigation
Town of Grimesland	CUR0003	Pitt	366	0.039	0.088	G	Public Water System
Weyerhaeuser Greenville Lumber Facility	CUR0019	Pitt	366	0.041	0.041	G	Industrial
Town of Creswell	CUR0058	Washington	366	0.038	0.156	B	Public Water System, Other, Flood Control
Claridge State Forest Nursery	CUR0048	Wayne	172	0.468	0.720	S	Other, Forest Tree Seedling Nursery
Goldsboro Water Treatment Plant	CUR0062	Wayne	366	4.645	6.223	S	Public Water System
H. F. Lee Steam Electric Plant	CUR0001	Wayne	147	17.570	17.570	S	Industrial, Other, Thermal Electric Power
Lane Tree Golf Club	CUR0098	Wayne	176	0.243	0.435	S	Golf Course Irrigation
Walnut Creek Country Club	CUR0050	Wayne	0	0.000	0.000	S	Golf Course Irrigation
City of Wilson Water Treatment Plant	CUR0063	Wilson	366	8.923	13.479	S	Public Water System
Fairview Nursery, Inc.	CUR0079	Wilson	201	0.947	31.900	S	Agricultural Irrigation
Happy Valley Country Club	CUR0096	Wilson	72	0.016	0.016	B	Golf Course Irrigation
Old Saratoga, Inc.	CUR0022	Wilson	293	0.033	0.088	G	Industrial
Sharp Farms, Inc.	CUR0043	Wilson	409	0.086	0.272	B	Agricultural Irrigation, Livestock, Other, spraying crops
Town of Saratoga	CUR0036	Wilson	368	0.015	0.057	G	Public Water System
Wilson Country Club	CUR0095	Wilson	70	0.156	0.592	S	Golf Course Irrigation
Zelenka Nursery LLC - Farm A	CUR0065	Wilson	341	1.262	3.222	S	Agricultural Irrigation
Zelenka Nursery LLC - Farm B	CUR0066	Wilson	233	0.114	0.200	S	Agricultural Irrigation
Zelenka Nursery LLC - Farm C	CUR0067	Wilson	298	0.175	0.430	S	Agricultural Irrigation
Total Average Daily Registered Water Withdrawals:				123.252			
Total Average Daily Registered Ground Water Withdrawals:				0.779			
Total Average Daily Registered Surface Water Withdrawals:				122.474			
Total number of active registrations:			72				

Table 4. Central Coastal Plain Capacity Use Area 2007 Water Withdrawal Summary Tables
(compiled 06-15-2009, units are gallons per day)

County Table

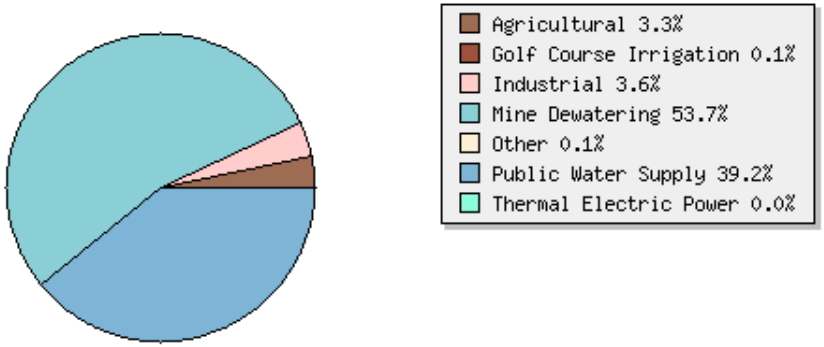
	Permitted		Reported for 2007		
	Current Permit Limits		Ground Water		Surface Water
County	max daily	yearly (ABRs)	by permit	by registration	by registration
Beaufort	131,231,600		71,698,975	23,031	273,600
Carteret	27,790,600		5,062,564	176,735	989,118
Craven	70,392,940	6,856,525	24,630,876	485,641	17,407,267
Duplin	16,678,800	3,265,156	8,387,454	1,599,855	
Edgecombe	7,040,640	493,773	388,866	11,589	3,648,995
Greene	864,000	2,958,195	1,783,074	269,937	370,098
Jones	34,817,600	679,282	8,743,170	181,984	
Lenoir	580,320	14,256,285	8,485,484	293,587	575,093
Martin	3,000,000	3,991,086	2,453,258	79,507	64,429,507
Onslow	56,600,320	9,845,143	23,670,438	259,529	
Pamlico	19,763,000		1,643,297	1,945	
Pitt	10,000,040	8,751,573	6,380,804	270,721	14,845,767
Washington	23,144,080		1,778,556	63,146	
Wayne	11,479,600	4,385,570	5,289,263	701,562	15,723,963
Wilson	8,684,800	558,883	1,161,488	150,905	13,241,021
Totals:	422,068,340	56,041,470	171,557,569	5,471,599*	140,199,848*

*Totals may include additional water use not reported in county totals because of Department of Agriculture nondisclosure policy.

Type of Use Table

	Permitted		Reported for 2007		
	Current Permit Limits		Ground Water		Surface Water
Type of Use	max daily	yearly (ABRs)	by permit	by registration	by registration
Agricultural	68,623,520	1,095,414	5,701,357	4,042,890	15,665,308
Golf Course Irrigation	3,870,720	223,464	167,049	550,377	1,892,843
Industrial	14,377,800	4,049,398	6,180,503	106,766	81,836,774
Mine Dewatering	207,439,480		92,210,294	243,589	
Other	4,435,720	268,560	108,697	1,337	
Public Water Supply	123,321,100	50,404,633	67,189,669	526,640	31,514,484
Thermal Electric Power					9,290,438
Totals:	422,068,340	56,041,470	171,557,569	5,471,599	140,199,848

CCPCUA Reported Ground Water Withdrawals by Type of Use



Aquifer Table

	Permitted		Reported for 2007	
	Current Permit Limits		Ground Water	
Aquifer	max daily	yearly (ABRs)	by permit	by registration
Bedrock	14,960,100		1,932,573	261,606
Black Creek	12,019,420	26,041,584	25,695,644	285,162
Peedee	15,089,873	3,999,919	2,178,945	91,556
Upper Cape Fear	11,693,800	25,966,928	19,345,368	450,633
Lower Cape Fear		33,038	15,867	
Surficial	107,539,233		25,843,198	1,278,798
Castle Hayne	243,694,913		95,422,940	1,198,714
Beaufort			4,630	117,076
Upper Tertiary	4,000,000		172,380	
Yorktown	13,071,000		946,023	111,932
Totals:	422,068,340	56,041,470	171,557,569	5,471,599

CCPCUA Reported Ground Water Withdrawals by Aquifer

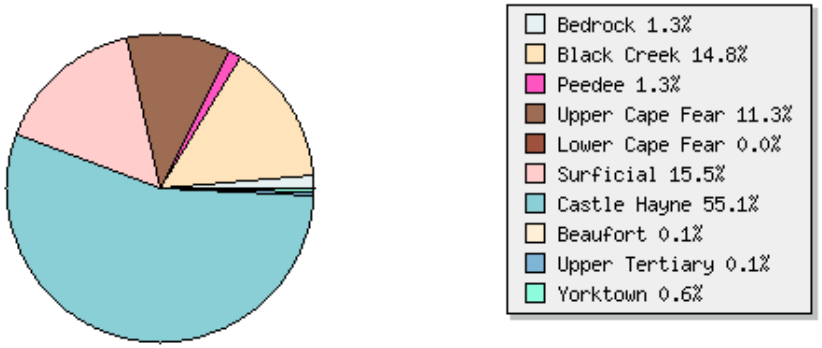


Figure 4. Central Coastal Plain Capacity Use Area Source Locations & Types of Use

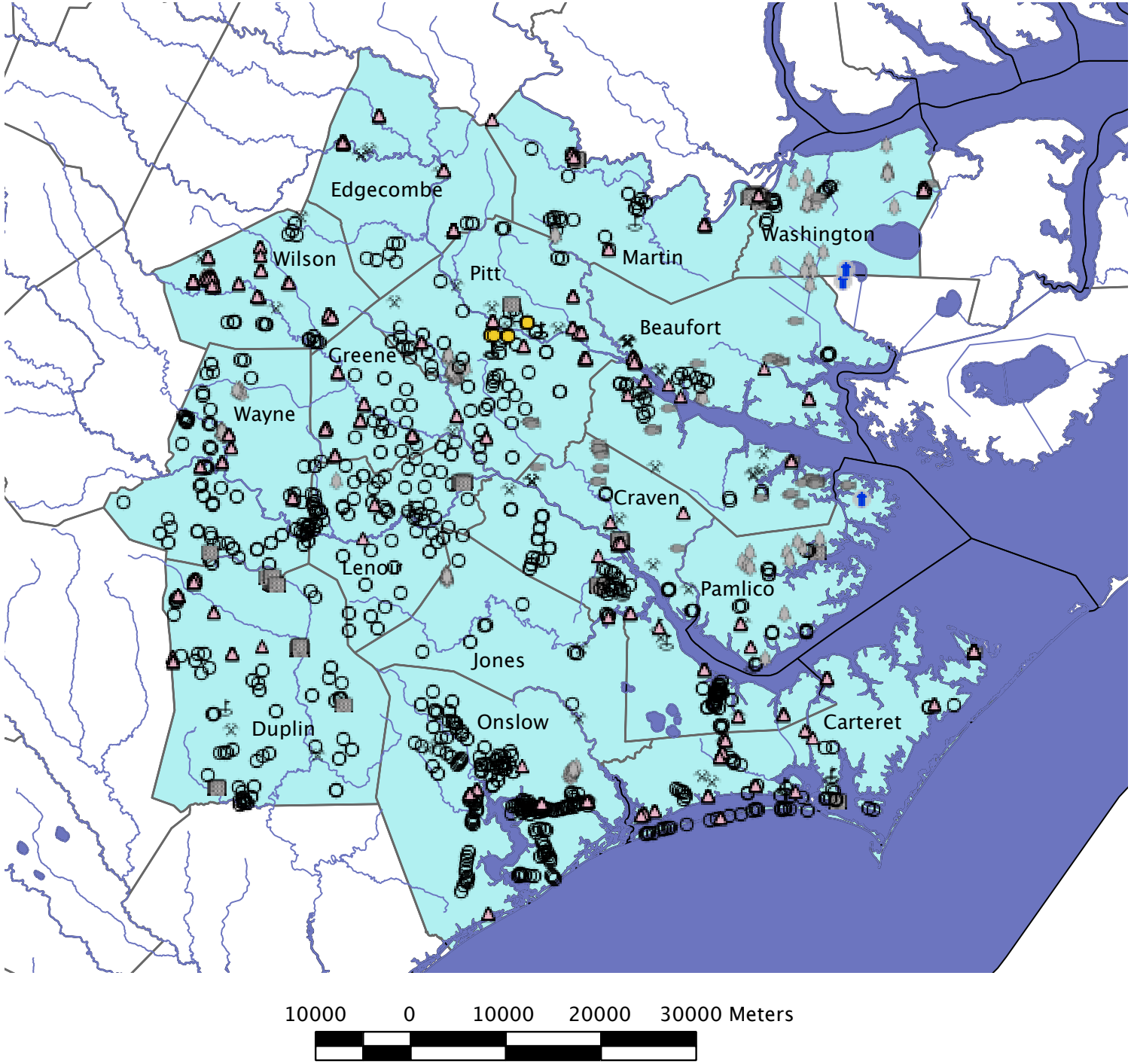
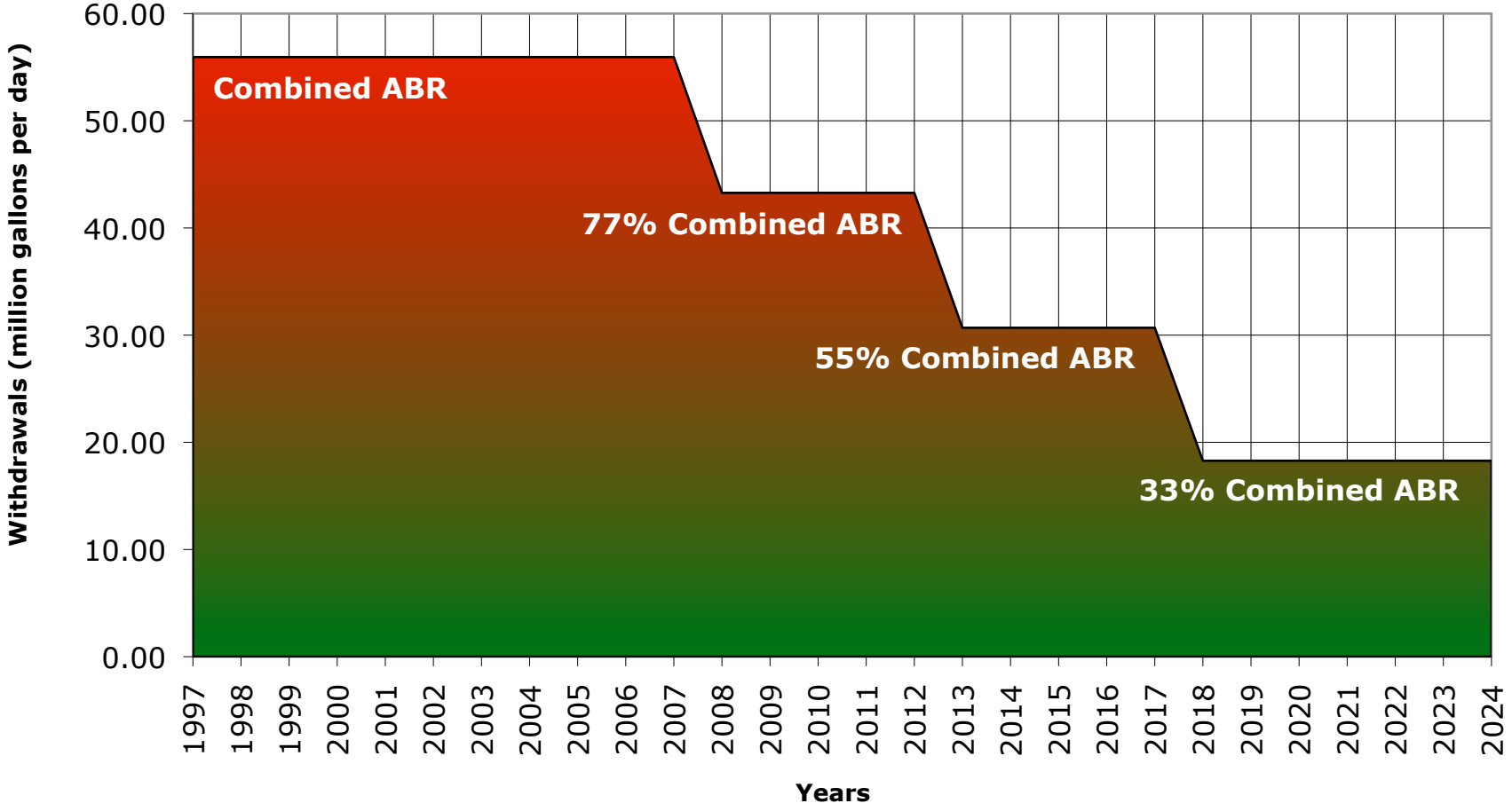


Figure 5. Cretaceous Aquifer Withdrawals
Three Phases of Reduction



- As of June 2009

Figure 6. Castle Hayne Aquifer Map (contour elevations in feet above and below mean sea level)

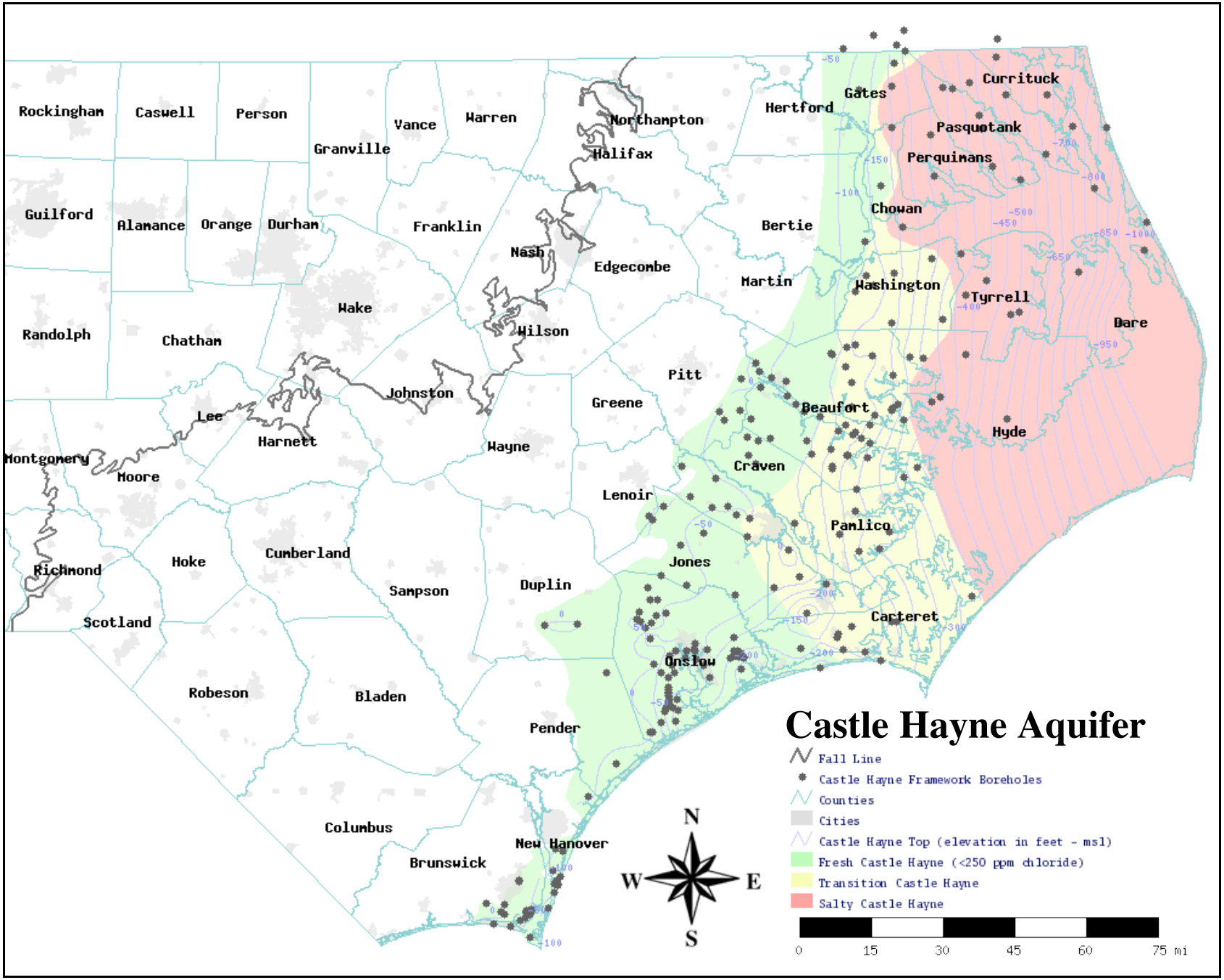
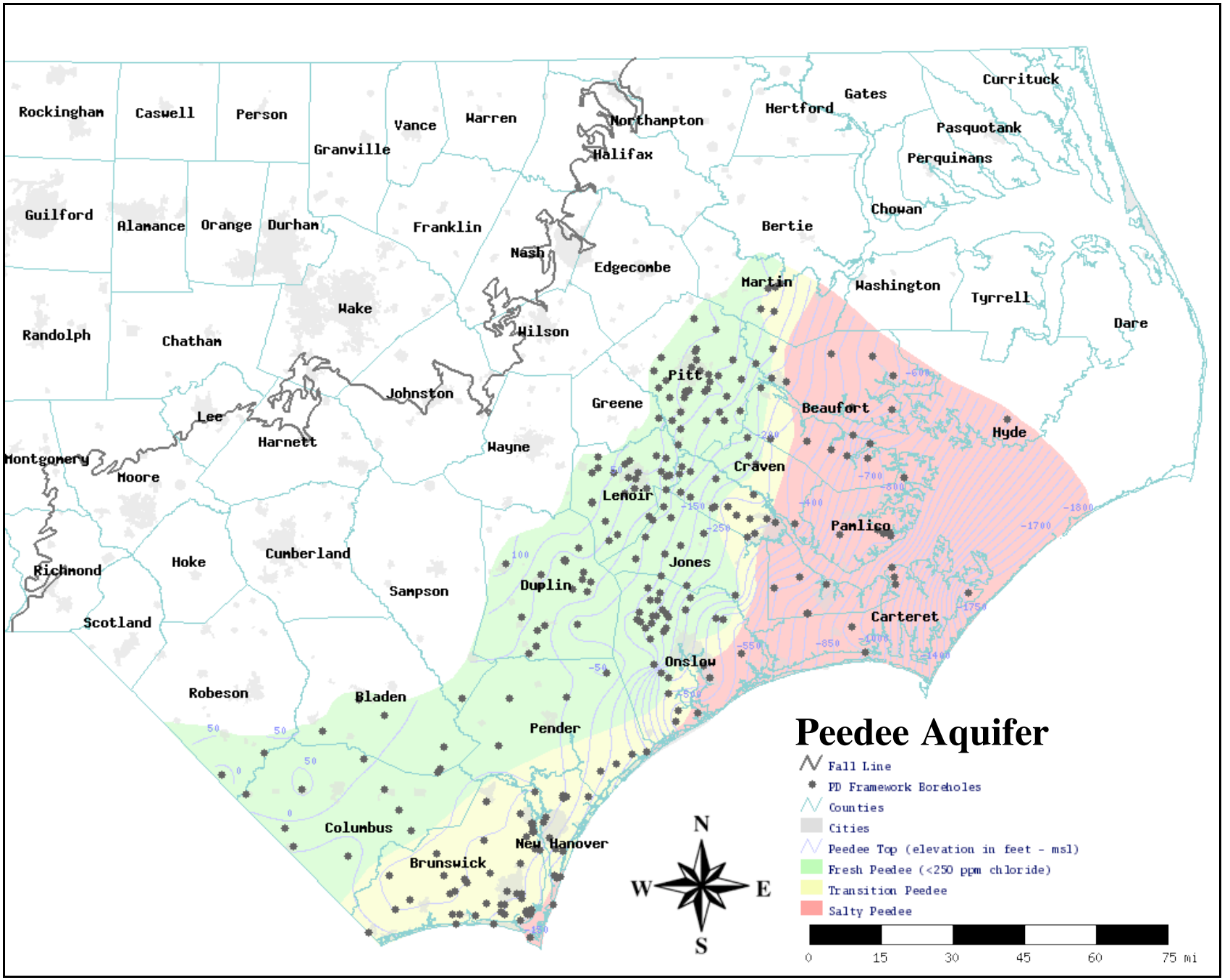



Figure 7. Peedee Aquifer Map (contour elevations in feet above and below mean sea level)