

Central Coastal Plain Capacity Use Area Status Report



September 2019
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, Ground Water Management Branch (DWR-GWMB) 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 fourth 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 DWR-GWMB's website at the following link <https://www.ncwater.org/files/publications/gwms/cuainvestigation121598.pdf>. The recent June 2018 Central Coastal Plain Capacity Use Area Assessment Report discussed the latest condition of the CCP aquifers in detail. The DWR-GWMB concluded after reviewing the aquifer situation that the Environmental Management Commission (EMC) should not take action to alter CCPCUA rule language or reduction zone

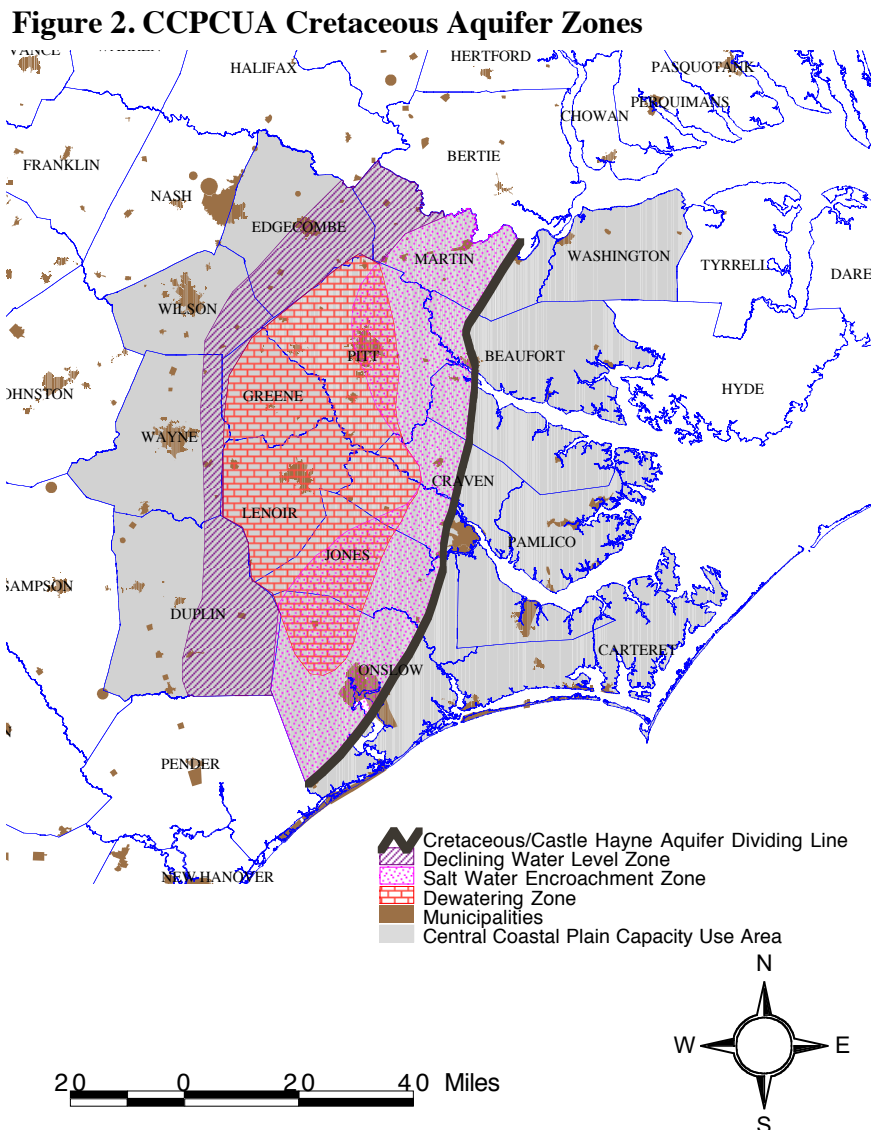
boundaries, however, it is increasingly evident more water users are using the Cretaceous aquifers in a sustainable way. In 2013, the EMC agreed that DWR may issue temporary permits to permit holders who meet certain requirements under the 15A NCAC 2E .0502(p) provision. Those permittees may avoid future water withdrawal reductions, but temporary permits place additional constraints on reduction wells.

The 2018 CCPCUA Assessment Report can be downloaded from the DWR-GWMB website at the following link: https://www.ncwater.org/Reports_and_Publications/GWMS_Reports/CCPCUA-Assessment-2018-20180615.pdf

Permitting and Registration

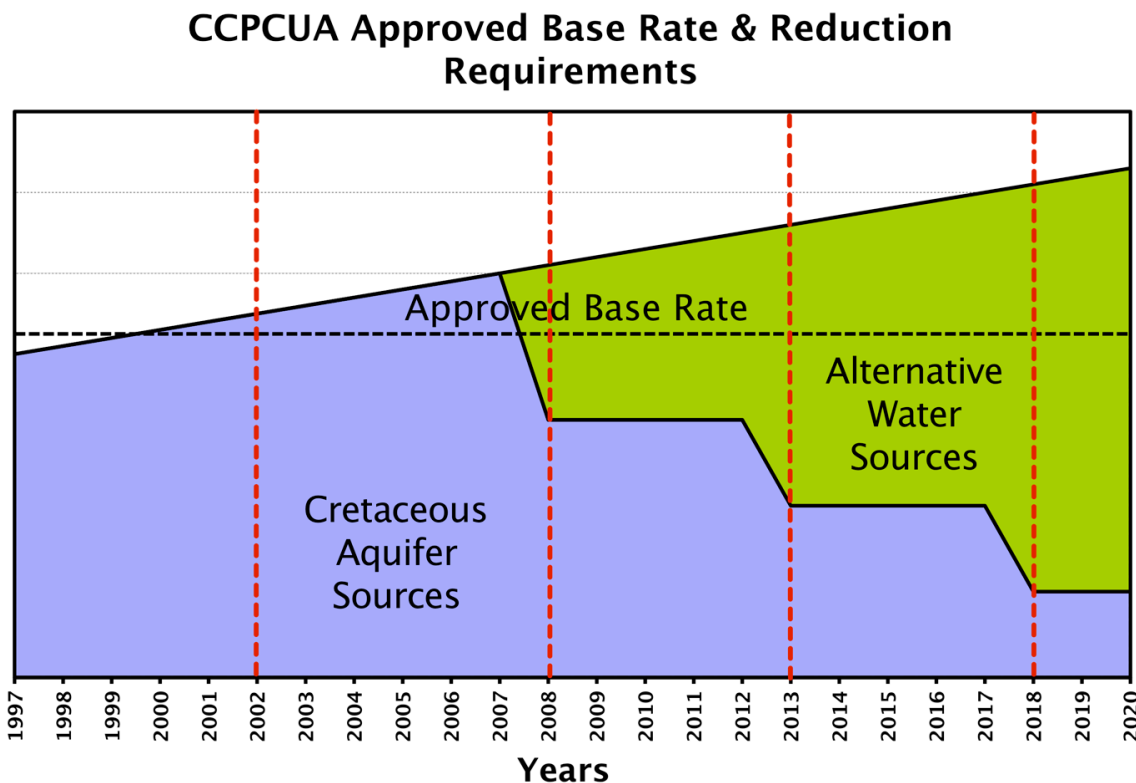
One important result of the CCPCUA rules was the formation of the water use permitting process which establishes water withdrawal requirements for users of more than 100,000 gallons of ground water a day (any one day of the year). Permits are issued with maximum withdrawal per day requirements for those 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 were 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 occurred over a 16-year period (2002 through 2018). Reductions varied 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 which 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.

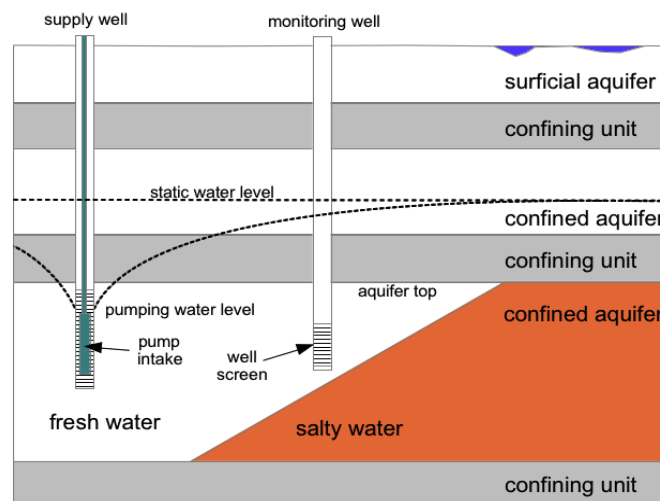
Table 2. Temporary Permits Issued

| County | Permit Holder | CCPCUA Permit # | Date Temporary Permit Issued | Annual Permit Amount (GPY) |
|--------|--------------------------------------|-----------------|------------------------------|----------------------------|
| Craven | City of New Bern | CU3071 | 11/14/2017 | 774,920,500 |
| Craven | Craven County Water | CU3108 | 08/02/2019 | 476,395,350 |
| Duplin | Chinquapin Water Assoc. Inc. | CU3014 | 06/06/2018 | 45,960,400 |
| Greene | Greene County Regional Water System | CU3092 | 01/03/2014 | 607,401,750 |
| Greene | Town of Snow Hill | CU3072 | 10/19/2017 | 73,328,667 |
| Jones | Jones County Regional Water System | CU3023 | 07/15/2019 | 123,969,000 |
| Lenoir | Town of La Grange | CU3003 | 01/16/2014 | 106,016,250 |
| Wayne | Belfast-Patetown Sanitary District | CU3082 | 04/17/2014 | 272,710,333 |
| Wayne | Fork Township Sanitary District | CU3001 | 06/04/2014 | 221,119,500 |
| Wayne | Northwestern Wayne Sanitary District | CU3083 | 06/04/2014 | 59,871,333 |
| Wayne | Southeastern Wayne Sanitary District | CU3006 | 07/11/2014 | 146,419,000 |

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

Registrations are required for those surface and ground water withdrawers of more than 10,000 gallons per day. Registration information received by the DWR-GWMB is available on the CCPCUA website (Appendix - Table 3 shows the results of registration for 2018). The Department of Agriculture and Consumer Services, Agricultural Statistics Division has completed CCP water use surveys for 2002 through 2016. Their previous reports are available as PDF files at the DWR-GWMB's website (www.ncwater.org/CCPCUA under the miscellaneous link).

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 assessing penalties as needed to hold ground water users in the CCPCUA accountable (Appendix - Table 4 summarizes the enforcement proceedings to date).

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 DWR-GWMB to compile water use information in various ways. Examples of water use data can be found on the DWR-GWMB'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). Table 5 is extracted from the website and shows each CCPCUA county's average daily water use totals for 2016, 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 water 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 96.5% of reported ground water use. Table 5 also shows CCPCUA average daily water use in 2016 aggregated by types of use and by aquifer.

Table 5. Water Use Summary

Central Coastal Plain Capacity Use Area 2016 Water Withdrawal Summary Tables

Tables compiled 07-15-2019, units are gallons per day

| Permitted | | | | Reported for 2016 | | | | | | Permitted | | | | Reported for 2016 | | | | | |
|-----------------------|-------------|---------------|---------------|-------------------|--------------|------------|-------------------|------------------|------------------|------------------------|-------------|---------------|---------------|-------------------|--------------|------------|-------------------|------------------|------------------|
| Current Permit Limits | | | | Ground Water | | | Surface Water | | | Current Permit Limits | | | | Ground Water | | | Surface Water | | |
| County | max daily | yearly (ABRs) | yearly (2018) | by all permits | # of permits | % reported | by yearly permits | by registrations | by registrations | Type of Use | max daily | yearly (ABRs) | yearly (2018) | by all permits | # of permits | % reported | by yearly permits | by registrations | by registrations |
| Beaufort | 180,416,400 | | | 58,316,860 | 45 | 73 | | 69,733 | 145,815 | Agricultural | 196,239,102 | 620,612 | 400,004 | 6,064,055 | 115 | 72 | 66,357 | 4,744,972 | 3,122,282 |
| Carteret | 26,920,080 | | | 7,362,377 | 21 | 76 | | 313,179 | 68,041 | Golf Course Irrigation | 3,954,000 | 85,589 | 85,589 | 299,952 | 11 | 100 | 7,381 | 103,852 | 123,799 |
| Craven | 73,143,100 | 6,956,526 | 1,814,132 | 22,700,374 | 29 | 86 | 3,738,104 | 91,285 | 14,788,119 | Industrial | 16,075,200 | 4,373,115 | 2,371,853 | 4,741,248 | 13 | 100 | 1,425,997 | 105,957 | 64,098,878 |
| Duplin | 58,722,902 | 2,805,747 | 2,297,255 | 7,913,280 | 38 | 84 | 1,821,920 | 1,635,803 | 61,349 | Mine Dewatering | 251,342,080 | | | 89,740,828 | 53 | 87 | | 312,722 | |
| Edgecombe | 12,564,000 | 527,697 | 429,388 | 1,255,042 | 10 | 100 | 298,519 | 60,976 | 743,730 | Other | 7,418,480 | 368,561 | 300,003 | 164,009 | 13 | 77 | 106,898 | | |
| Greene | 191,000 | 3,058,197 | 914,551 | 1,150,647 | 4 | 100 | 1,082,948 | 45,298 | | Public Water Supply | 133,796,780 | 50,393,015 | 15,601,016 | 56,530,679 | 88 | 97 | 16,442,789 | 351,403 | 35,992,560 |
| Jones | 48,929,600 | 679,282 | 169,821 | 19,057,105 | 10 | 90 | 240,235 | 225,328 | | Thermal Electric Power | | | | | | | | 174 | 5,133,973 |
| Lenoir | 9,805,320 | 13,522,312 | 3,522,953 | 3,869,963 | 14 | 93 | 3,354,533 | 14,992 | 8,125,867 | Totals: | 608,825,642 | 55,840,891 | 18,758,465 | 157,540,771 | 293 | 85 | 18,049,421 | 5,619,080 | 108,471,491 |
| Martin | 3,504,000 | 4,895,506 | 2,226,326 | 1,872,250 | 13 | 100 | 1,040,642 | 25,763 | 50,195,630 | | | | | | | | | | |
| Onslow | 61,210,600 | 9,845,143 | 2,461,286 | 23,831,767 | 20 | 80 | 3,502,484 | 176,493 | | | | | | | | | | | |
| Pamlico | 34,071,200 | | | 1,399,469 | 13 | 85 | | 1,471 | | | | | | | | | | | |
| Pitt | 9,118,080 | 8,651,572 | 2,521,003 | 1,662,600 | 23 | 87 | 1,369,331 | 207,079 | 13,625,225 | | | | | | | | | | |
| Washington | 64,188,000 | | | 1,678,368 | 36 | 81 | | | | | | | | | | | | | |
| Wayne | 19,129,200 | 4,340,026 | 2,010,532 | 4,492,903 | 17 | 88 | 1,296,263 | 372,422 | 10,125,636 | | | | | | | | | | |
| Wilson | 6,912,160 | 558,883 | 391,218 | 977,768 | 7 | 86 | 304,442 | 151,083 | 9,152,788 | | | | | | | | | | |
| Totals: | 608,825,642 | 55,840,891 | 18,758,465 | 157,540,771 | 300** | 84 | 18,049,421 | 5,619,080* | 108,471,491* | | | | | | | | | | |

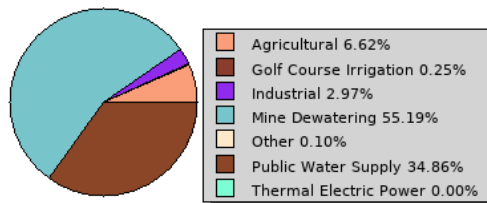
| Permitted | | | | Reported for 2016 | | | | | |
|-----------------------|-------------|---------------|---------------|-------------------|--------------|------------|-------------------|------------------|--|
| Current Permit Limits | | | | Ground Water | | | | | |
| Aquifer | max daily | yearly (ABRs) | yearly (2018) | by all permits | # of permits | % reported | by yearly permits | by registrations | |
| Basement rock | 14,306,060 | | | 1,639,487 | 11 | 91 | | 227,009 | |
| Black Creek | 26,430,540 | 21,938,121 | 7,223,410 | 12,868,303 | 58 | 90 | 9,183,795 | 231,221 | |
| Peedee | 18,956,400 | 6,877,228 | 1,785,236 | 2,063,955 | 22 | 79 | 173,878 | 92,949 | |
| Upper Cape Fear | 44,375,562 | 26,975,542 | 9,699,819 | 13,020,984 | 72 | 90 | 8,680,705 | 101,200 | |
| Lower Cape Fear | | 50,001 | 50,001 | 11,044 | 1 | 100 | 11,044 | | |
| Surficial | 128,755,630 | | | 31,778,162 | 64 | 74 | | 452,456 | |
| Castle Hayne | 338,291,200 | | | 95,199,824 | 136 | 76 | | 346,372 | |
| Beaufort | 3,495,250 | | | | | | | 56,081 | |
| Upper Tertiary | | | | | | | | | |
| Yorktown | 34,215,000 | | | 959,013 | 19 | 76 | | 50,762 | |
| Totals: | 608,825,642 | 55,840,891 | 18,758,465 | 157,540,771 | 381** | 81 | 18,049,421 | 5,619,080 | |

Yearly permit limits are linked to withdrawals from the Cretaceous aquifers where reductions are mandated. As phased reductions occur, annual limits allow permit holders more flexibility to plan when withdrawals are made. ABR refers to "Approved Base Rate" and is the annual rate calculated based on 1997 or August 1, 1999 through July 31, 2000 withdrawals. The ABR is the annual rate from which reductions take place (see CCPCUA FAQs). *Yearly (2018) is the final rate of withdrawal if all three phases of reduction are administered. Figures in the "by all permits" columns are total withdrawals reported by all permit holders (max day and yearly).

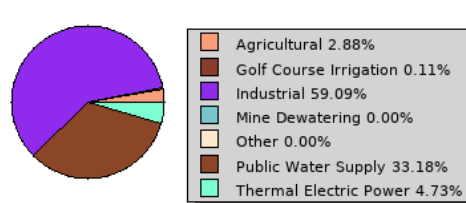
*Totals may include additional water use not reported in county totals because of Department of Agriculture's nondisclosure policy.
 ** A few permits have sources in two counties, so those permits are counted twice.

** Many permits use multiple aquifers, so those permits are counted more than once.

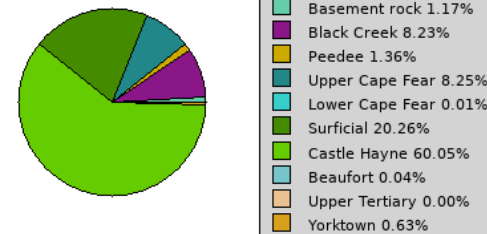
CCPCUA Reported Ground Water Withdrawals by Type of Use



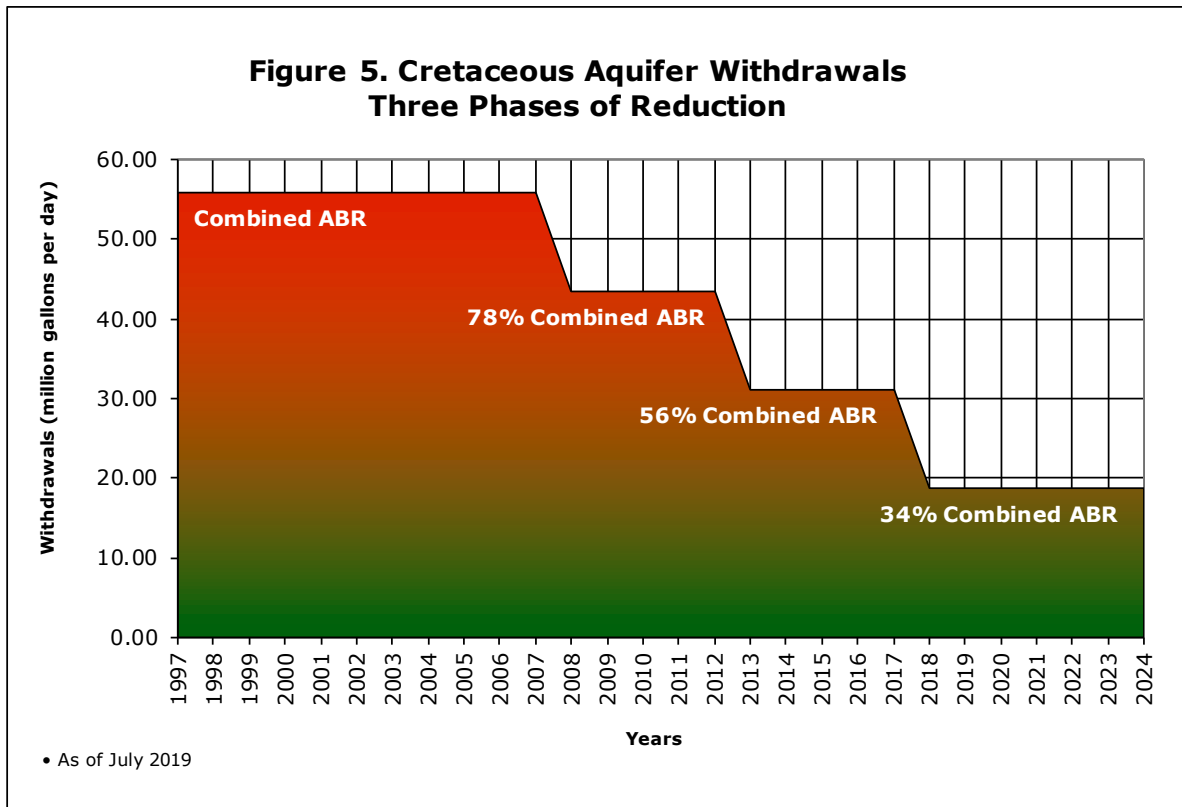
CCPCUA Reported Surface Water Withdrawals by Type of Use



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 the reduction by about 66% from the combined ABRs by 2018. The Division required 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-GWMB 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 (www.ncwater.org/CCPCUA). Beyond that source of data, DWR-GWMB is responsible for improving, operating, and maintaining a monitoring well network to gain knowledge of the hydrogeologic framework and to evaluate aquifer use. The GWMB gives the public access to our understanding of the three-dimensional distribution of aquifers and confining units as well as other information on the branch’s website www.ncwater.org/GWMB under the link *Access the 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 *Ground Water Data Map Interface*. The November 2018 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 was 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 lead to a reduced concern about aquifer dewatering, however, salt water encroachment is still a difficult issue for several permit holders.

There are portions of the CCPCUA where water levels are relatively stable which led DWR, in 2013, to develop a more rigorous method of permit review beyond the prescribed phased reductions. The results are a 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 (as described earlier) 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 (see Figure 4 schematic which depicts criteria for Temporary Permit Requirements).

Salt water encroachment or the threat of encroachment is still a serious issue. In September and October of 2004, 2007, 2012, 2015, and 2017, DWR-GWMB collected rounds of samples from an average of 250 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 geophysical method of measuring subsurface resistivity described on DWR-GWMB's website (www.ncwater.org/GWMB), under the link *Ground Water Educational Materials*.

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 GWMB's website (www.ncwater.org/GWMB), under the link *Access the databases*. In addition, the September 2018 Central Coastal Plain Capacity Use Area Assessment Report documents the GWMB's hydrogeologic framework knowledge.

Summary of Alternative Water Sources

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, GWMB publishes a PDF document on the CCPCUA web page that describes the latest plans and projects associated with Central Coastal Plain water users (www.ncwater.org/CCPCUA under the link *Miscellaneous*).

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. Appendix-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.

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 2016 a surface water treatment plant on the Roanoke River started supplying 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 Appendix-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 alternatives which have been 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.
- 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 pursued a water treatment plant and intake on the Roanoke River which became operational in 2016.
- Craven County has constructed Peedee aquifer wells and a Castle Hayne well field and treatment plant.
- Jones County constructed Peedee aquifer wells and propose Castle Hayne wells and a treatment plant in the eastern part of the County by June 2020.

- Several water users are purchasing water from other systems.
- Water reuse and conservation are being implemented by several industries.

DWR-GWMB will maintain a PDF document (as mentioned earlier), which has more complete descriptions and costs of the alternative water supplies planned and achieved. DWR-GWMB has provided a link to the UNC Environmental Finance Center for NC Municipal water rates, which may be accessed off of the CCPCUA webpage (www.ncwater.org/CCPCUA) 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 \$41.86 for 5,000 gallons, the Town of Williamston's monthly water bill is \$64.90 per 5,000 gallons, and the Town of La Grange's monthly water bill is \$37.75 per 5,000 gallons.

Conclusions

Although the threats of declining water levels and dewatering have shown significant improvement to the ground water situation in the CCPCUA, salt water encroachment continues to be an issue for some permit holders. Continued progress has been 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 have and will lead to measurable improvements in ground water conditions. The DWR-GWMB 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 permits

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 | 27,370 | | | Irrigation, Agricultural | Tch |
| 2 | 3B Farms Inc. (Leon Respass Farm) | CU3174 | Beaufort | 504,000 | 6,559 | | | Irrigation, Agricultural | Tch |
| 3 | 3B Farms Inc. (Number Four Farm) | CU3201 | Washington | 2,592,000 | 29,342 | | | 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 | | | | Irrigation, Agricultural | Tch |
| 6 | 3B Farms Inc. (Wenona Farm) | CU3244 | Washington | 1,440,000 | | | | Irrigation, Agricultural | Tch |
| 7 | 3B Farms Inc. (White Post Farm) | CU3272 | Beaufort | 1,440,000 | 21,863 | | | Irrigation, Agricultural | Tch |
| 8 | 3B Farms, Inc. (Five Points Farm) | CU3192 | Beaufort | 936,000 | 10,258 | | | Irrigation, Agricultural | Tch |
| 9 | 3B Farms, Inc. (Henry Boyd Farm) | CU3182 | Beaufort | 1,008,000 | | | | Irrigation, Agricultural | Tch |
| 10 | 3B Farms, Inc. (Lake Phelps Farm) | CU3180 | Washington | 6,336,000 | | | | Irrigation, Agricultural | Tch |
| 11 | 3B Farms, Inc. (Waters Farm) | CU3181 | Beaufort | 1,224,000 | 4,471 | | | Irrigation, Agricultural | Tch |
| 12 | Alston Spruill Farms | CU1121 | Pamlico | 2,736,000 | | | | Irrigation, Agricultural | Tch, Ty |
| 13 | American Materials Co., LLC (Pinner Pit) | CU3117 | Pitt | 1,400,000 | | | | Mine Dewatering | S |
| 14 | American Materials Company LLC (Dupree Pit) | CU3238 | Pitt | 1,440,000 | | | | Mine Dewatering | S |
| 15 | American Turf Grass Corporation | CU1122 | Washington | 3,456,000 | 127,364 | | | Irrigation, Agricultural | Ty |
| 16 | Anderson & Co., Inc. - Anderson Sand Pit | CU3135 | Edgecombe | 2,880,000 | | | | Mine Dewatering | S |
| 17 | Anthony Smith Farms (Chicken House Farm) | CU3311 | Duplin | 864,000 | | | | Irrigation, Agricultural | Kbc |
| 18 | Aquaplantations, LLC. (Esau Family Farm) | CU1108 | Craven | 518,400 | 67,384 | | | Aquaculture | Tch |
| 19 | Askew Farm - L. Daughtridge | CU3320 | Washington | 3,636,000 | | | | Irrigation, Agricultural | Tch |
| 20 | Atlantic Veneer Corporation | CU3127 | Carteret | 432,000 | 28,589 | | | Industrial, Public Supply | 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. (Howard Pit) | CU3254 | Onslow | 936,000 | | | | Mine Dewatering | S |

| | | | | | | | | | |
|----|---|--------|-----------|-----------|-----------|-------------|---------|--------------------------|-----------|
| 24 | Barnhill Contracting Co. (Rhodes Pit) | CU3240 | Lenoir | 936,000 | 257,616 | | | Mine Dewatering | S |
| 25 | Barnhill Contracting Co. (Tick Bite Rd. Pit) | CU3273 | Lenoir | 936,000 | 3,156 | | | Mine Dewatering | S |
| 26 | Barnhill Contracting Co. (Old Town Pit) | CU3266 | Edgecombe | 936,000 | | | | Mine Dewatering | S |
| 27 | Barnhill Contracting Company (Blount Pit) | CU3281 | Pitt | 936,000 | 136,871 | | | Mine Dewatering | S |
| 28 | Barnhill Contracting Company (Dairy Farm Pit) | CU3319 | Edgecombe | 936,000 | 132,203 | | | Mine Dewatering | S |
| 29 | Barnhill Contracting Company (Harris Pit) | CU3246 | Pitt | 936,000 | | | | Mine Dewatering | S |
| 30 | Barnhill Contracting Company (Logsboro Pit) | CU3239 | Edgecombe | 468,000 | | | | Mine Dewatering | S |
| 31 | Barnhill Contracting Company - Hope Lodge Pit | CU3271 | Edgecombe | 936,000 | | | | Mine Dewatering | S |
| 32 | Barnhill Contracting Company - Joe Thomas Pit | CU3265 | Craven | 936,000 | 233,145 | | | Mine Dewatering | S |
| 33 | Barnhill Contracting Company - Williams Pit | CU3264 | Craven | 936,000 | | | | Mine Dewatering | S |
| 34 | Bayer Investments, Inc. (Hideaway Mine) | CU3325 | Craven | 4,320,000 | | | | Mine Dewatering | S |
| 35 | Beaufort Club | CU3158 | Carteret | 244,800 | 34,492 | | | Irrigation, Golf Course | Tch |
| 36 | Beaufort Co. Water Districts VI & VII | CU1119 | Beaufort | 3,240,000 | 669,685 | | | Public Supply | Tch, Kpd |
| 37 | Belfast-Patetown Sanitary District | CU3082 | Wayne | 190,800 | 28,976 | 272,710,333 | 433,197 | Public Supply | Kucf, Br |
| 38 | Bell Arthur Water Corporation | CU3077 | Pitt | | | 128,615,250 | 61,482 | Public Supply | Kucf |
| 39 | Bogue Banks Water Corporation | CU3076 | Carteret | 5,760,000 | 1,069,266 | | | Public Supply | Ty, Tch |
| 40 | Bradshaw Farms | CU3247 | Duplin | 1,296,000 | 12,673 | | | Irrigation, Agricultural | Kbc, Kucf |
| 41 | Britt Family Farms (Cole Farm) | CU3305 | Duplin | 432,000 | 12,624 | | | Irrigation, Agricultural | Kucf |
| 42 | Britt Family Farms (Deaver Lane Farm) | CU3216 | Duplin | 2,448,000 | 42,956 | | | Irrigation, Agricultural | Kbc, Kucf |
| 43 | Britt Family Farms (Hick Farm) | CU3306 | Duplin | 540,000 | 13,315 | | | Irrigation, Agricultural | Kucf |
| 44 | Britt Family Farms (Lois Farm) | CU3304 | Duplin | 648,000 | 16,866 | | | Irrigation, Agricultural | Kucf |
| 45 | Britt Family Farms (Parker Farm) | CU3307 | Duplin | 900,000 | 24,658 | | | Irrigation, Agricultural | Kbc |
| 46 | Britt Family Farms (Reggie Farm) | CU3308 | | 432,000 | 11,244 | | | Irrigation, Agricultural | Kucf |
| 47 | Britt Family Farms - Broadhurst Bridge Farm | CU3232 | Wayne | 936,000 | 27,536 | | | Irrigation, Agricultural | Kbc, Kucf |
| 48 | Burch Farms LLC (County Line Farm) | CU3296 | Duplin | 720,000 | | | | Irrigation, Agricultural | Kbc |
| 49 | Burch Farms LLC (Pridden Farm) | CU3297 | Duplin | 1,152,000 | 36 | | | Irrigation, Agricultural | Kucf |
| 50 | Burch Farms, LLC (Luby Byrd Farm) | CU3262 | Duplin | 150,000 | 21,447 | | | Irrigation, Agricultural | Kbc, Kucf |
| 51 | Burch Farms, LLC (Mills Road Farm) | CU3280 | Wayne | 432,000 | | | | Irrigation, Agricultural | Kucf |
| 52 | Butterball, LLC | CU3019 | Duplin | 2,700,000 | 890,477 | | | Industrial | Kucf |

| | | | | | | | | | | |
|----|--|--------|------------|-----------|-----------|-------------|-----------|--|---------------------------|---------------------|
| 53 | C.E. Jr. and Maurice Manning Farm | CU3252 | Washington | 1,584,000 | 2,170 | | | | Irrigation, Agricultural | Tch |
| 54 | Carolina Creek LLC | CU3140 | Craven | 720,000 | | | | | Irrigation, Golf Course | Tch |
| 55 | Carolina Fisheries | CU1058 | Beaufort | 5,160,000 | | | | | Aquaculture | Tch |
| 56 | Carolina Stone, LLC (Ange Mine) | CU3249 | Craven | 3,000,000 | 518,219 | | | | Mine Dewatering | S |
| 57 | Casey Nursery, Inc. | CU3062 | Wayne | 310,000 | 17,552 | | | | Irrigation, Agricultural | S |
| 58 | Cashwell Farms, LLC. - Home Place Farm | CU3217 | Wayne | 720,000 | | | | | Irrigation, Agricultural | Kucf |
| 59 | Cashwell Farms, LLC. - Vetter Farm | CU3289 | Wayne | 432,000 | | | | | Irrigation, Agricultural | Kucf |
| 60 | Castle Hayne Fisheries, Inc. | CU1073 | Beaufort | 2,780,000 | | | | | Aquaculture | Tch |
| 61 | Chinquapin Water Assoc. Inc. | CU3014 | Duplin | 727,200 | 170,359 | 45,960,400 | 110,813 | | Public Supply | Kbc, Kpd |
| 62 | Circle P Farm-Styron Pit | CU3286 | Carteret | 324,000 | | | | | Mine Dewatering | S |
| 63 | City of Havelock | CU1029 | Craven | 2,800,000 | 942,025 | | | | Public Supply | Tch |
| 64 | City of Jacksonville | CU3073 | Onslow | 6,577,200 | 3,194,088 | 370,473,525 | 1,024,255 | | Public Supply | Kpd, Kbc, Tch |
| 65 | City of Kinston | CU3024 | Lenoir | | | 636,256,800 | 1,147,592 | | Public Supply | Kbc, Kucf |
| 66 | City of New Bern | CU3071 | Craven | 5,500,000 | 1,444,012 | 774,920,500 | 1,626,282 | | Public Supply | Kbc, Kucf, Tch |
| 67 | City of Washington | CU1009 | Beaufort | 6,200,000 | 2,561,452 | | | | Public Supply | Tch |
| 68 | Conetoe Community Water Assoc., Inc. | CU3089 | Edgecombe | | | 36,500,365 | 48,946 | | Public Supply | Kucf |
| 69 | Cottle Farms (Will Cottle Farm) | CU3322 | Duplin | 1,607,422 | | | | | Irrigation, Agricultural | Kucf |
| 70 | Country Club of Plymouth, Inc. | CU1123 | Washington | 200,000 | 2,241 | | | | Irrigation, Golf Course | Tch |
| 71 | Craven County Water | CU3108 | Craven | 3,733,500 | 1,879,893 | 238,197,675 | 812,521 | | Public Supply | Kbc, Kucf, Tch, Kpd |
| 72 | Craven County Wood Energy, L.P. | CU3055 | Craven | 1,800,000 | 474,494 | | | | Industrial | Tch |
| 73 | CWS, Inc. of NC - Brandywine Bay | CU3043 | Carteret | 500,000 | 14,002 | | | | Public Supply | Tch |
| 74 | CWS, Inc. of NC - Fairfield Harbour | CU1087 | Craven | 1,050,000 | 135,856 | | | | Public Supply | Tch |
| 75 | Cypress Landing Golf Club | CU1128 | Beaufort | 520,000 | | | | | Irrigation, Golf Course | Tch |
| 76 | Cypress Swamp Aquafarm, LLC | CU1101 | Beaufort | 2,160,000 | | | | | Aquaculture | Tch |
| 77 | David Waters Farm | CU1094 | Beaufort | 864,000 | | | | | Irrigation, Agricultural | Tch |
| 78 | Deep Run Water Corporation | CU3050 | Lenoir | 580,320 | 53,663 | 140,688,777 | 268,772 | | Public Supply | Kpd, Kbc |
| 79 | Domtar Paper Company, LLC | CU1120 | Martin | 3,000,000 | 152,337 | | | | Industrial, Public Supply | S, Ty, Tch |
| 80 | Don Lee Farms, Inc. | CU3154 | Pamlico | 6,336,000 | | | | | Irrigation, Agricultural | Tch |
| 81 | Down East Farms, Inc. | CU3208 | Jones | 288,000 | | | | | Irrigation, Agricultural | Tch |
| 82 | Duke Energy Progress (HF Lee Facility) | CU3327 | Wayne | 550,000 | | | | | Other | S |

| | | | | | | | | | | |
|-----|---|--------|----------|------------|----------|-------------|---------|--|--------------------------|----------------|
| 83 | Duplin County Regional Water System | CU3114 | Duplin | 2,278,800 | 909,962 | 317,984,520 | 715,778 | | Public Supply | Kbc, Kucf, Kpd |
| 84 | DuPont Industrial Biosciences USA, LLC (Dupont Kinston Plant) | CU3022 | Lenoir | | | 201,304,080 | 174,518 | | Industrial | Kbc, Kucf |
| 85 | Eagle Water Company, LLC | CU1130 | Beaufort | 58,000,000 | | | | | Public Water Supplier | Tch |
| 86 | East Carolina University - Health Sciences Campus | CU3132 | Pitt | 105,120 | 307 | 36,500,365 | 42,899 | | Other | Kucf, Kpd |
| 87 | East Carolina University - Main Campus | CU3133 | Pitt | 99,360 | 17,587 | 36,500,365 | 44,033 | | Other | Kbc, Kucf, Kpd |
| 88 | Eastern Pines Water Corporation | CU3102 | Pitt | 720,000 | 24,476 | 185,511,250 | 204,701 | | Public Supply | Kpd, Kbc, Kucf |
| 89 | Eastern Wayne Sanitary District | CU3081 | Wayne | 1,378,800 | 197,536 | 248,367,858 | 634,984 | | Public Supply | Kucf, S, Kbc |
| 90 | ECU - North Recreational Complex | CU3147 | Pitt | 400,000 | 13,227 | | | | Other | Ty |
| 91 | Eden Blueberry Farms | CU3224 | Duplin | 576,000 | | | | | Irrigation, Agricultural | Kbc, Kucf |
| 92 | Emerald Golf Course | CU3155 | Craven | 750,000 | 11,210 | | | | Irrigation, Golf Course | Tch |
| 93 | First Craven Sanitary District | CU1105 | Craven | 1,476,000 | 458,068 | | | | Public Supply | Tch |
| 94 | Fork Township Sanitary District | CU3001 | Wayne | 1,119,600 | 172,978 | 221,119,500 | 533,055 | | Public Supply | Kucf, Br |
| 95 | Garner Construction Co. (Merrimon Mine) | CU3197 | Carteret | 1,440,000 | | | | | Mine Dewatering | S |
| 96 | Garner Construction Company (Nine Foot Road Mine #2) | CU3284 | Carteret | 1,440,000 | 257,993 | | | | Mine Dewatering | S |
| 97 | George Mainor Farm | CU3301 | Duplin | 255,000 | | | | | Irrigation, Agricultural | Kbc |
| 98 | Georgia-Pacific Wood Products, LLC. | CU3235 | Wayne | 691,200 | 88,592 | | | | Industrial | Kbc, Kucf |
| 99 | Goodson & Wells Farm, Inc. (Bazemore Farm) | CU3258 | Duplin | 500,000 | 17,211 | | | | Irrigation, Agricultural | Kbc, Kucf |
| 100 | Goodson & Wells Farm, Inc. (Brock Farm) | CU3219 | Duplin | 2,160,000 | 20,181 | | | | Irrigation, Agricultural | Kucf |
| 101 | Goodson & Wells Farm, Inc. (Garner Wells Farm) | CU3268 | Duplin | 864,000 | 5,959 | | | | Irrigation, Agricultural | Kucf |
| 102 | Goodson & Wells Farm, Inc. (Nellie Francis Farm) | CU3288 | Duplin | 936,000 | | | | | Irrigation, Agricultural | Kbc, Kucf |
| 103 | Goodson & Wells Farm, Inc. (Rackley/Wells Farm) | CU3220 | Duplin | 2,592,000 | 30,038 | | | | Irrigation, Agricultural | Kucf |
| 104 | Goodson & Wells Farm, Inc. (Reardon Farm) | CU3287 | Duplin | 360,000 | | | | | Irrigation, Agricultural | Kbc |
| 105 | Goodson & Wells Farms (Garner Tram Rd) | CU3259 | Duplin | 600,000 | 6,706 | | | | Irrigation, Agricultural | Kbc, Kucf |
| 106 | Goodson & Wells Farms, Inc. (Dail Farm) | CU3248 | Duplin | 864,000 | 1,868 | | | | Irrigation, Agricultural | Kbc |
| 107 | Goodson & Wells Farms, Inc. (Gurley Farm) | CU3196 | Duplin | 2,880,000 | -279,126 | | | | Irrigation, Agricultural | Kucf |
| 108 | Goodson & Wells Farms, Inc. (Herbert Wells Farm) | CU3276 | Duplin | 1,512,000 | 24,531 | | | | Irrigation, Agricultural | Kbc, Kucf |
| 109 | Goodson & Wells Farms, Inc. (Hill Farm) | CU3195 | Duplin | 1,152,000 | 24,132 | | | | Irrigation, Agricultural | Kucf |
| 110 | Goodson & Wells Farms, | CU3241 | Duplin | 3,240,000 | 64,825 | | | | Irrigation, | Kucf |

| | | | | | | | | | |
|-----|--------------------------------------|--------|------------|-----------|---------|-------------|---------|--------------------------|--------------|
| 225 | Neck Mine 1) | CU3167 | Craven | 4,000,000 | 450,293 | | | Dewatering | S |
| 226 | Roanoke Golf & Country Club, Inc. | CU3044 | Martin | 288,000 | | | | Irrigation, Golf Course | Kucf |
| 227 | Sackett Potatoes | CU3251 | Pamlico | 3,000,000 | | | | Irrigation, Agricultural | Tch |
| 228 | Scientific Water and Sewerage Corp. | CU3227 | Onslow | 900,000 | 56,379 | | | Public Supply | S, Tch |
| 229 | Scott James Farms | CU3221 | Washington | 1,500,000 | | | | Irrigation, Agricultural | Tch |
| 230 | Sea Level Mine, LLC | CU3282 | Carteret | 720,000 | | | | Mine Dewatering | S |
| 231 | Sexton Farms (Home Farm) | CU3256 | Washington | 864,000 | | | | Irrigation, Agricultural | Ty |
| 232 | Sexton Farms (Turnpike Farm) | CU3111 | Washington | 1,260,000 | 26,237 | | | Irrigation, Agricultural | Tch |
| 233 | Smith Farm of Vanceboro LLC | CU3008 | Craven | 792,000 | | | | Aquaculture | Tch |
| 234 | Southeastern Wayne Sanitary District | CU3006 | Wayne | 2,116,800 | 579,513 | 146,419,000 | 202,551 | Public Supply | Kucf, Kbc |
| 235 | Southern Produce (Bradshaw Farm) | CU3300 | Duplin | 400,000 | | | | Irrigation, Agricultural | Kucf |
| 236 | Southern Produce (Faison Farm) | CU3215 | Duplin | 400,000 | | | | Irrigation, Agricultural | Kucf |
| 237 | Southern Wayne Sanitary District | CU3106 | Wayne | 1,499,000 | | | | Public Supply | Kbc, Kucf |
| 238 | Southwestern Wayne Sanitary District | CU3084 | Wayne | 1,033,200 | 312,840 | | | Public Supply | Kucf, Br |
| 239 | Spring Creek Timber Co., Inc. | CU3169 | Pamlico | 324,000 | | | | Irrigation, Agricultural | Tch |
| 240 | Spring Hope Fisheries | CU3087 | Craven | 360,000 | | | | Aquaculture | Tch |
| 241 | Steve Grady Farm | CU3225 | Duplin | 554,400 | | | | Irrigation, Agricultural | Kucf |
| 242 | Stokes Regional Water Corporation | CU3088 | Pitt | | | 36,500,365 | 85,688 | Public Supply | Kucf |
| 243 | Sutton Brothers, Inc. | CU3283 | Wayne | 324,000 | | 36,500,365 | | Irrigation, Agricultural | Kucf, S, Kbc |
| 244 | Swindell Fish Farms | CU1002 | Beaufort | 576,000 | | | | Waterfowl Impoundments | Tch |
| 245 | T. L. Harris, Jr. Farm | CU1010 | Washington | 1,872,000 | | | | Irrigation, Agricultural | Tch |
| 246 | Taberna Country Club | CU3168 | Craven | 378,000 | | | | Irrigation, Golf Course | Tch |
| 247 | Tarheel Fishery | CU3323 | Craven | 144,000 | 22,356 | | | Aquaculture | Tch |
| 248 | TCB Farms, LLC | CU3243 | Onslow | 280,800 | | | | Irrigation, Agricultural | Kpd |
| 249 | Town of Atlantic Beach | CU3057 | Carteret | 2,500,000 | 510,003 | | | Public Supply | Tch |
| 250 | Town of Aurora | CU1011 | Beaufort | 250,000 | 44,327 | | | Public Supply | Tch |
| 251 | Town of Ayden | CU3026 | Pitt | | | 51,909,050 | 54,764 | Public Supply | Kbc, Kucf |
| 252 | Town of Beaufort | CU1015 | Carteret | 1,872,000 | 344,200 | | | Public Supply | Tch |
| 253 | Town of Belhaven | CU1008 | Beaufort | 1,080,000 | 124,754 | | | Public Supply | Ty |
| 254 | Town of Bethel | CU3070 | Pitt | | | 36,500,365 | 14,137 | Public Supply | Kbc, Kucf |
| 255 | Town of Beulaville | CU3086 | Duplin | 180,000 | | 74,866,050 | 103,616 | Public Supply | Kpd, Kbc |
| 256 | Town of Black Creek | CU3059 | Wilson | 1,454,400 | 397,892 | | | Public Supply | Br |
| 257 | Town of Calypso | CU3142 | Duplin | 250,000 | 57,996 | | | Public Supply | Kucf |
| 258 | Town of Chocowinity | CU1051 | Beaufort | 702,000 | 144,123 | | | Public Supply | Tch |

| | | | | | | | | | |
|-----|---|--------|------------|-----------|-----------|-------------|---------|--------------------------|----------------|
| 259 | Town of Creswell | CU1046 | Washington | 288,000 | | | | Public Supply | Ty |
| 260 | Town of Dover | CU3186 | Craven | | | 36,500,365 | 14,280 | Public Supply | Kbc |
| 261 | Town of Elm City | CU3067 | Wilson | 535,680 | 65,511 | | | Public Supply | Br |
| 262 | Town of Faison | CU3058 | Duplin | 1,674,000 | 195,868 | | | Public Supply | Kucf |
| 263 | Town of Farmville | CU3096 | Pitt | | | 143,534,663 | 353,122 | Public Supply | Kbc, Kucf |
| 264 | Town of Greenevers | CU3099 | Duplin | | | 36,500,365 | 47,827 | Public Supply | Kbc |
| 265 | Town of Grifton | CU3049 | Pitt | | | 36,500,365 | 9,989 | Public Supply | Kbc, Kucf |
| 266 | Town of Hamilton | CU3166 | Martin | | | 36,500,365 | 18,049 | Public Supply | Kucf |
| 267 | Town of Hookerton | CU3137 | Greene | | | 36,500,365 | 40,542 | Public Supply | Kucf |
| 268 | Town of Kenansville | CU3091 | Duplin | 538,000 | 101,964 | | | Public Supply | Kpd, Kbc |
| 269 | Town of La Grange | CU3003 | Lenoir | 585,000 | 70,197 | 106,016,250 | 159,225 | Public Supply | Kbc, Kucf, S |
| 270 | Town of Lucama | CU3041 | Wilson | 273,600 | 50,415 | | | Public Supply | Br |
| 271 | Town of Macclesfield | CU3128 | Edgecombe | | | 36,500,365 | 30,249 | Public Supply | Kucf, Kbc |
| 272 | Town of Magnolia | CU3012 | Duplin | 270,000 | | | | Public Supply | Kbc |
| 273 | Town of Maysville | CU3051 | Jones | 172,800 | 34,858 | | | Public Supply | Tch |
| 274 | Town of Morehead City | CU1014 | Carteret | 3,000,000 | 981,929 | | | Public Supply | Tch |
| 275 | Town of Mount Olive | CU3020 | Wayne | 2,448,000 | 690,948 | | | Public Supply | Kucf |
| 276 | Town of Newport | CU1012 | Carteret | 1,392,480 | 578,174 | | | Public Supply | S |
| 277 | Town of Oriental | CU1022 | Pamlico | 439,200 | 126,075 | | | Public Supply | Tch |
| 278 | Town of Pine Knoll Shores | CU3105 | Carteret | 1,200,000 | 211,526 | | | Public Supply | Ty, Tch |
| 279 | Town of Pinetops | CU3053 | Edgecombe | | | 83,726,055 | 157,190 | Public Supply | Kucf |
| 280 | Town of Pink Hill | CU3021 | Lenoir | | | 36,500,365 | 19,252 | Public Supply | Kbc |
| 281 | Town of Plymouth | CU1001 | Washington | 1,200,000 | 313,932 | | | Public Supply | Tch |
| 282 | Town of Pollocksville | CU3125 | Jones | 216,000 | 36,534 | | | Public Supply | Tch |
| 283 | Town of River Bend | CU3052 | Craven | 1,000,000 | 82,729 | | | Public Supply | S, Tch |
| 284 | Town of Robersonville | CU3016 | Martin | | | 117,264,750 | 72,995 | Public Supply | Kucf |
| 285 | Town of Rose Hill | CU3010 | Duplin | 1,440,000 | 160,283 | | | Public Supply | Kbc, Kucf |
| 286 | Town of Snow Hill | CU3072 | Greene | 191,000 | 48,488 | 73,328,667 | 130,819 | Public Supply | Kucf, S, Kbc |
| 287 | Town of Stantonburg | CU3101 | Wilson | | | 142,794,610 | 301,532 | Public Supply | Kucf |
| 288 | Town of Vanceboro | CU1097 | Craven | 432,000 | 163,005 | | | Public Supply | Tch |
| 289 | Town of Wallace | CU3013 | Duplin | 2,524,000 | 530,601 | | | Public Supply | Kbc |
| 290 | Town of Warsaw | CU3085 | Duplin | 1,152,000 | 288,066 | | | Public Supply | Kbc, Kucf |
| 291 | Town of Williamston | CU3066 | Martin | | | 98,436,120 | 38,068 | Public Supply | Kpd, Kbc, Kucf |
| 292 | Town of Winterville | CU3121 | Pitt | | | 45,177,276 | 231,438 | Public Supply | Kbc, Kucf |
| 293 | Trent River Adventures, LLC dba River Bend Country Club | CU3179 | Craven | 331,200 | | | | Irrigation, Golf Course | Tch |
| 294 | Turkey Path Pit | CU3302 | Lenoir | 2,880,000 | | | | Mine Dewatering | S |
| 295 | Turnpike Farms, LLC. (Dannenbergs Farms) | CU1044 | Washington | 1,188,000 | | | | Irrigation, Agricultural | Tch |
| 296 | University of Mount Olive (Agriculture Div.) | CU3294 | Duplin | 190,080 | 548 | | | Irrigation, Agricultural | Kbc, Kucf |
| 297 | US Marine Corps - Cherry Point | CU1060 | Craven | 9,630,000 | 2,770,794 | | | Public Supply | Ty, Tch |

| | | | | | | | | |
|---|--|-------------------|-------------|------------|---------------|------------|-----------------------------|------------------------|
| 298 | Valley Proteins, Inc. | CU3207 Duplin | 216,000 | 45,419 | | | Industrial | Kbc |
| 299 | Vanguard Farms Inc. | CU1106 Craven | 3,000,000 | 842,585 | | | Aquaculture | Tch |
| 300 | Vernon Bell Farm | CU3279 Washington | 2,160,000 | | | | Irrigation, Agricultural | Tch |
| 301 | Vic Swinson Farms | CU3218 Duplin | 2,088,000 | | | | Irrigation, Agricultural | Kucf |
| 302 | W. Haden Harris Farms, Inc. | CU3188 Washington | 3,528,000 | | | | Irrigation, Agricultural | Tch |
| 303 | Washington County Water System | CU1113 Washington | 1,000,000 | 356,041 | | | Public Supply | Tch |
| 304 | Wesley Sulton Farms | CU3285 Lenoir | 288,000 | | | | Irrigation, Agricultural | S, Kbc |
| 305 | West Carteret Water Corporation | CU3090 Carteret | 3,064,000 | 878,953 | | | Public Supply | Tch |
| 306 | Westside Minerals LLC (Westside Minerals Mine) | CU3178 Lenoir | 2,880,000 | 256,438 | | | Mine Dewatering | S,Kpd |
| 307 | Wheeler Farm | CU3205 Pamlico | 288,000 | | | | Waterfowl Impoundments | Ty, Tch |
| 308 | White Rock Fish Farm Inc. | CU1090 Craven | 432,000 | | | | Aquaculture | Tch |
| 309 | William Draughon Farm | CU3290 Duplin | 792,000 | | | | Irrigation, Agricultural | Kbc |
| 310 | Worthington Farms, Inc. | CU3064 Pitt | | | 36,500,365 | 4,309 | Irrigation, Agricultural | Kbc, Kucf |
| Total Permitted Ground Water Withdrawals not subject to .0503: | | | 665,108,642 | 82,540,070 | | | | Legend |
| Total Annual Rates (permits subject to .0503): | | | | | 7,980,625,221 | 14,105,280 | | |
| Total number of active permits: | | | 310 | | | | | |
| 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. | | | | | | | | |

Table 3. List of current CCPCUA Registrations

Choose a year...

| | | | | | | | | | | | | | | | | |
|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|

[return to CCPCUA page](#)

Registered Facilities in the Central Coastal Plain Capacity Use Area for 2018

| Links to Plots of Monthly Average and Maximum Day Water Withdrawals by Registered Facilities for 2018 | | | | | | | | | | | | | | | | |
|---|--------------------------|------------------------|------------------------|---------------------------|------------------------|-----------------------|------------------------|------------------------|------------------------|-------------------------|----------------------|----------------------------|-----------------------|------------------------|---------------------|--|
| 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 |
|---|---------|-----------|---------------------|----------------------------|----------------------------|-------------------------|---------------------------------|
| NCSU Pamlico Aquaculture Field Lab | CUR0060 | Beaufort | 224 | 0.158 | 0.158 | S | Aquaculture |
| Town of Bath | CUR0177 | Beaufort | 96 | 0.022 | 0.072 | G | Public Water System |
| Whitleys MHP | CUR0005 | Beaufort | 364 | 0.003 | 0.016 | G | Public Water System |
| Atlantic MHP | CUR0104 | Carteret | 359 | 0.008 | 0.019 | G | Public Water System |
| Atlantic MHP II | CUR0078 | Carteret | 359 | 0.010 | 0.025 | G | Public Water System |
| Atlantic Village MHP | CUR0032 | Carteret | 358 | 0.013 | 0.044 | G | Public Water System |
| Ballou MHP | CUR0105 | Carteret | 361 | 0.007 | 0.028 | G | Public Water System |
| Goose Creek Resort | CUR0031 | Carteret | 365 | 0.024 | 0.110 | G | Public Water System |
| Hunting Estates MHP | CUR0057 | Carteret | 359 | 0.006 | 0.027 | G | Public Water System |
| Newport Ridge MHP | CUR0033 | Carteret | 359 | 0.005 | 0.016 | G | Public Water System |
| Ocean Spray | CUR0030 | Carteret | 365 | 0.009 | 0.028 | G | Public Water System |
| Riverstone MHP | CUR0149 | Carteret | 361 | 0.006 | 0.024 | G | Public Water System |
| Star Hill Golf Club | CUR0099 | Carteret | 91 | 0.197 | 0.500 | B | Golf Course Irrigation |
| International Paper New Bern Mill | CUR0052 | Craven | 327 | 15.616 | 19.605 | S | Industrial, Public Water System |
| Mackilwean Turf Farm | CUR0180 | Craven | 44 | 0.219 | 0.305 | G | Agricultural Irrigation |
| Morris Street Ferry Road Pit | CUR0101 | Craven | 0 | 0.000 | 0.000 | G | Temporary Dewatering, Mining |
| Weyerhaeuser NR New Bern Lumber Facility | CUR0148 | Craven | 293 | 0.008 | 0.041 | G | Industrial |
| Bay Valley Foods, LLC | CUR0110 | Duplin | 91 | 0.011 | 0.017 | G | Industrial |
| New Gen Farms, LLC. | CUR0161 | Duplin | 301 | 0.002 | 0.003 | G | Livestock |
| Smithfield Hog Production Division - The Chief Mill | CUR0169 | Duplin | 365 | 0.064 | 0.086 | G | Industrial, Public Water System |
| Tarheel Concrete - Devans Sand Pit | CUR0139 | Duplin | 28 | 0.100 | 0.100 | B | Mining |
| Warsaw Feed Mill | CUR0070 | Duplin | 353 | 0.027 | 0.034 | G | Industrial |
| J.B. Rose and Sons | CUR0127 | Edgecombe | 33 | 1.800 | 2.376 | S | Agricultural Irrigation |
| Linwood Allen Webb Farms | CUR0071 | Edgecombe | 0 | 0.000 | 0.000 | S | Agricultural Irrigation |
| Oak Forest Ag LLC | CUR0080 | Edgecombe | 0 | 0.000 | 0.000 | S | Agricultural Irrigation |
| Winstead Mobile Terrace | CUR0026 | Edgecombe | 365 | 0.012 | 0.031 | G | Public Water System |
| Harris Farms | CUR0013 | Greene | 44 | 0.864 | 2.376 | S | Agricultural Irrigation |
| Holloman Farm | CUR0102 | Greene | 0 | 0.000 | 0.000 | G | Agricultural Irrigation |
| Jason Water Corporation | CUR0117 | Greene | 360 | 0.017 | 0.036 | G | Public Water System |
| Shine Water Corporation | CUR0027 | Greene | 360 | 0.032 | 0.174 | G | Public Water System |
| Vanderford Farm | CUR0103 | Greene | 0 | 0.000 | 0.000 | G | Agricultural Irrigation |

| | | | | | | | |
|--|---------|------------|-----|--------|--------|---|---|
| Long Family Farms, LLC | CUR0009 | Martin | 4 | 0.720 | 0.720 | S | Agricultural Irrigation |
| Martin County Regional Water and Sewer Authority | CUR0147 | Martin | 361 | 0.937 | 2.617 | S | Public Water System |
| Town of Jamesville | CUR0028 | Martin | 365 | 0.031 | 0.109 | G | Public Water System |
| OSPREY COVE # 1 | CUR0039 | Onslow | 359 | 0.028 | 0.060 | G | Public Water System |
| Osprey Cove #2 | CUR0040 | Onslow | 359 | 0.013 | 0.057 | G | Public Water System |
| Sherwood MHP | CUR0012 | Onslow | 365 | 0.040 | 0.071 | G | Public Water System |
| Turning Leaf Farms, LLC | CUR0150 | Onslow | 21 | 0.029 | 0.067 | G | Agricultural Irrigation |
| Jones Island Club, Inc. | CUR0179 | Pamlico | 0 | 0.000 | 0.000 | G | Other, waterfowl impoundment |
| Pamlico Packing Co. Inc. | CUR0151 | Pamlico | 56 | 0.003 | 0.009 | G | Industrial |
| Barnhill Contracting Company - (NCDOT R-2250) | CUR0174 | Pitt | 199 | 0.048 | 0.087 | G | Other, Dust suppression |
| Eagle Farm LLC | CUR0011 | Pitt | 0 | 0.000 | 0.000 | G | Aquaculture |
| Greenville Utilities Commission WTP | CUR0064 | Pitt | 365 | 13.850 | 18.364 | S | Public Water System |
| Laughinghouse Farms, Inc. | CUR0020 | Pitt | 0 | 0.000 | 0.000 | B | Agricultural Irrigation |
| Town of Grimesland | CUR0003 | Pitt | 365 | 0.033 | 0.092 | G | Public Water System |
| Weyerhaeuser NR Greenville Lumber Facility | CUR0019 | Pitt | 97 | 0.052 | 0.066 | G | Industrial |
| Darrell Davenport Sand Mine | CUR0122 | Washington | 0 | 0.000 | 0.000 | G | Mining |
| Douglas Maxwell Farm | CUR0181 | Washington | 0 | 0.000 | 0.000 | G | Agricultural Irrigation |
| Goldsboro Water Treatment Plant | CUR0062 | Wayne | 365 | 6.313 | 9.904 | S | Public Water System |
| H. F. Lee Energy Complex | CUR0001 | Wayne | 108 | 13.603 | 17.568 | S | Industrial |
| Lane Tree Golf Club | CUR0098 | Wayne | 83 | 0.218 | 0.376 | S | Golf Course Irrigation |
| City of Wilson Water Treatment Plant | CUR0063 | Wilson | 365 | 9.110 | 17.023 | S | Public Water System |
| Fairview Nursery, Inc. | CUR0079 | Wilson | 164 | 0.701 | 1.086 | S | Agricultural Irrigation |
| Old Saratoga, Inc. | CUR0022 | Wilson | 293 | 0.056 | 0.098 | G | Industrial |
| Sharp Farms, Inc. | CUR0043 | Wilson | 411 | 0.068 | 0.270 | B | Agricultural Irrigation, Livestock, Other, spraying crops |
| Town of Saratoga | CUR0036 | Wilson | 365 | 0.040 | 0.052 | G | Public Water System |
| Town of Sims | CUR0035 | Wilson | 365 | 0.015 | 0.038 | G | Public Water System |
| Total Average Daily Registered Water Withdrawals: | | | | 49.655 | | | |
| Total Average Daily Registered Ground Water Withdrawals: | | | | 0.569 | | | |
| Total Average Daily Registered Surface Water Withdrawals: | | | | 49.086 | | | |
| Total number of active registrations: | | | 57 | | | | |

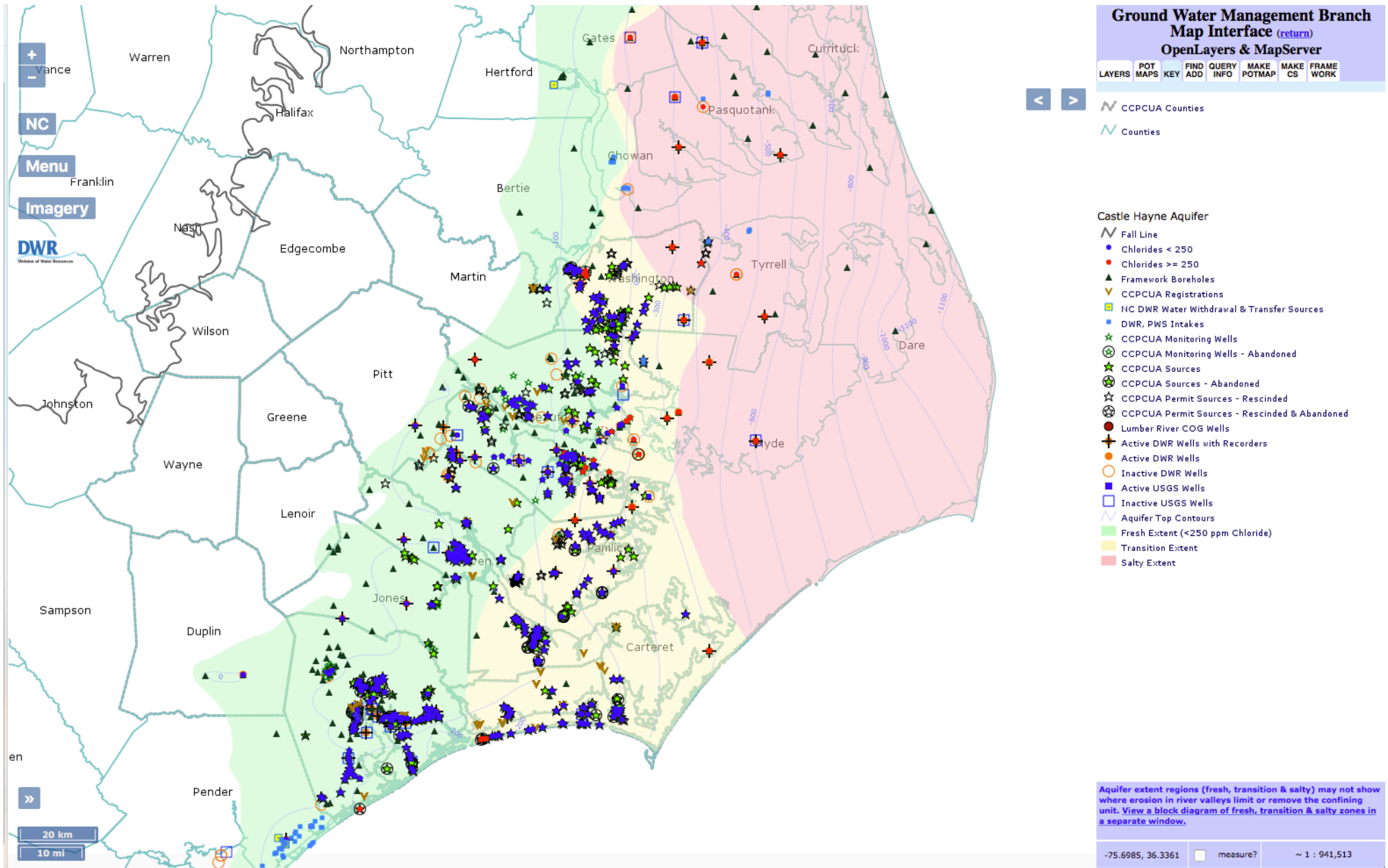
Table 4. Notices of Violations and Penalty Assessments from January 2014 – December 2018

| Permit Holder | Notice of Violation issued | Outcome |
|---|-----------------------------------|---|
| Steve Grady Farm | 7/27/17 | Permit Expired and non-reporting. Renewal application and historical use received. NOV dismissed. |
| Conetoe Community Water Assoc., Inc. | 7/21/17 | Non-reporting. Solution is Bruce has to email a copy of the completed report to Linda monthly and Board is notified. NOV dismissed. |
| Vic Swinson Farms | 6/9/17 | Expired permit and non-reporting. Renewal application and historical use received. NOV dismissed. |
| Jeremy P. James Farm (E Block Farm) | 5/10/17 | Permit Expired and non-reporting. Renewal application and historical use received. NOV dismissed. |
| Jeremy P. James Farm (G Block Farm) | 5/9/17 | Expired permit and non-reporting. Renewal application and historical use received. NOV dismissed. |
| Castle Hayne Fisheries, Inc. | 3/28/17 | Expired permit and non-reporting. Renewal application and historical use received. NOV dismissed. |
| DKR Farms, LLC. | 10/24/16 | Expired permit and non-reporting. Rescindment of permit requested, and NOV dismissed. |
| Mike Bishop (Wade Allen Farm) | 3/9/16 | Expired permit and non-reporting. Renewal application and historical use received. NOV dismissed. |
| Jumping Run Farms Inc. | 2/12/16 | Expired Permit and non-reporting. Rescinded permit-max day use is 18000 gpd for 6 chicken houses. |
| W. Haden Harris Farms, Inc. | 2/12/16 | Expired permit. Renewal application received. NOV dismissed. |
| Town of Macclesfield | 11/9/15 | Expired permit. Renewal application received. NOV dismissed. |
| Stokes Regional Water Corporation | 10/12/15 | Water withdrawals over permitted annual amount. Civil penalty amount \$55,571.84 remitted to \$30,574.84 (paid). |
| Westside Minerals LLC (Westside Minerals Mine) | 10/9/15 | Expired permit and non-reporting. Renewal application and historical use received. NOV dismissed. |
| Vanguard Farms Inc. | 9/21/15 | Expired permit. Renewal application received. NOV dismissed. |
| Trent River Adventures, LLC dba River Bend Country Club | 9/21/15 | Expired permit and non-reporting. Renewal application and historical use received. NOV Dismissed. |
| Jones County Regional Water System | 1/13/15 | Water withdrawals over permitted annual amount. Civil penalty amount \$4,154.19 (paid). |
| Village of Walnut Creek | 1/7/15 | Expired permit. Renewal application received. NOV dismissed. |
| Morton Minerals Inc. (Manning Mine) | 1/7/15 | Mine transferred ownership in Oct 2010. |
| American Materials Co., LLC (Pinner Pit) | 12/4/14 | Expired permit. Renewal application received. NOV dismissed. |
| Colton Wells Limestone | 12/4/14 | Permit Expired and non-reporting. He requested rescindment of permit. NOV dismissed. |
| David Waters Farm | 4/21/14 | Permit Expired and non-reporting. Renewal application and historical use received. NOV dismissed. |

Table 4. Notices of Violations and Penalty Assessments from January 2014 – December 2018

| Permit Holder | Notice of Violation issued | Outcome |
|---|-----------------------------------|--|
| Eastern Pines Water Corporation | 2/11/14 | Expired permit. Renewal application received. NOV dismissed. |
| Marina Village - Snug Harbor H2O Sys | 2/11/14 | Permit Expired and non-reporting. He requested to rescind permit due to not building water system. NOV dismissed |
| Bell Arthur Water Corporation | 2/11/14 | Expired permit. Renewal application received. NOV dismissed. |
| Haugen Co. (Catherine Lake Fill Dirt) | 1/7/14 | Expired permit and non-reporting. Renewal application and historical use received. NOV dismissed. |
| Monrovia Growers | 1/7/14 | Expired permit and non-reporting. He requested to rescind permit due to no longer in operation. NOV dismissed. |
| Carolina Stone, LLC (Ft. Barnwell Mine) | 1/7/14 | Permit Expired - He requested to rescind permit due to becoming inactive. NOV dismissed. |
| Town of Elm City | 1/7/14 | Expired permit and non-reporting. Renewal application and historical use received. NOV dismissed. |
| Town of Chocowinity | 1/7/14 | Expired permit. Renewal application received. NOV dismissed. |
| Stokes Regional Water Corporation | 1/3/14 | Exceeded permit amount. They pulled pump and found holes in pipe column. Scada system malfunctioned do to these. Recalibrated and resubmitted May and July 2013 withdrawal reports. NOV dismissed. |

Figure 6 - Castle Hayne Aquifer Map



Ground Water Management Branch
Map Interface [\(return\)](#)
OpenLayers & MapServer

LAYERS POT MAPS KEY FIND QUERY MAKE MAKE FRAME
 ADD INFO POTMAP CS WORK

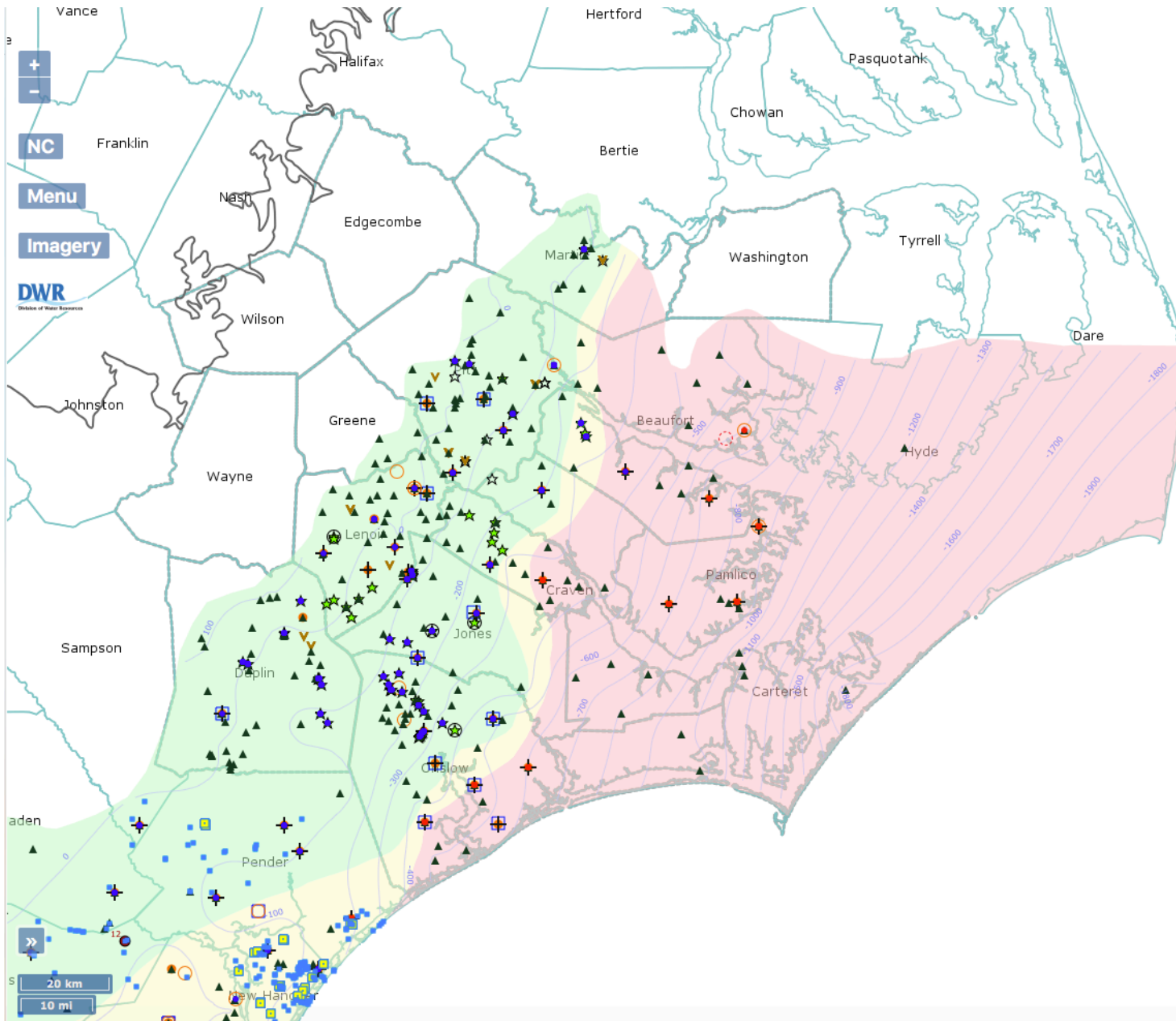
CCPCUA Counties
 Counties

- Castle Hayne Aquifer**
- ▲ Fall Line
 - Chlorides < 250
 - Chlorides >= 250
 - ▲ Framework Boreholes
 - ▼ CCPCUA Registrations
 - NC DWR Water Withdrawal & Transfer Sources
 - DWR, PWS Intakes
 - ★ CCPCUA Monitoring Wells
 - ⊗ CCPCUA Monitoring Wells - Abandoned
 - ★ CCPCUA Sources
 - ⊗ CCPCUA Sources - Abandoned
 - ☆ CCPCUA Permit Sources - Rescinded
 - ⊗ CCPCUA Permit Sources - Rescinded & Abandoned
 - Lumber River COG Wells
 - ✦ Active DWR Wells with Recorders
 - Active DWR Wells
 - Inactive DWR Wells
 - Active USGS Wells
 - Inactive USGS Wells
 - △ Aquifer Top Contours
 - Fresh Extent (<250 ppm Chloride)
 - Transition Extent
 - Salty Extent

Aquifer extent regions (fresh, transition & salty) may not show where erosion in river valleys limit or remove the confining unit. View a block diagram of fresh, transition & salty zones in a separate window.

-75.6985, 36.3361 measure? ~ 1 : 941,513

Figure 7 - Peedee Aquifer Map



Ground Water Management Branch
Map Interface [\(return\)](#)
OpenLayers & MapServer

LAYERS POT MAPS KEY FIND QUERY MAKE MAKE FRAME
 ADD INFO POTMAP CS WORK



CCPCUA Counties

Counties

Peedee Aquifer

- ✓ Fall Line
- Chlorides < 250
- Chlorides >= 250
- ▲ Framework Boreholes
- ▲ CCPCUA Registrations
- NC DWR Water Withdrawal & Transfer Sources
- DWR, PWS Intakes
- ★ CCPCUA Monitoring Wells
- ⊗ CCPCUA Monitoring Wells - Abandoned
- ★ CCPCUA Sources
- ⊗ CCPCUA Sources - Abandoned
- ★ CCPCUA Permit Sources - Rescinded
- ⊗ CCPCUA Permit Sources - Rescinded & Abandoned
- Lumber River COG Wells
- ⊕ Active DWR Wells with Recorders
- Active DWR Wells
- Inactive DWR Wells
- Active USGS Wells
- Inactive USGS Wells
- △ Aquifer Top Contours
- Fresh Extent (<250 ppm Chloride)
- Transition Extent
- Salty Extent

Aquifer extent regions (fresh, transition & salty) may not show where erosion in river valleys limit or remove the confining unit. View a block diagram of fresh, transition & salty zones in a separate window.

-77.2943, 35.7409 measure? ~ 1 : 943,317