



October 28, 2015

*How Can We Protect Our Aquifers:  
Legislative and Regulatory Controls*



# *Introduction*

- Ground Water Management Branch
  - Work efforts
  - Monitoring well network
- Water Use Act of 1967
  - Central Coastal Plain Capacity Use Area – CCPCUA
  - Bladen County
- Other statutes and rules
- Ground water concerns in New Hanover County area



## *Ground Water Management Branch*

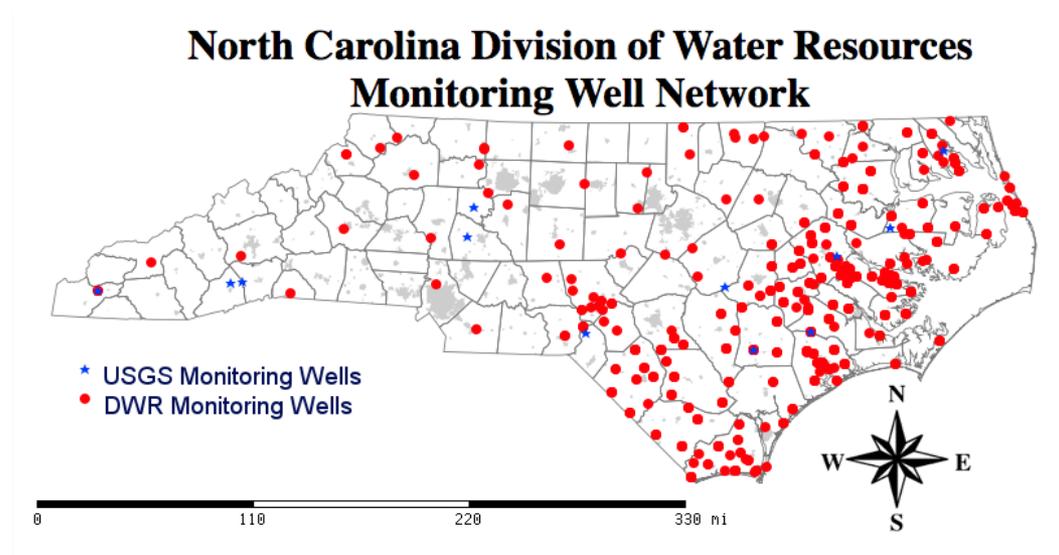
- Maintain and improve the state-wide monitoring well network
- Map the aquifers
- Track overuse and salt water encroachment problems
- Assist the NC Drought Management Advisory Council track drought conditions
- Administer the Central Coastal Plain Capacity Use Area water use permitting program
- Publish ground water information on the internet

Department of Environmental  
Quality  
—  
Division of Water Resources  
—  
Water Planning Section  
—  
Ground Water Management  
Branch



# Monitoring Well Network

- 636 wells at 213 locations – about 3 wells per site
- Piedmont and Mountain sites each have one well
- Coastal plain sites can have between one and 10 wells
- Each well taps a major aquifer
- Very important to see the vertical nature of ground water movement
- > 80% of wells have automatic recorders which capture hourly water level readings
- 12 wells in the Drought Indicator Well network have cell phone telemetry with automatic reporting of hourly water levels
- Chloride sampling at > 250 wells every 2-3 years

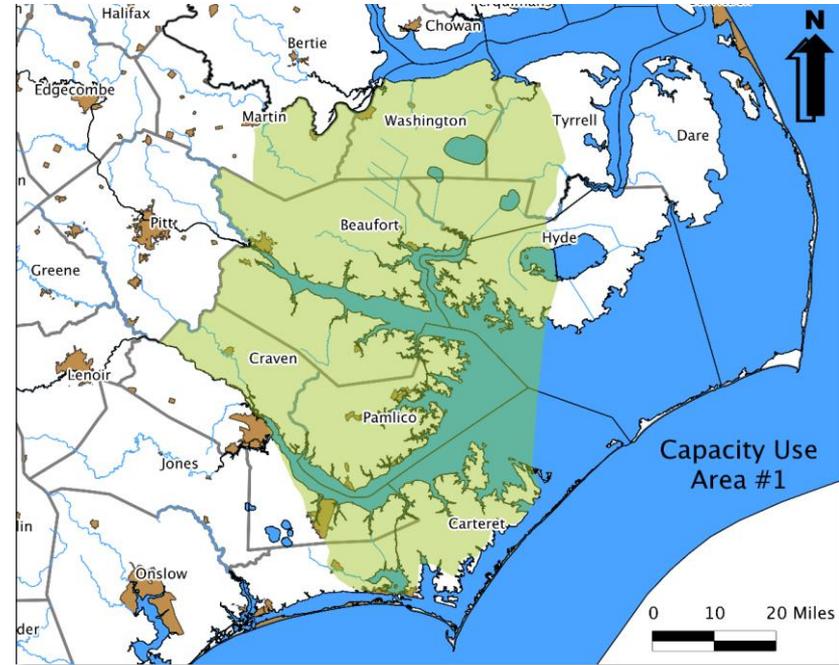


Drought – Overuse – Saltwater  
Monitoring



# Water Use Act of 1967

- “The Environmental Management Commission may declare and delineate from time to time, and may modify, capacity use areas of the State where it finds that the use of groundwater or surface water or both require coordination and limited regulation for the protection of the interests and rights of residents or property owners of such areas or of the public interest.”
- The statute allows for designation of a capacity use area and rules which apply to a water use permitting program
- Water use permits are required for withdrawals exceeding 100,000 gallons per day
- CUA #1 associated with phosphate mining in Beaufort County



# *Central Coastal Plain Capacity Use Area*

- The CCPCUA came about in 2002 – after an investigation and ~4 year rule-making process
- It covers 15 counties including much of the CUA #1 area to maintain protection of the Castle Hayne aquifer
- Defined as a result of overuse of the Cretaceous aged (Black Creek and Upper Cape Fear) aquifers and the concern about saltwater encroachment
- Evidence of dewatering of the aquifers and sharp declines in the water levels
- Certain users faced severe reductions (between 30 and 75%) over a 16 year period from their 1997-2000 withdrawals
- Forced investment in alternate water sources, especially surface water and shallower ground water
- Water level recoveries are occurring in the endangered aquifers



## *Bladen County Area*

- A capacity use investigation documented DWR's concern about overuse of the Upper Cape Fear aquifer in the Bladen County area (declining water levels and dewatering concerns)
- Pressured by LRCOG, DWR and the Environmental Management Commission, Smithfield Foods, Inc. became convinced that an alternate water supply was in their best interest
- The Lower Cape Fear WASA constructed and operates the Bladen Bluffs WTP near Tarheel, NC and now supplies a large portion of Smithfield's needs
- The lower demand on the Upper Cape Fear aquifer has allowed ground water levels to recover
- The WTP is considered a regional water source for future growth



Bladen Bluffs Regional Surface Water Treatment Plant  
Tarheel, NC



## *Other Statutes and Rules Related to Water Supply*

- Water Use Act *G.S. 143-215.11 – 15A NCAC 02E*
- Well Construction Act *G.S. 87 Article 7 – 15A NCAC 02C*
- Source Water Area Protection
  - ✓ rates the susceptibility of a water source to pollution
- Wellhead Protection Program
  - ✓ establishes protection areas around wells
- Local Water Supply Planning *G.S. 143-355(I) – 15A NCAC 02E*
  - ✓ *1,000 or more connections or 3,000 or more people*
- Registration of water withdrawals and transfers *G.S. 143-215.22H – 15A NCAC 02E*
- Drinking Water Act *G.S. 130A Article 10 – 15A NCAC 18A, C, D*
  - ✓ *15 or more connections or 25 or more people*
  - ✓ *60 or more days per year*
- High capacity well rules (Guilford & Wake Counties)



## *Brunswick, New Hanover & Pender Counties*

- Is there enough ground water – is it being used sustainably?
- Will saltwater intrusion pose a greater threat to our water systems relying on ground water?
- Can ground water withdrawals be increased and still be sustainable?
- Our monitoring well network isn't sufficient to answer these questions in this region
- Measuring water levels and chloride concentrations in monitoring wells allows us to track an aquifer's response to pumping and drought
- A capacity use area investigation and possible designation would require additional monitoring stations and wells



New Hanover: 3 stations and 6 wells  
Pender: 2 stations and 6 wells  
Brunswick: 15 stations and 39 wells



# *The Good and the Bad*

- Session Law 2015-196 authorized DEQ to study the ground and surface water in the Cape Fear River Basin with an enhanced review of those resources in Pender, Brunswick and New Hanover Counties
- The Committee report for Session Law 2015-241 (the state budget) permanently cut DEQ's operating budget by \$1 million. It targeted specific line items including contracts. We use this line item to fund:
  - The DEQ-USGS cooperative agreement which operates the surface water gages and some ground water wells throughout the state
  - The hiring of private well drillers to maintain and add well stations to DWR's monitoring well network
- Fortunately, most of the money for these two items was preserved...



## *Contact Information*

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