Water Supply Planning:
Water Use Data in NC

ICWP
INTERSTATE COUNCIL ON WATER POLICY

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Water Supply Planning: Water Use Data in NC

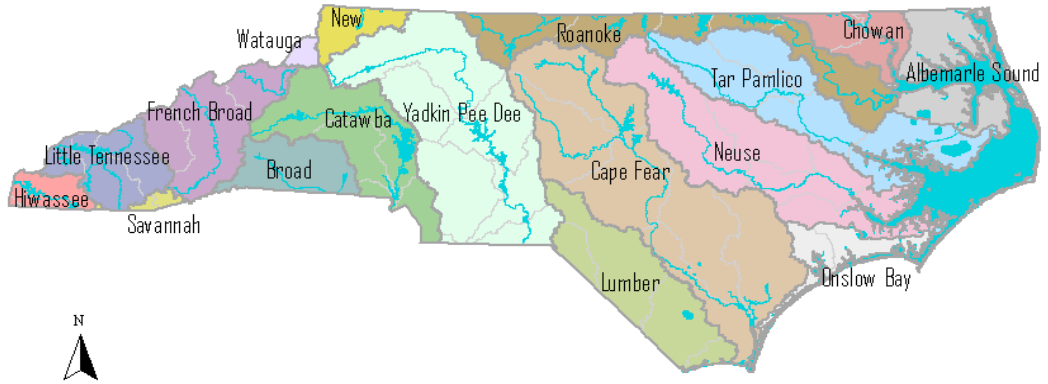
- Statutory Requirements
- Water Use Registration – Limited Permitting
- Water Use Demand and Outlook
- Presenting Water Use Data to Public
- Q&A

NORTH CAROLINA
Department of Environmental Quality

Water Supply Planning

- Assures the availability of adequate supplies of good quality water to protect public health and support economic growth.

- Water supply planning and management requires an understanding of both available water resources (sources of supplies) and demands being placed on those resources.



Water Use Permitting & Registration

- **No State-wide Water Use Permitting Program**

- **Limited Regional Permitting**
  - Central Coastal Plain Capacity Use Area (CCPCUA)
  - Eno River Management (Voluntary)

- **Only State-wide Water Use Registration**
  - Local Water Supply Plan (LWSP)
  - Water Withdrawal Registration (WWR)

Local Water Supply Planning

- Law was established in 1989 by §143-355(l)
- Requires all unit of local governments and large community water systems to prepare a Local Water Supply Plan (LWSP)
  - Applies to systems with >1000 connections or >3000 people
- A LWSP is an assessment of a water system's current and future water needs and its ability to meet those needs
- A LWSP contains a systems water shortage response plan, water efficiency plan and surface water transfer worksheets (if needed)

LWSP Components

- Water System Information
  - Contact Information
  - Distribution Data
  - Maintenance
  - Conservation Programs
- Water Use
  - Service area
  - Water Use by Type
  - Water Sales & Purchases
  - Ground Water Sources
  - Surface Water Sources
  - Surface Water Transfers
  - Water Treatment Facilities
  - Wastewater Information
- System Planning
  - 50-Year Projections
  - Future Sale and Purchase Contracts
  - Future Supply Sources
  - Plan for Meeting Future Water Supply Needs

Water Withdrawal Registration Program

Requirements:

- G.S. 143-215.22H was established in 1991
- Agricultural users > 1,000,000 gallons any single day
- Non-agricultural users > 100,000 gallons any single day
- Registered water users have until April 1st to report water usage for the previous year
- Completing the Agricultural Water Use Survey does not fulfill this reporting requirement > 1 mgd

WW&TR Components

- Facility Information
- Withdrawal Information
  - Average daily withdrawal
  - Maximum day withdrawal
  - Source Information
- Discharge Information
  - Average daily discharge
  - Maximum day discharge
- Sub-Basin Transfer Information
  - Description of transfer
  - Average daily transfer
  - Maximum day transfer

Central Coastal Plain CUA

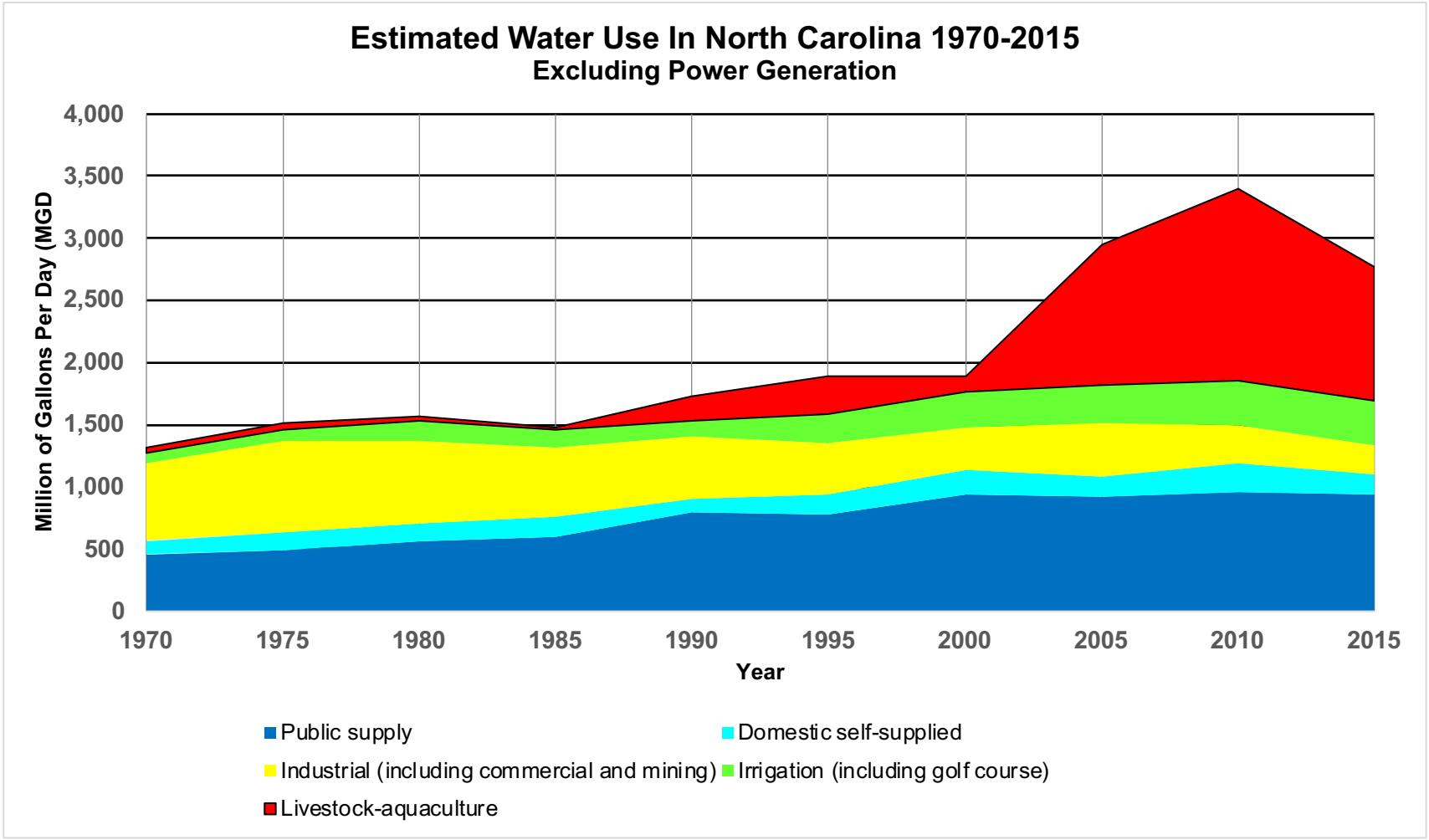
- Covers 15 eastern Counties in NC
- Intended to prevent “de-watering” & salt water encroachment in aquifer
- Registration required for withdrawals > 10,000 gpd
- Permit required for withdrawals > 100,000 gpd
- 64 active registrations at this time
- 321 active permits at this time
- Phased reduction of withdrawals were mandated for some water users
- 2018 was the last phase of 3 reductions from 30-75% from initial base rate

Agricultural Water Use Survey

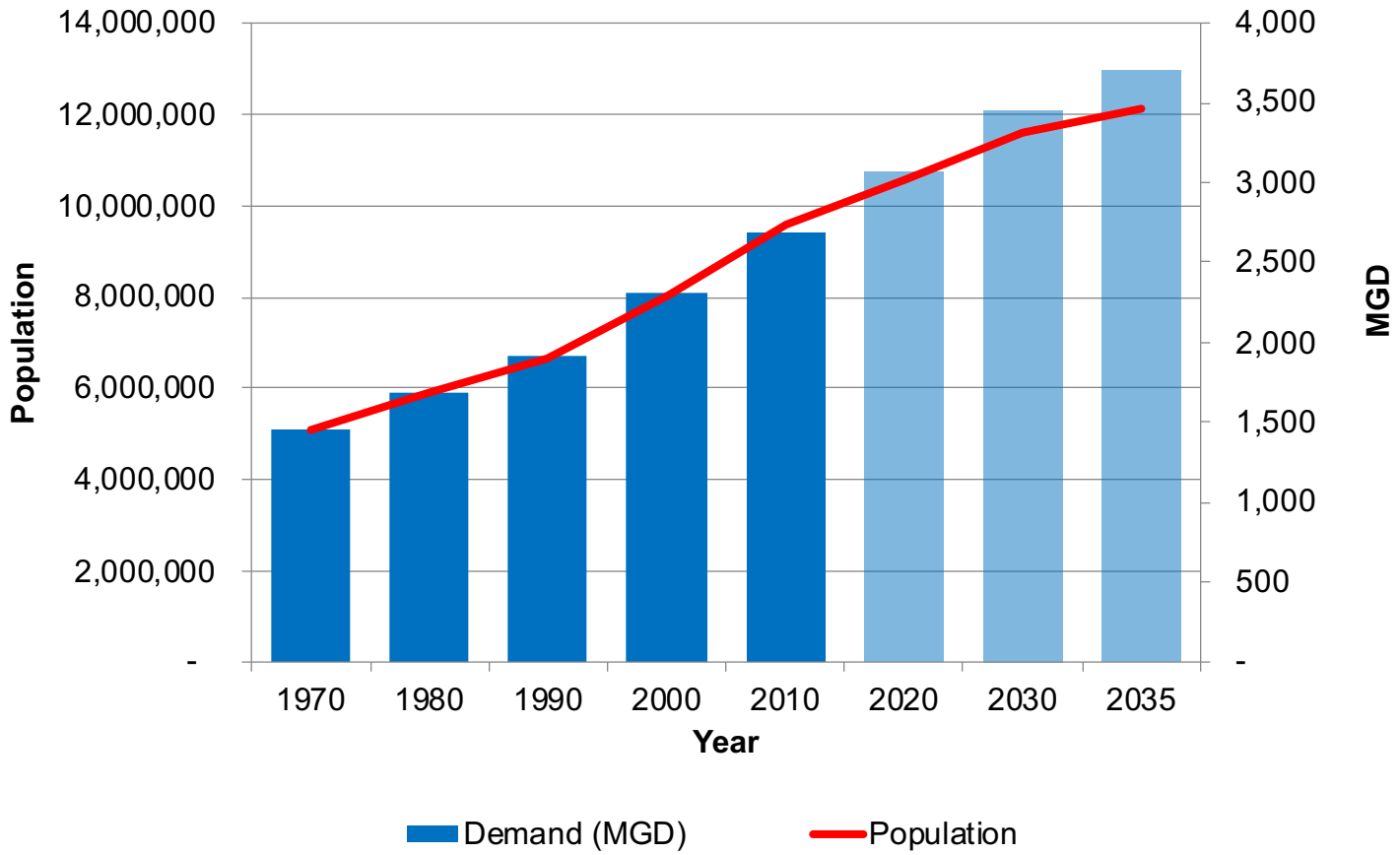
- **Session Law 2008-143**
- Prior to 2008, no official data set to represent agriculture existed
- Required NCDACS – ASD to collect annual information
- Required for entities that withdraw 10,000 gpd or more in any one day
- Surveys remain confidential & combined with other reports to produce totals
- 8th statewide survey

Data from 2018 NC Agricultural Water Use Survey, NCDACS-ASD

Water Use Demand



Water Use Demand



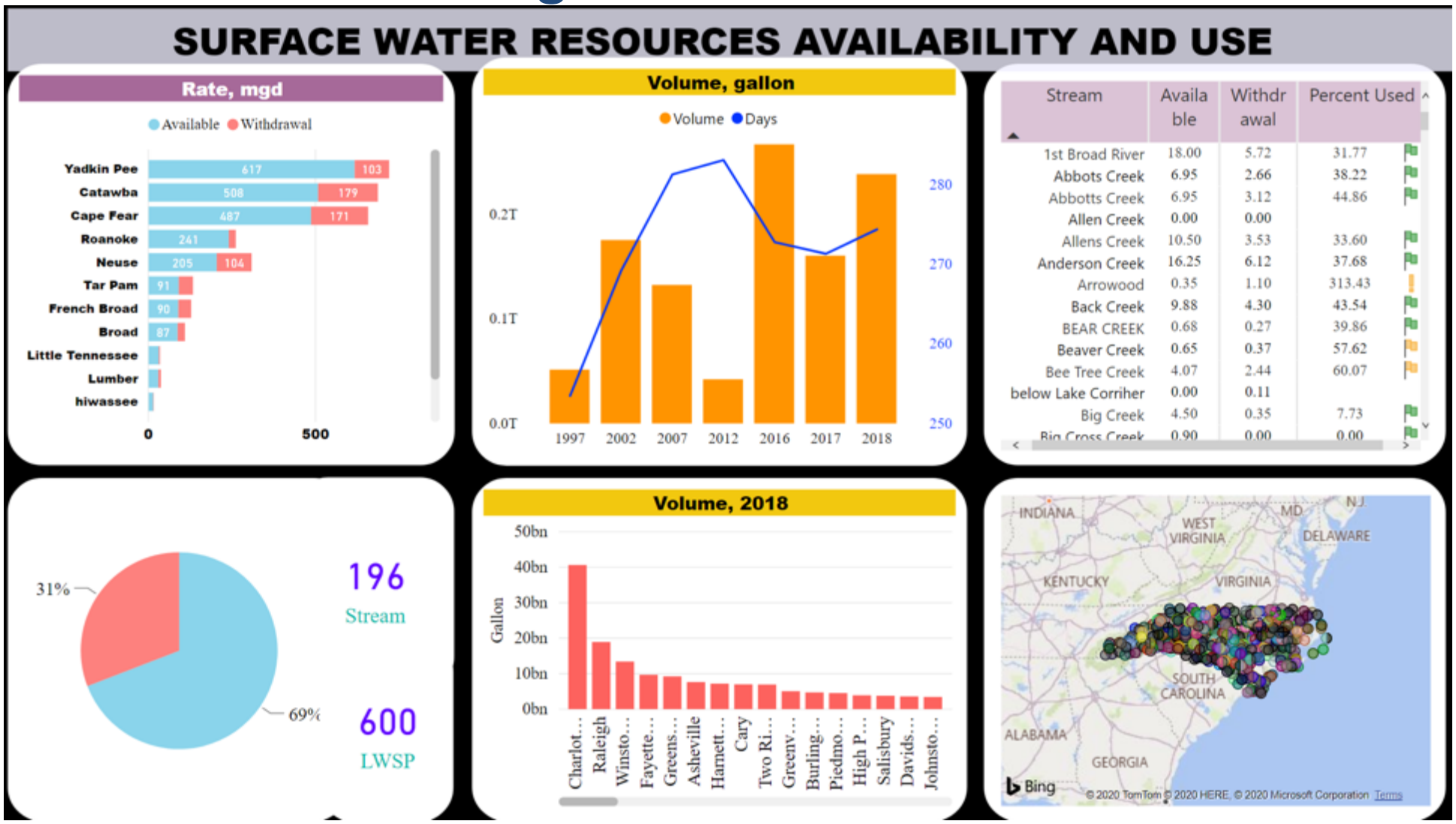
Presenting Data to Public

Water Use Registration Programs

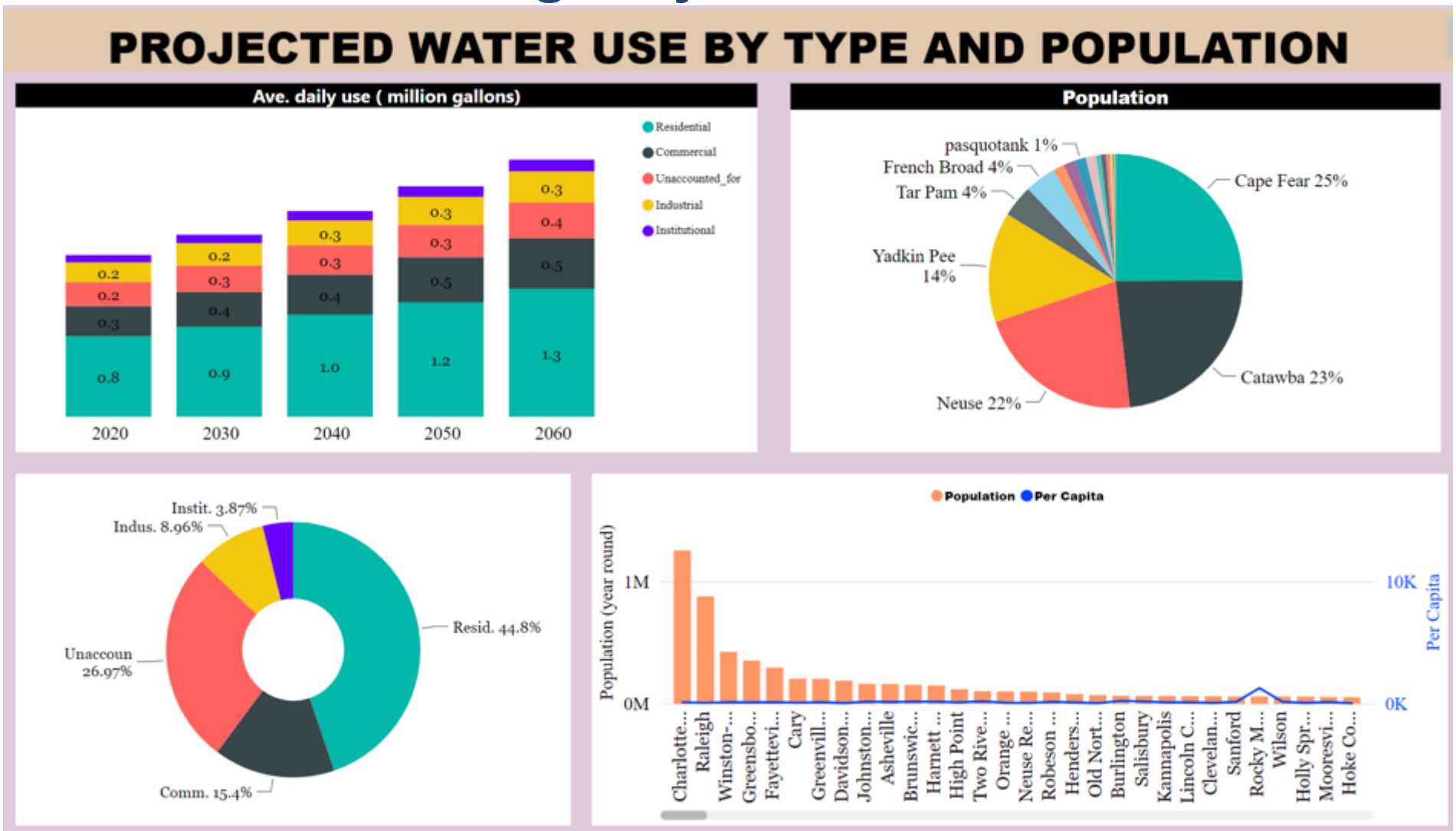
- Online data entry
- Database is populated as data is being entered by water user

- **Pros**
  - Data displayed to public upon submission
  - Much more efficient than paper submission
- **Cons**
  - Questionable data available to public as “provisional” before State review and approval
  - Data changes once reviewed by staff

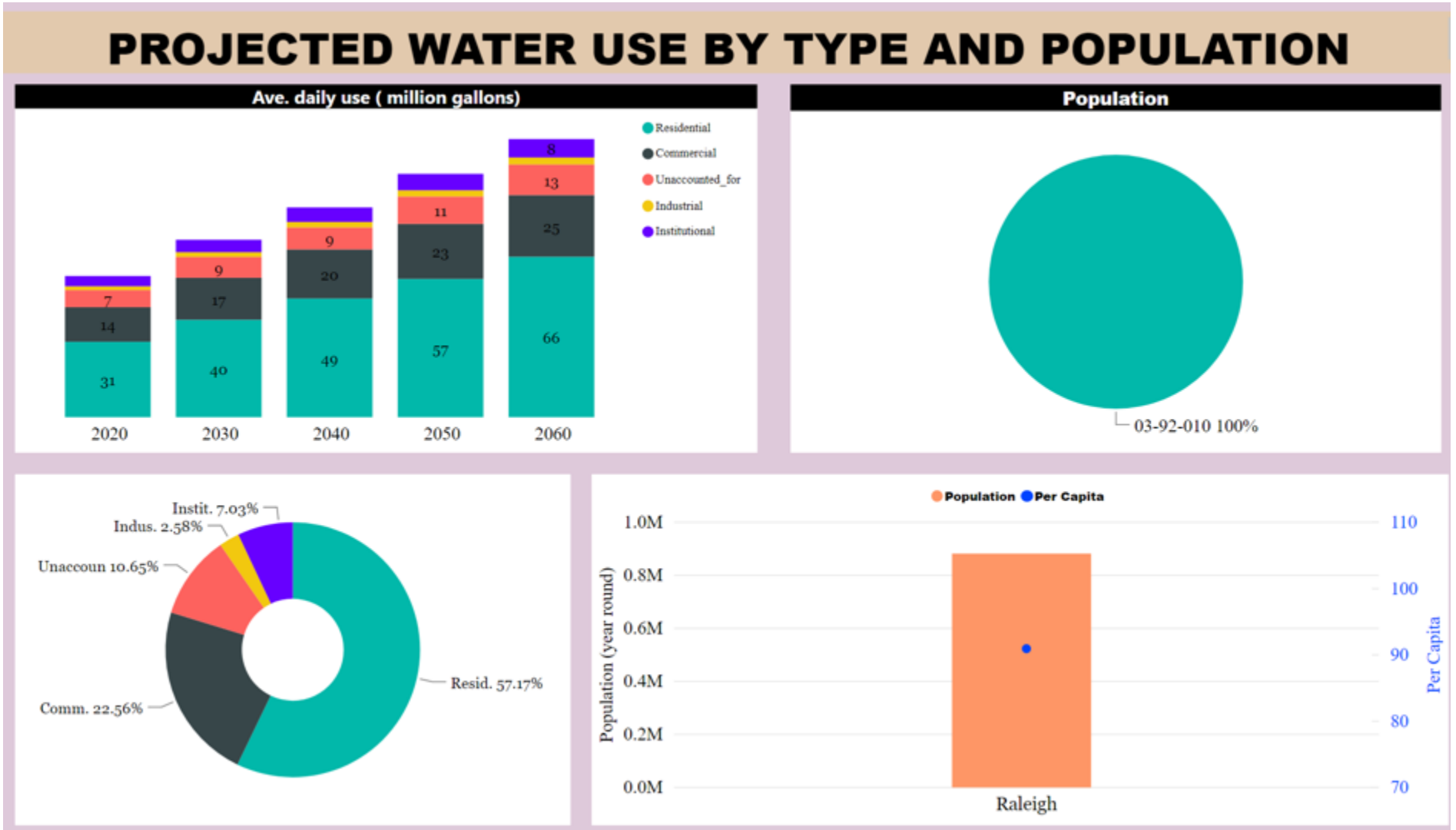
Presenting Surface Water Data



Presenting Projected Water Use Data



Presenting Projected Water Use Data



Convey our limited water supply for sustainability…

NORTH CAROLINA
Department of Environmental Quality

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Water Supply Planning Branch
Division of Water Resources
Linwood.Peele@ncdenr.gov
919-707-9024

Raleigh

2019

The Division of Water Resources (DWR) provides the data contained within this Local Water Supply Plan (LWSP) as a courtesy and service to our customers. DWR staff does not field verify data. Neither DWR, nor any other party involved in the preparation of this LWSP attests that the data is completely free of errors and omissions. Furthermore, data users are cautioned that LWSPs labeled **PROVISIONAL** have yet to be reviewed by DWR staff. Subsequent review may result in significant revision. Questions regarding the accuracy or limitations of usage of this data should be directed to the water system and/or DWR.

1. System Information

Contact Information

Complete

Water System Name:	Raleigh	PWSID:	03-92-010
Mailing Address:	P.O. Box 590 Raleigh, NC 27602	Ownership:	Municipality
Contact Person:	Edward Buchan	Title:	Senior Communications Analyst
Phone:	919-996-3471	Cell/Mobile:	--

Distribution System

Line Type	Size Range (Inches)	Estimated % of lines
Asbestos Cement	6-8	2.38 %
Cast Iron	4-12	12.27 %
Ductile Iron	3-64	62.73 %
Galvanized Iron	1-4	0.72 %
Other	1-12	11.23 %
Polyvinyl Chloride	2-12	10.67 %

What are the estimated total miles of distribution system lines? 2,533 Miles
How many feet of distribution lines were replaced during 2019? 36,773 Feet
How many feet of new water mains were added during 2019? 167,904 Feet
How many meters were replaced in 2019? 17,000
How old are the oldest meters in this system? 25 Year(s)
How many meters for outdoor water use, such as irrigation, are not billed for sewer services? 8,751
What is this system's finished water storage capacity? 57.6500 Million Gallons
Has water pressure been inadequate in any part of the system since last update? *Line breaks that were repaired quickly should not be included.* No

NOTE Water pipe length includes both public and private lines in the service area.

Programs

Does this system have a program to work or flush hydrants? Yes, Annually
Does this system have a valve exercise program? Yes, Annually
Does this system have a cross-connection program? Yes
Does this system have a program to replace meters? Yes
Does this system have a plumbing retrofit program? Yes
Does this system have an active water conservation public education program? Yes
Does this system have a leak detection program? Yes

NOTE Leak detection program uses data from smart meters to identify areas where water loss is higher than acceptable industry standard.

Water Conservation

What type of rate structure is used? Flat/Fixed, Increasing Block
How much reclaimed water does this system use? 1.1000 MGD For how many connections? 20
Does this system have an interconnection with another system capable of providing water in an emergency? Yes

2. Water Use Information

Service Area

Sub-Basin(s)	% of Service Population	County(s)	% of Service Population
Neuse River (10-1)	99 %	Wake	100 %
Contentnea Creek (10-2)	1 %		

What was the year-round population served in 2019? 593,000
Has this system acquired another system since last report? No

Water Use by Type

Type of Use	Metered Connections	Metered Average Use (MGD)	Non-Metered Connections	Non-Metered Estimated Use (MGD)
Residential	176,227	29.1600	0	0.0000
Commercial	12,768	10.6400	0	0.0000
Industrial	173	2.1600	0	0.0000
Institutional	903	3.9300	0	0.0000

How much water was used for system processes (backwash, line cleaning, flushing, etc.)? 1.1000 MGD

NOTE Metered connections values represent "Active" accounts only.

Water Sales

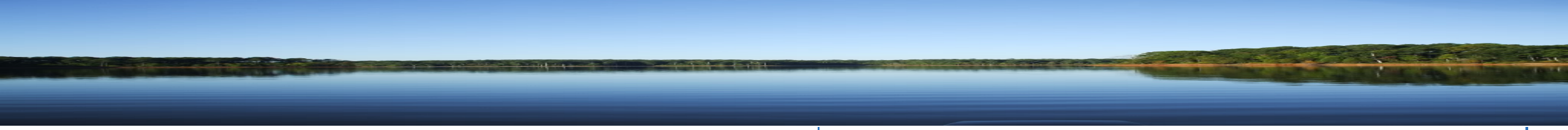
Purchaser	PWSID	Average Daily Sold (MGD)	Days Used	Contract			Required to comply with water use restrictions?	Pipe Size(s) (Inches)	Use Type
				MGD	Expiration	Recurring			
Cary	03-92-020	0.0071	1	10.0000	2032	Yes	No	24	Emergency
City of Durham	03-32-010	0.0000	0	1.3000	2026	Yes	Yes	24	Emergency
Fuquay-Varina	03-92-055	0.4400	365	0.7500	2021	Yes	Yes	16	Regular
Holly Springs	03-92-050	0.0000	0	1.2000	2029	No	No	16	Emergency
Johnston County	03-51-070	0.0180	21	2.1500	2028	Yes	No	16	Emergency

NOTE Raleigh verified sales of 0.0180 MGD over 21 days to Johnston County in 2019.

3. Water Supply Sources

Monthly Withdrawals & Purchases

	Average Daily Use (MGD)	Max Day Use (MGD)		Average Daily Use (MGD)	Max Day Use (MGD)		Average Daily Use (MGD)	Max Day Use (MGD)
Jan	47.0520		May	58.4330		Sep	61.6010	
Feb	48.3740		Jun	59.6270		Oct	60.2500	
Mar	48.1880		Jul	63.2850		Nov	50.8130	
Apr	48.4660		Aug	59.2970		Dec	49.0580	



Surface Water Sources

Stream	Reservoir	Average Daily Withdrawal		Maximum Day Withdrawal (MGD)	Available Raw Water Supply		Usable On-Stream Raw Water Supply Storage (MG)
		MGD	Days Used		MGD	* Qualifier	
Neuse River	Falls Lake	43.1210	365	0.0000	88.2000	SY50	18,800.0000
Swift Creek	Lake Benson	11.3500	365	0.0000	11.2000	SY50	2,085.0000

* Qualifier: C=Contract Amount, SY20=20-year Safe Yield, SY50=50-year Safe Yield, F=20% of 7Q10 or other instream flow requirement, CUA=Capacity Use Area Permit

Surface Water Sources (continued)

Stream	Reservoir	Drainage Area (sq mi)	Metered?	Sub-Basin	County	Year Offline	Use Type
Neuse River	Falls Lake	772	Yes	Neuse River (10-1)	Wake		Regular
Swift Creek	Lake Benson	36	Yes	Neuse River (10-1)	Wake		Regular

What is this system's off-stream raw water supply storage capacity? 150 Million gallons
Are surface water sources monitored? Yes, Daily
Are you required to maintain minimum flows downstream of its intake or dam? Yes
Does this system anticipate transferring surface water between river basins? No

Water Purchases From Other Systems

Seller	PWSID	Average Daily Purchased (MGD)	Days Used	Contract			Required to comply with water use restrictions?	Pipe Size(s) (Inches)	Use Type
				MGD	Expiration	Recurring			
Cary	03-92-020	0.0000	0	10.0000	2032	Yes	No	24	Emergency
Durham	03-32-010	0.0000	0	1.3000	2026	Yes	No	24	Emergency
Johnston County	03-51-070	0.0000	0	2.1500	2028	No	Yes	16	Emergency

NOTE Raleigh confirms no purchase of water from Johnston County in 2019.

Water Treatment Plants

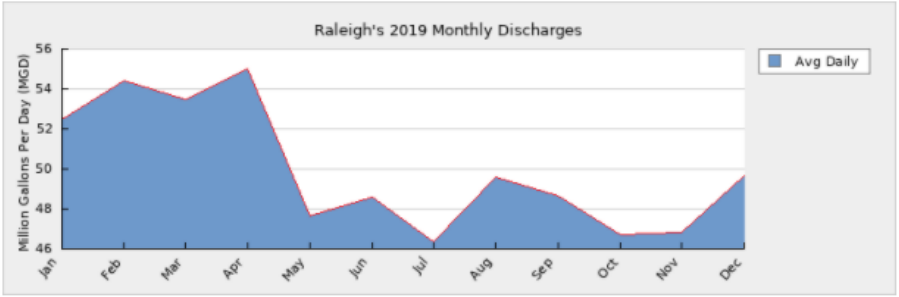
Plant Name	Permitted Capacity (MGD)	Is Raw Water Metered?	Is Finished Water Ouput Metered?	Source
Dempsey E. Benton WTP	16.0000	Yes	Yes	Lake Benson
E.M. Johnson WTP	86.0000	Yes	Yes	Falls Lake

Did average daily water production exceed 80% of approved plant capacity for five consecutive days during 2019? No
If yes, was any water conservation implemented?
Did average daily water production exceed 90% of approved plant capacity for five consecutive days during 2019? No
If yes, was any water conservation implemented?
Are peak day demands expected to exceed the water treatment plant capacity in the next 10 years? No

4. Wastewater Information

Monthly Discharges

	Average Daily Discharge (MGD)		Average Daily Discharge (MGD)		Average Daily Discharge (MGD)
Jan	52.4700	May	47.6200	Sep	48.6700
Feb	54.4100	Jun	48.5900	Oct	48.7100
Mar	53.4700	Jul	46.3600	Nov	48.8100
Apr	54.9800	Aug	49.5700	Dec	49.6600



How many sewer connections does this system have? 181,083
How many water service connections with septic systems does this system have? 1,259
Are there plans to build or expand wastewater treatment facilities in the next 10 years? Yes

NOTE The Neuse River Resource Recovery Plant was expanded to 75 MGD.

Wastewater Permits

Permit Number	Permitted Capacity (MGD)	Design Capacity (MGD)	Average Annual Daily Discharge (MGD)	Maximum Day Discharge (MGD)	Receiving Stream	Receiving Basin
NC0029033	75.0000	75.0000	47.0170		Neuse River	Neuse River (10-1)
NC0030759	6.0000	3.0000	2.0810		Smith Creek	Neuse River (10-1)
NC0079316	2.2000	1.8500	0.8440		Little Creek	Contentnea Creek (10-2)

Wastewater Interconnections

Water System	PWSID	Type	Average Daily Amount		Contract Maximum (MGD)
			MGD	Days Used	
Apex	03-92-045	Receiving	0.0000	0	1.0000
Clayton	03-51-020	Receiving	0.2610	365	1.0000
Johnston County	03-51-070	Receiving	0.0000	0	1.0000
Middlesex	04-64-050	Receiving	0.1600	365	0.1900

NOTE Raleigh verified that the flow through the interconnect from Clayton was 0.2610 MGD in 2019.

2019 Annual Water Use Report

Section 1: Facility Information

Registrant:	Duke Energy Progress, LLC	Facility ID:	0057-0008
Facility Name:	McGuire Nuclear Station	Facility Type:	Energy
County:	Mecklenburg	Sub-Basin:	Catawba River (03-1)
Mailing Address:	P.O. Box 1006 Mail Code: EC13K Charlotte, NC 28201	Email:	Mark.McGary@Duke-Energy.com
Contact Person:	Mark McGary	Title:	Lead Engineer
Phone:	980-373-7898	Fax:	980-373-9198

Section 2: Withdrawal Information

2-A. Average daily withdrawal and maximum day withdrawal by month in million gallons per day (MGD)

Month	# of Days Used	Average Daily Withdrawal (MGD)	Maximum Day Withdrawal (MGD)	Month	# of Days Used	Average Daily Withdrawal (MGD)	Maximum Day Withdrawal (MGD)
Jan	31	2522	2522	Jul	31	2948	2948
Feb	28	2527	2527	Aug	31	2953	2953
Mar	31	2194	2528	Sep	30	2951	2951
Apr	30	2195	2530	Oct	31	2952	2952
May	31	2891	2952	Nov	30	2818	2952
Jun	30	2951	2951	Dec	31	2526	2529

2-B. Source Information - Please complete one row for each water withdrawal source. If any of your source information was imported from a previous year, please make sure you click edit and fill in the information left blank that is needed for the 2019 reporting year.

Source Name	Source Type	Average Daily	Days Used	Pumping Capacity (MGD)
Lake Norman	Reservoir	2704	365	2955.6

Section 3: Discharge Information

3-A. Average daily discharge and maximum day discharge by month in million gallons per day (MGD)

Month	# of Days Discharged	Average Daily Discharge (MGD)	Maximum Day Discharge (MGD)	Month	# of Days Discharged	Average Daily Discharge (MGD)	Maximum Day Discharge (MGD)
Jan	31	2522	2522	Jul	31	2948	2948
Feb	28	2527	2527	Aug	31	2953	2953
Mar	31	2194	2528	Sep	30	2951	2951
Apr	30	2195	2530	Oct	31	2952	2952
May	31	2891	2952	Nov	30	2818	2952
Jun	30	2951	2951	Dec	31	2526	2529

3-B. Please complete one row for each discharge method. If any of your discharge information was imported from a previous year, please make sure you click edit and fill in the information left blank that is needed for the 2019 reporting year.

Identifier or Permit Number	Discharge Type	Average Daily	Days Discharged	Discharge Capacity
Outfall 001	Surface Water	2703	365	0.000
Outfall 002	Surface Water	0.184	121	0.000
Outfall 004	Surface Water	0.008	116	0.000
Outfall 005	Surface Water	0.731	245	0.000

Section 4: Sub-Basin Transfer Information

Complete this section only if you withdraw or purchase water that is not returned to the sub-basin from which it was withdrawn.

4-A. Please complete one row for each transfer of surface water from one sub-basin to another. If any of your transfer information was imported from a previous year, please make sure you click edit and fill in the information left blank that is needed for the 2019 reporting year.

Description of Transfer	Source Sub-Basin	Receiving Sub-Basin	Transfer Capacity
No Transfers Listed.			

4-B. Enter the average daily and maximum day surface water transfer amount for each month in million gallons per day (MGD)

Month	# of Days Transferred	Average Daily Transfer (MGD)	Maximum Day Transfer (MGD)	Month	# of Days Transferred	Average Daily Transfer (MGD)	Maximum Day Transfer (MGD)
Jan				Jul			
Feb				Aug			
Mar				Sep			
Apr				Oct			
May				Nov			
Jun				Dec			

Do you have any comments?

Outfall 004 is a periodic batch discharge from a 6,000 gallon tank

5. Planning

Projections

	2019	2020	2030	2040	2050	2060
Year-Round Population	593,000	608,975	799,271	973,797	1,134,200	1,316,200
Seasonal Population	0	0	0	0	0	0
Residential	29.1600	30.9488	39.9636	48.6899	56.7100	65.8100
Commercial	10.6400	11.1700	17.2000	20.0900	22.5600	25.2600
Industrial	2.1600	2.1800	2.2200	2.2800	2.5700	2.8800
Institutional	3.9300	4.1860	5.0800	5.9300	6.7200	7.5200
System Process	1.1000	1.1000	1.9000	2.1000	2.3000	2.5000
Unaccounted-for	7.0399	6.9730	8.5480	9.0210	11.2230	12.5660

Future Supply Sources

Source Name	PWSID	Source Type	Additional Supply	Year Online	Year Offline	Type
Little River Reservoir	03-92-010	Surface	14.0000	2040		Regular

Demand v/s Percent of Supply

	2019	2020	2030	2040	2050	2060
Surface Water Supply	99.4000	99.4000	99.4000	99.4000	99.4000	99.4000
Ground Water Supply	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Purchases	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Future Supplies		0.0000	0.0000	14.0000	14.0000	14.0000
Total Available Supply (MGD)	99.4000	99.4000	99.4000	113.4000	113.4000	113.4000
Service Area Demand	54.0299	56.5578	74.9116	88.1109	102.0830	116.5360
Sales	0.4411	0.7500	0.7500	0.7500	0.7500	0.7500
Future Sales		0.0000	0.0000	0.0000	0.0000	0.0000
Total Demand (MGD)	54.4710	57.3078	75.6616	88.8609	102.8330	117.2860
Demand as Percent of Supply	**55%**	**58%**	**76%**	**78%**	**91%**	**103%**

The purpose of the above chart is to show a general indication of how the long-term per capita water demand changes over time. The per capita water demand may actually be different than indicated due to seasonal populations and the accuracy of data submitted. Water systems that have calculated long-term per capita water demand based on a methodology that produces different results may submit their information in the notes field.

Your long-term water demand is ~~49~~ gallons per capita per day. What demand management practices do you plan to implement to reduce the per capita water demand (i.e. conduct regular water audits, implement a plumbing retrofit program, employ practices such as rainwater harvesting or reclaimed water)? If these practices are covered elsewhere in your plan, indicate where the practices are discussed here.

Are there other demand management practices you will implement to reduce your future supply needs? Tiered residential water rates, showerhead exchange program, full cost of service pricing for water services, smart meters to help detect system leaks, CIP program to replace aging water distribution infrastructure.

What supplies other than the ones listed in future supplies are being considered to meet your future supply needs? Intake on Neuse River

How does the water system intend to implement the demand management and supply planning components above? Most components already implemented

Additional Information

Has this system participated in regional water supply or water use planning? Yes, Triangle Water Supply Partnership

What major water supply reports or studies were used for planning? Jordan Lake Partnership Summary Report
Water System Master Plan

Please describe any other needs or issues regarding your water supply sources, any water system deficiencies or needed improvements (storage, treatment, etc.) or your ability to meet present and future water needs. Include both quantity and quality considerations, as well as financial, technical, managerial, permitting, and compliance issues:

Choose a year...

2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019

return to CCPCUA page

Central Coastal Plain Capacity Use Area 2019 Water Withdrawal Summary Tables

Tables compiled 09-18-2020, units are gallons per day

Permitted				Reported for 2019					
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
Beaufort	179,624,400			41,296,130	40	60		7,163	94,172
Carteret	27,428,080			7,253,007	19	74		158,839	
Craven	74,816,800	6,956,526	1,814,132	22,305,774	35	74	2,968,146	9,387	15,595,264
Duplin	69,952,325	2,805,747	2,297,255	8,540,366	57	81	1,894,362	99,924	3,635
Edgecombe	12,564,000	527,697	429,388	1,164,774	11	91	274,022	11,951	1,259,507
Greene	191,000	3,058,197	914,551	1,059,090	4	100	1,037,882	48,462	288,592
Jones	48,929,600	679,282	169,821	14,330,809	11	82	329,018		
Lenoir	9,805,320	13,522,312	3,522,953	4,952,474	16	81	3,121,852		
Martin	4,440,000	4,895,506	2,226,326	1,379,013	14	79	759,642	115,330	26,985,957
Onslow	62,400,600	9,845,143	2,461,286	23,911,331	19	79	3,881,964	102,812	
Pamlico	34,920,000			2,080,334	12	67			
Pitt	7,718,080	8,651,572	2,521,003	1,964,965	22	86	1,316,270	58,882	14,359,655
Washington	65,340,000			2,170,780	35	71			
Wayne	19,741,200	4,340,026	2,010,532	4,853,266	23	87	1,133,321		12,013,903
Wilson	7,164,160	658,883	491,218	1,028,290	6	83	354,050	136,961	9,593,158
Totals:	625,035,565	55,940,891	18,858,465	138,290,404	324**	77	17,070,528	749,712	80,193,841

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).

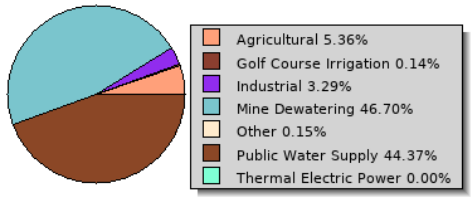
** A few permits have sources in two counties, so those permits are counted twice.

Permitted				Reported for 2019					
Current Permit Limits				Ground Water					Surface Water
Type of Use	max daily	yearly (ABRs)	yearly (2018)	by all permits	# of permits	% reported	by yearly permits	by registrations	by registrations
Agricultural	203,710,125	620,612	400,004	7,286,307	128	64	109,177	168,524	1,034,730
Golf Course Irrigation	3,954,000	85,589	85,589	149,305	11	64		39,774	83,577
Industrial	15,643,200	4,473,115	2,471,853	4,386,875	14	100	1,203,729	182,190	46,658,908
Mine Dewatering	254,218,080			64,882,794	65	75		49,388	1,155,635
Other	9,750,480	368,561	300,003	209,714	12	75	116,699		
Public Water Supply	137,759,680	50,393,015	15,601,016	61,375,408	87	95	15,640,923	309,835	31,260,993
Thermal Electric Power					87	95			
Totals:	625,035,565	55,940,891	18,858,465	138,290,404	317	77	17,070,528	749,712	80,193,841

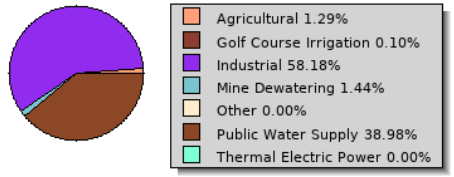
Permitted				Reported for 2019				
Current Permit Limits				Ground Water				
Aquifer	max daily	yearly (ABRs)	yearly (2018)	by all permits	# of permits	% reported	by yearly permits	by registrations
Basement rock	14,306,060			1,812,528	11	91		219,694
Black Creek	33,013,363	21,884,121	7,173,409	12,709,238	66	88	9,203,800	148,566
Peedee	20,380,050	6,877,228	1,785,236	1,633,043	21	78	128,890	61,755
Upper Cape Fear	48,519,362	27,129,542	9,849,819	13,271,254	86	87	7,727,119	115,035
Lower Cape Fear		50,001	50,001	62,751	1	100	10,719	
Surficial	131,631,630			24,317,530	75	69		174,886
Castle Hayne	339,532,850			83,646,881	129	66		331,701
Beaufort	3,495,250							63,152
Upper Tertiary								
Yorktown	34,157,000			837,178	18	60		32,451
Totals:	625,035,565	55,940,891	18,858,465	138,290,404	406**	76	17,070,528	749,712

** 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

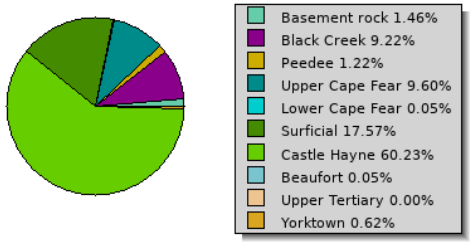


Table 1: Total & Average Daily Water Withdrawn [1]
2018 North Carolina Water Use by Month

Month	Operations	Monthly Total Ground	MonthlyTotal Surface	Average Across All Days-Ground	Average Across All Days-Surface
	Number	*Gallons*	*Gallons*	*Gallons*	*Gallons*
January	671	296,204,426	953,338,945	9,554,981	30,752,869
February	676	278,864,356	983,363,881	9,959,441	35,120,139
March	730	353,841,137	1,209,660,116	11,414,230	39,021,294
April	793	419,861,281	1,393,105,505	13,995,376	46,436,850
May	832	453,604,857	1,376,070,828	14,632,415	44,389,382
June	929	1,016,079,127	2,017,313,534	33,869,304	67,243,784
July	934	1,146,292,552	2,290,541,801	36,977,179	73,888,445
August	855	684,421,774	1,864,711,208	22,078,122	60,151,974
September	770	454,515,121	1,203,487,906	15,150,504	40,116,264
October	724	430,565,172	973,041,191	13,889,199	31,388,426
November	680	366,299,667	805,379,324	12,209,989	26,845,977
December	660	292,962,711	724,455,844	9,450,410	23,369,543
Annual Average				**16,931,763**	**43,227,079**

Operations:

1025 *Total Operations*

Daily Withdrawal Capacity (incl. ground & surface):

1,200,116,130 *Gallons*

[1] *Users of 10,000 gallons or more per day. Averages reported in this table reflect the average water withdrawn across all days of the month. Farms that reported their withdrawals directly to DEQ by June 10, 2019 have been excluded. The monthly number of operations will not add to the total. Some operations reported both surface and ground water withdrawals, which are counted twice in the monthly number of operations. However, the total number of operations represents operations that withdrew water at any time during the year, regardless if withdrawn from multiple sources.*