Water Use in the Pee Dee Basin

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Pee Dee River Basin Council – Meeting #5 (Hybrid)
City of Sumter Water Plant #6
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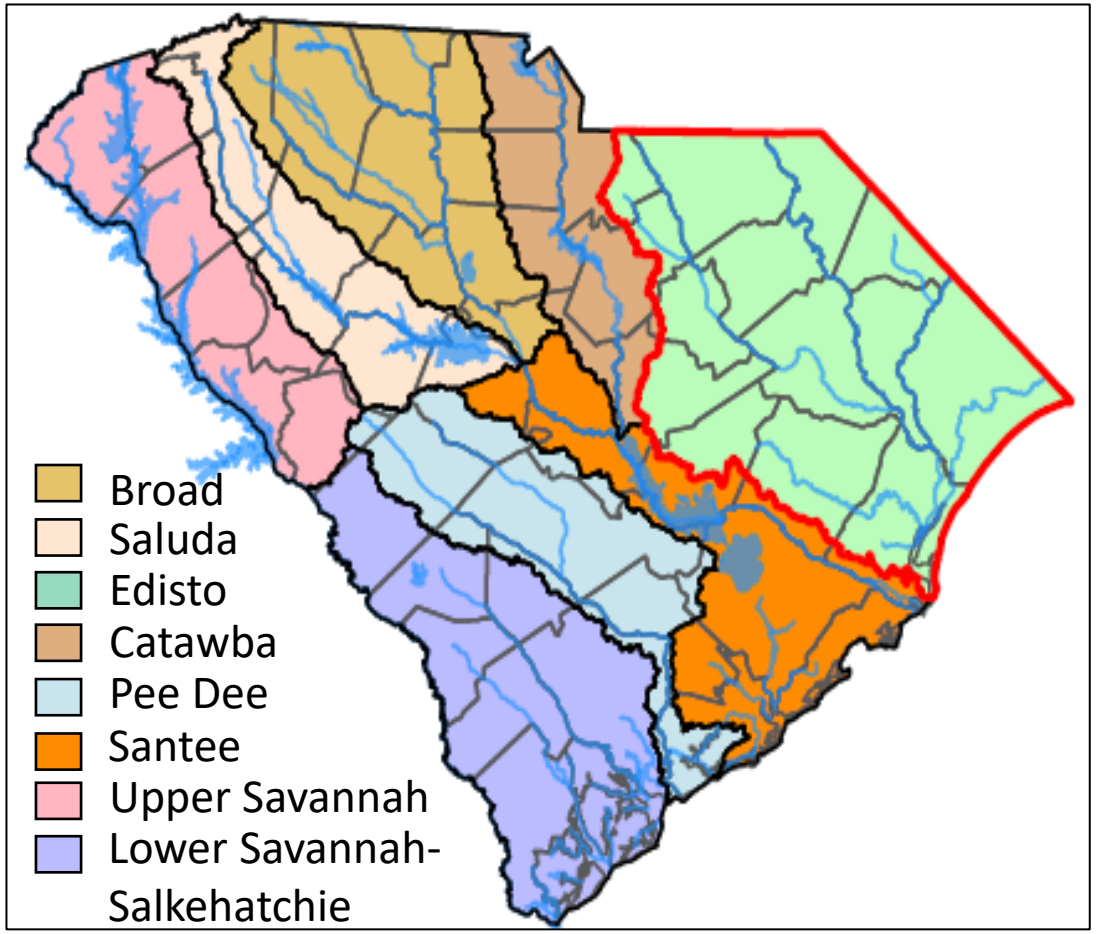
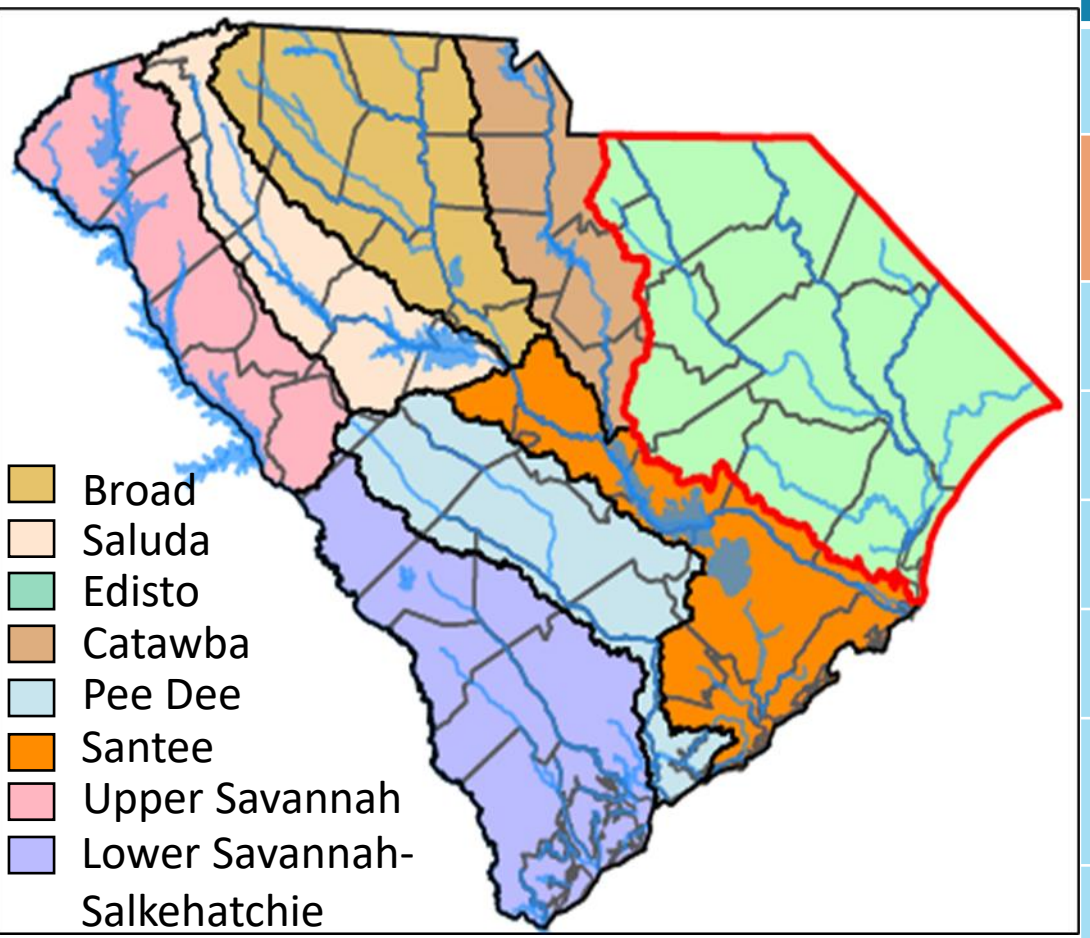
Water Withdrawal Reporting in SC

- The South Carolina Department of Health and Environmental Control (SCDHEC) tracks water use through the South Carolina Surface Water Withdrawal and Reporting Act and the South Carolina Groundwater Use and Reporting Act
- Regulations require water users that withdraw three (3) million gallons or greater in any month to register with and report their use annually to the Water Use Program at SCDHEC
  - Exemptions include farm ponds, ponds filled only with surface water runoff, and wildlife habitat management (typically duck ponds)



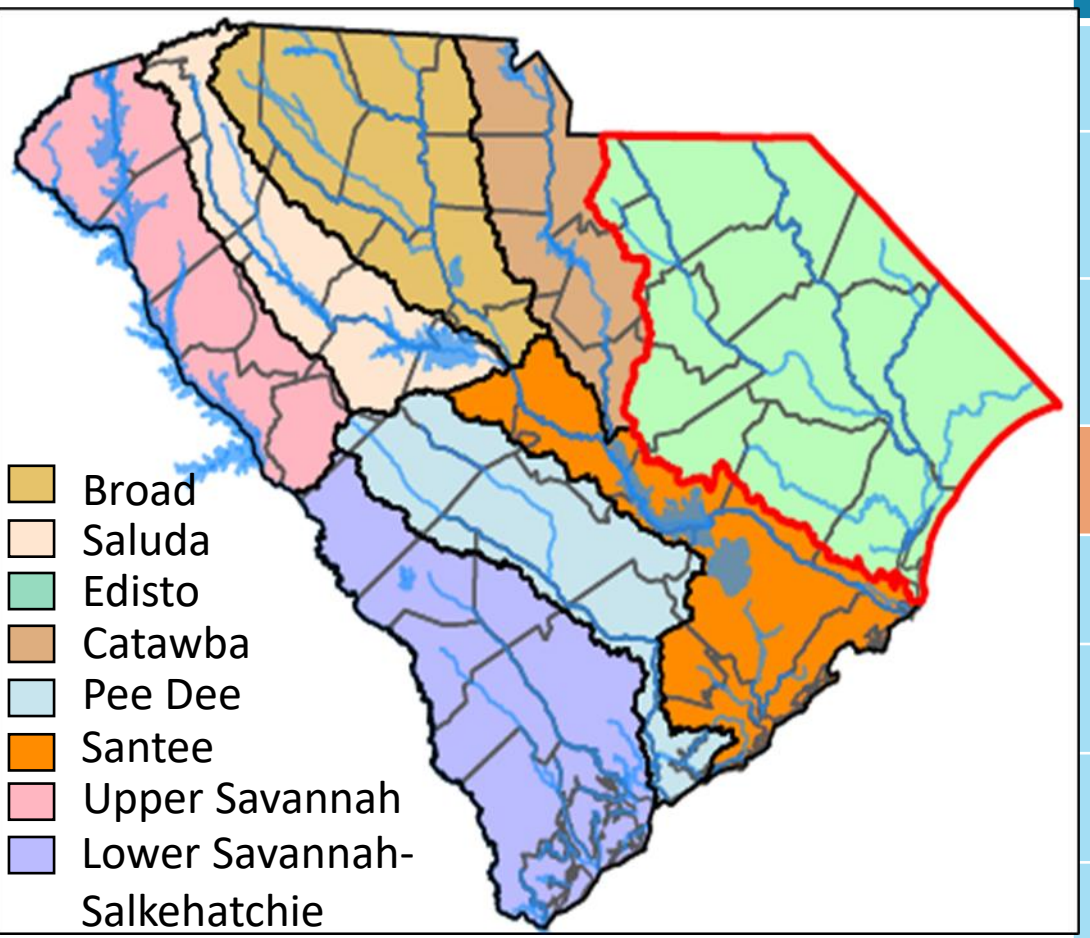
Total Withdrawals, Including Energy (2021)



Surface water withdrawals (MGD)	Groundwater withdrawals (MGD)
Upper Savannah 2,718.3 (49%)	Pee Dee 112.8 (40%)
Pee Dee 825.3 (15%)	Lower Savannah-Salkehatchie 74.4 (27%)
Broad 728.4 (13%)	Edisto 60.5 (22%)
Santee 465.0 (8%)	Santee 23.3 (8%)
Catawba 286.6 (5%)	Catawba 6.5 (2%)
Saluda 264.2 (5%)	Upper Savannah 0.5 (0.2%)
Lower Savannah-Salkehatchie 161.2 (3%)	Broad 0.5 (0.2%)
Edisto 70.6 (1%)	Saluda 0.2 (0.1 %)
Total 5,519.6	Total 278.7

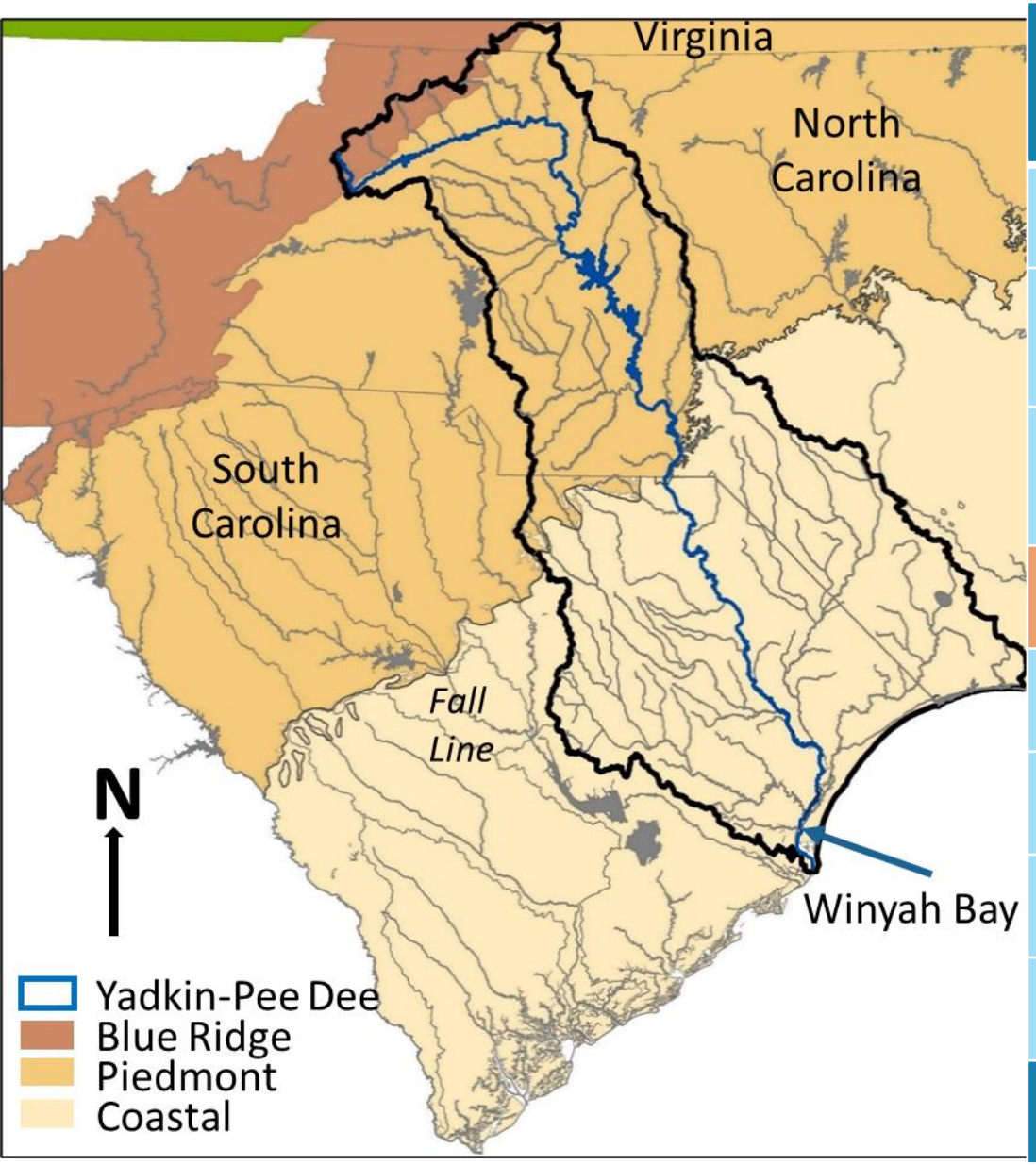
Excluding Hydroelectric Power

Total Withdrawals, Excluding Energy (2021)



Surface water withdrawals (MGD)	Groundwater withdrawals (MGD)
Santee 465 (33%)	Pee Dee 111.7 (40%)
Saluda 264.2 (19%)	Lower Savannah-Salkehatchie 74.4 (27%)
Lower Savannah-Salkehatchie 161.2 (11%)	Edisto 60.5 (22%)
Pee Dee 141.6 (10%)	Santee 23.3 (8%)
Catawba 126 (9%)	Santee 18.4 (7%)
Broad 101 (7%)	Catawba 6.5 (2%)
Upper Savannah 73.1 (5%)	Upper Savannah 0.5 (0.2%)
Edisto 70.6 (5%)	Broad 0.5 (0.2 %)
Total 1,402.8	Total 277.7

Total Withdrawals, Excluding Energy (2021)



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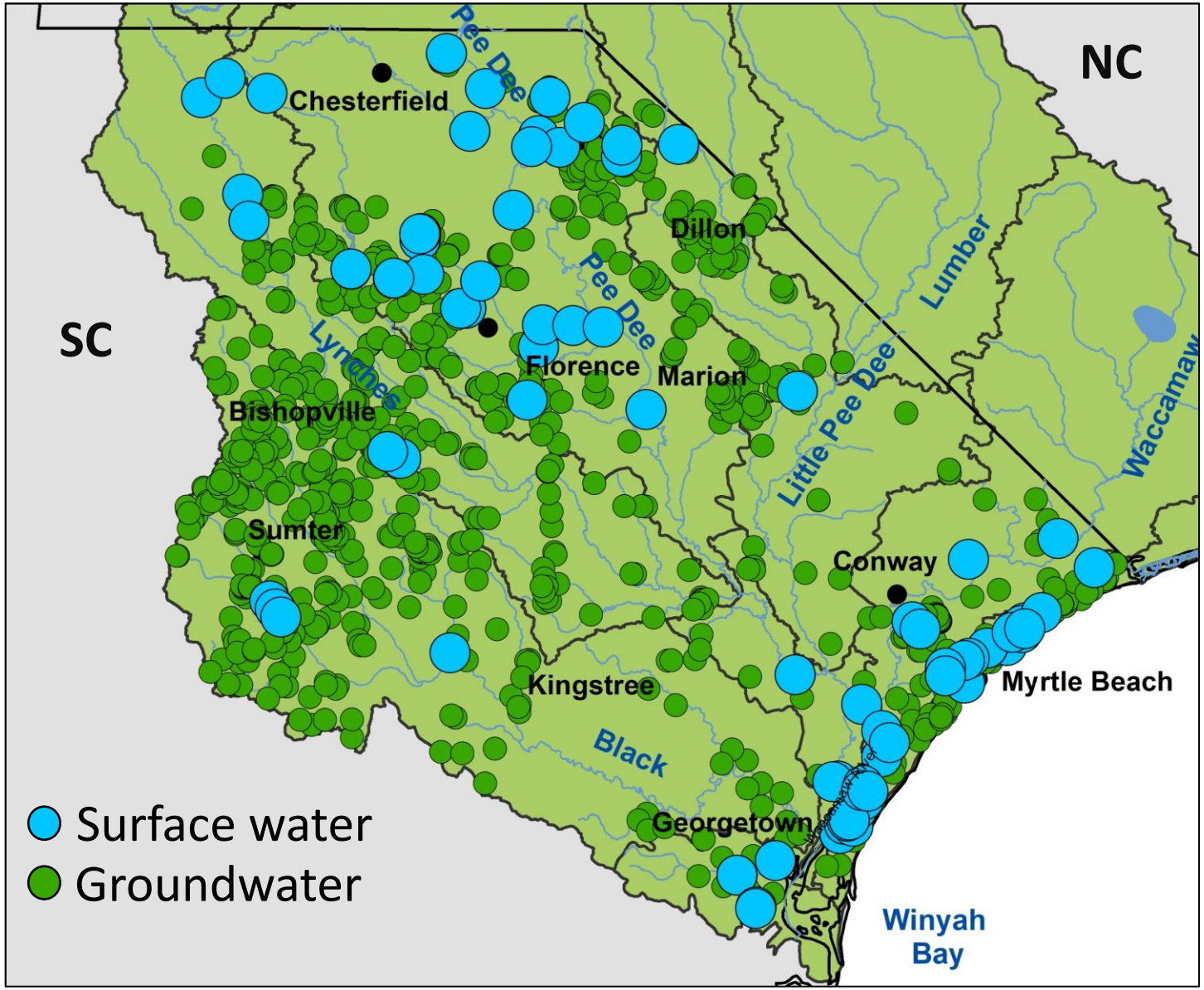
Surface and Groundwater Withdrawals (2021)



- Both surface water and groundwater are important resources in the basin

Including Energy

SW: 88%

GW: 12%

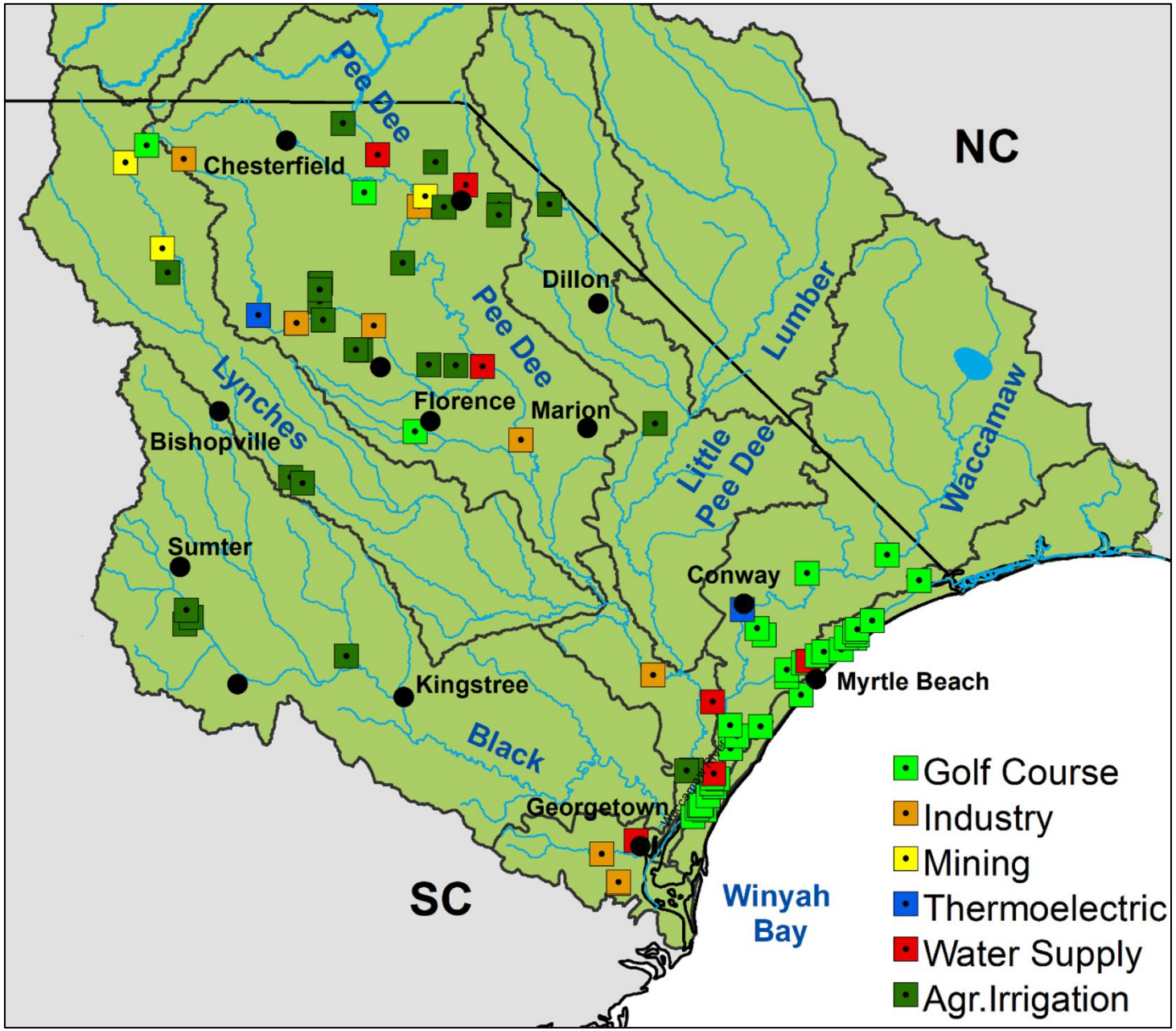
Excluding Energy

SW: 56%

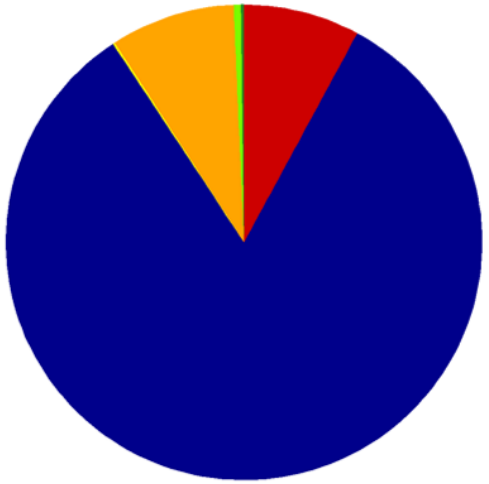
GW: 44%

Data source: SCDHEC Water Use Database

Surface Water Withdrawals (2021)

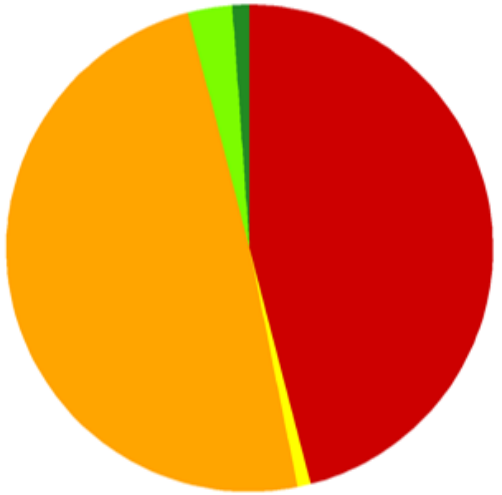


Including Energy



- Thermoelectric 82.8%
- Industry 8.4%
- Water Supply 7.9%
- Golf Course 0.5%
- Ag. Irrigation 0.2%
- Mining 0.2%

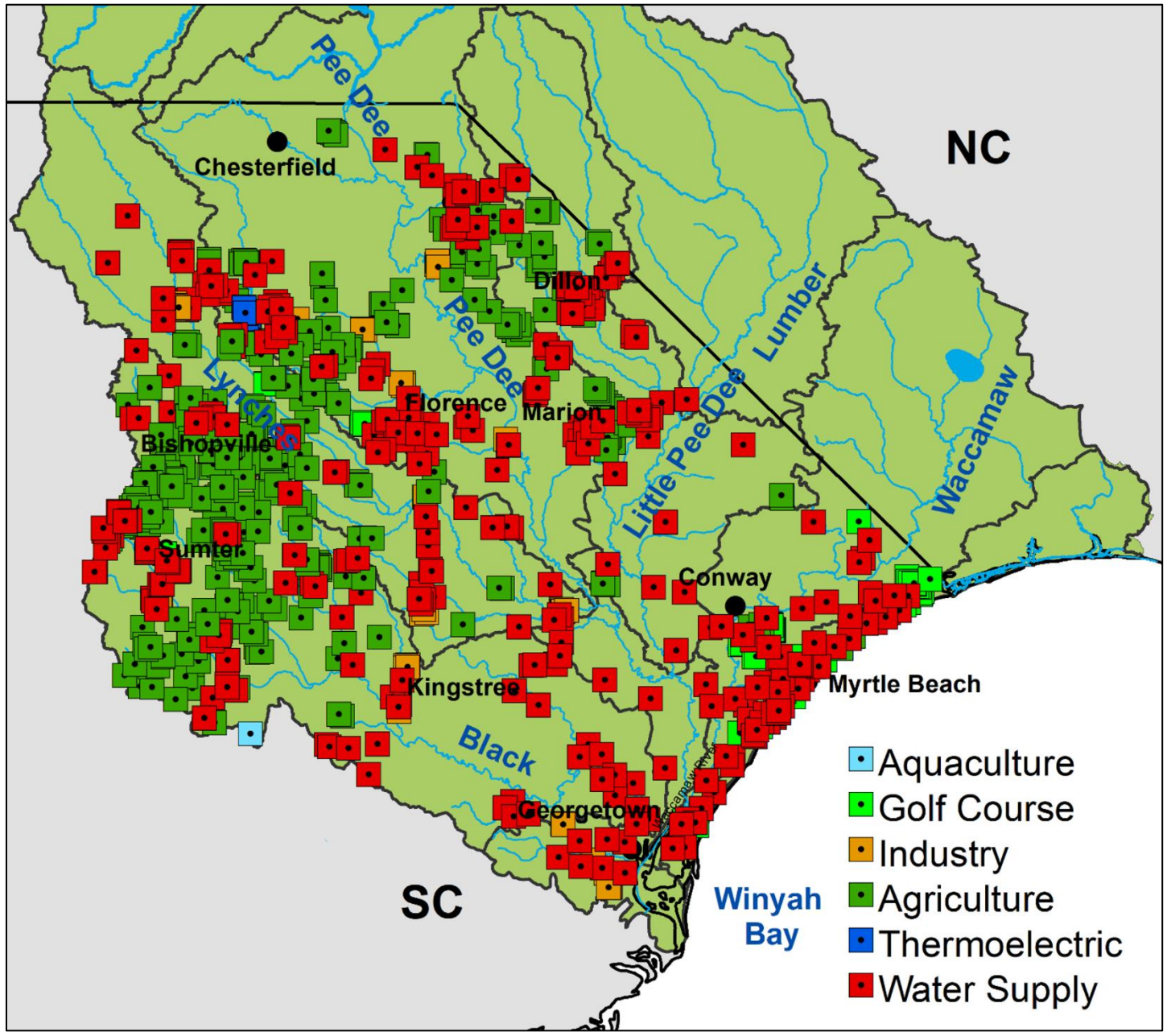
Excluding Energy



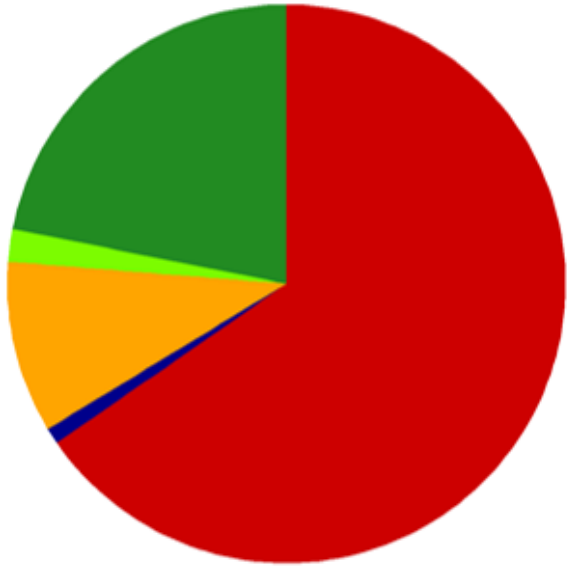
- Industry 49.1%
- Water Supply 46.0%
- Golf Course 2.9%
- Ag. Irrigation 1.1%
- Mining 0.9%

Data source: SCDHEC Water Use Database

Groundwater Withdrawals (2021)



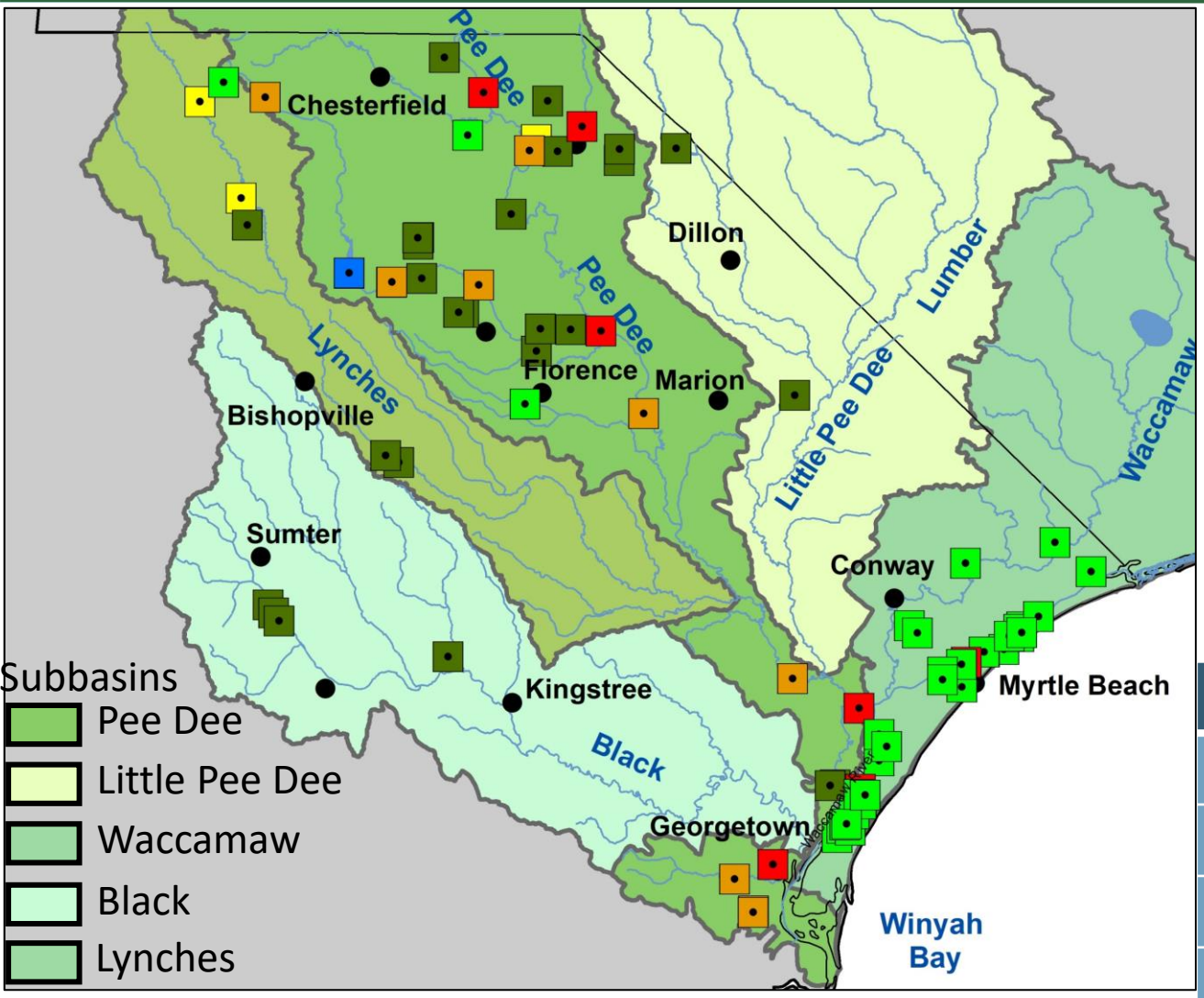
Including Energy



- Water Supply 65.4%
- Ag. Irrigation 21.9%
- Industry 10.0%
- Golf Course 1.9%
- Thermoelectric 0.9%

Data source: SCDHEC Water Use Database

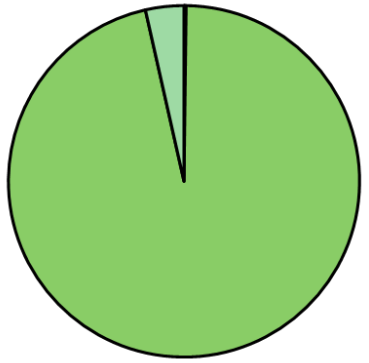
Surface Water Withdrawals by Subbasin (2021)



Thermoelectric Power
Water Supply
Industry
Mining
Ag. Irrigation
Golf Course

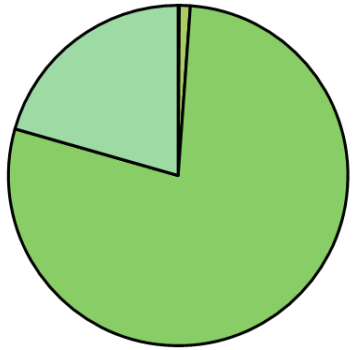
Data source: SCDHEC Water Use Database

Including Power



- Pee Dee 96.3%
- Waccamaw 3.5%
- Lynches 0.2%
- Black < 0.05%
- Little Pee Dee < 0.05%

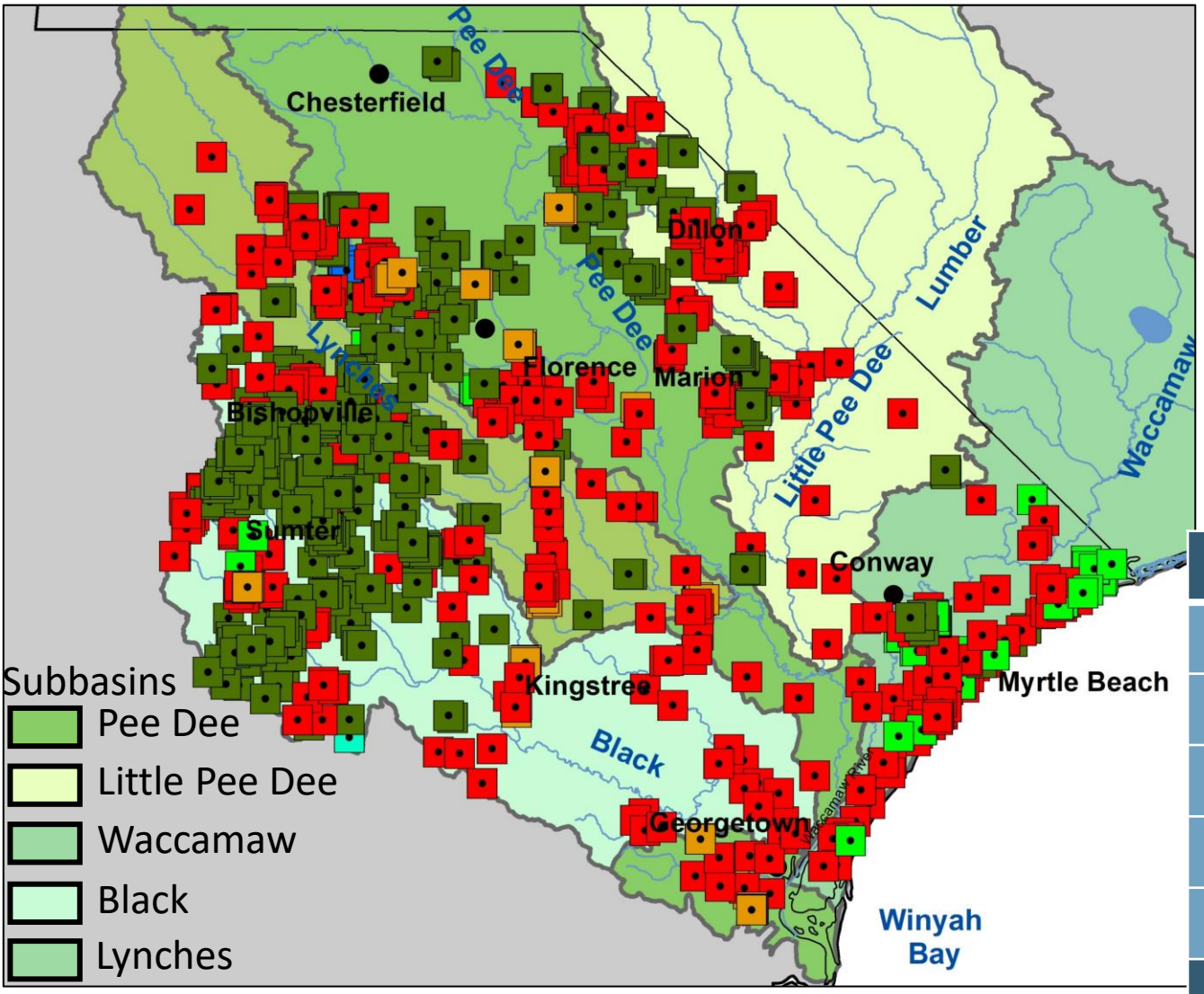
Excluding Power



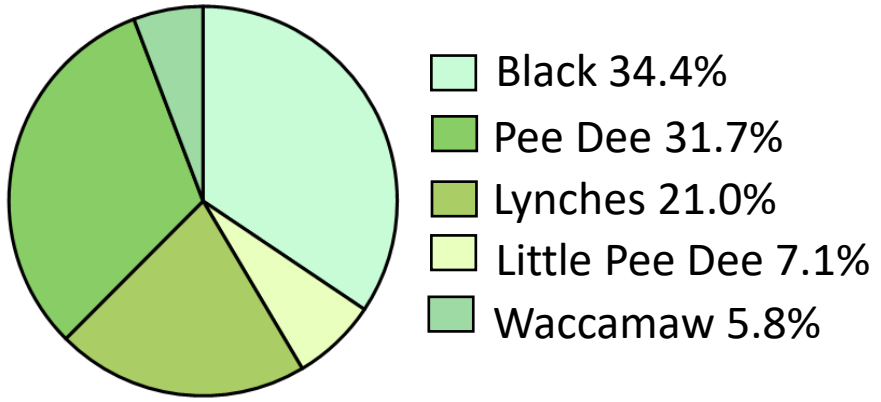
- Pee Dee 78.3%
- Waccamaw 20.6%
- Lynches 1.0%
- Black 0.1%
- Little Pee Dee < 0.05%

Subbasin	PT %	WS %	IN %	GC %	Ag %	MI %
Pee Dee	100	61.4	100	2.5	78.1	--
Black	--	--	--	--	9.1	--
Waccamaw	--	38.6	--	96.9	--	--
Little Pee Dee	--	--	--	--	0.3	--
Lynches	--	--	--	0.6	12.5	100
Total (MGD)	683.7	65.1	69.5	4.2	1.6	1.2

Groundwater Withdrawals by Subbasin (2021)



Including Power



Subbasin	PT %	WS %	IN %	GC %	Ag %
Pee Dee	100	31.6	45.1	4.0	25.2
Black	--	31.0	12.7	15.1	57.7
Waccamaw	--	6.1	--	79.4	1.3
Little Pee Dee	--	9.4	--	--	4.2
Lynches	--	21.8	42.2	1.6	11.6
Total (MGD)	1.1	73.7	11.2	2.1	24.7

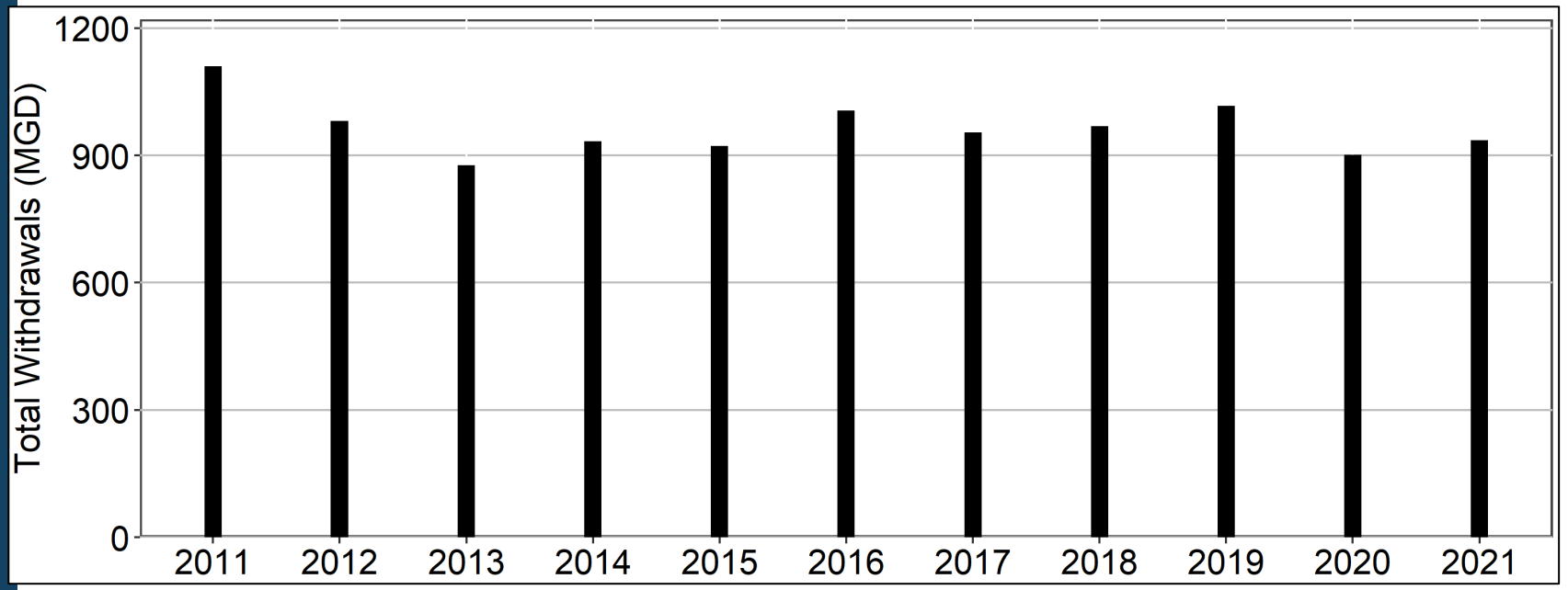
Data source: SCDHEC Water Use Database

Historical Water Use

- Data Limitations
  - Withdrawals from private domestic wells, small surface water irrigation ponds, and any other water withdrawals less than the reporting threshold of 3 MGM are excluded from the SCDHEC's water-use database
  - After passing of the South Carolina Surface Water Withdrawal, Permitting, Use, and Reporting Act in 2011, several facilities withdrawing less than the threshold value were not required to report their withdrawals to SCDHEC
  - Increasing trends in reported water withdrawals for some categories (Agriculture, for example) may in part be due to increased reporting compliance over the analysis period
  - Errors in reported water withdrawals or errors introduced during data input
  - Some users fail to add metadata such as longitude, latitude, county, and basin information for a surface water intake or groundwater well withdrawal. This can lead to some inaccuracies in the dataset

Total Withdrawals (2011-2021)

Including Power



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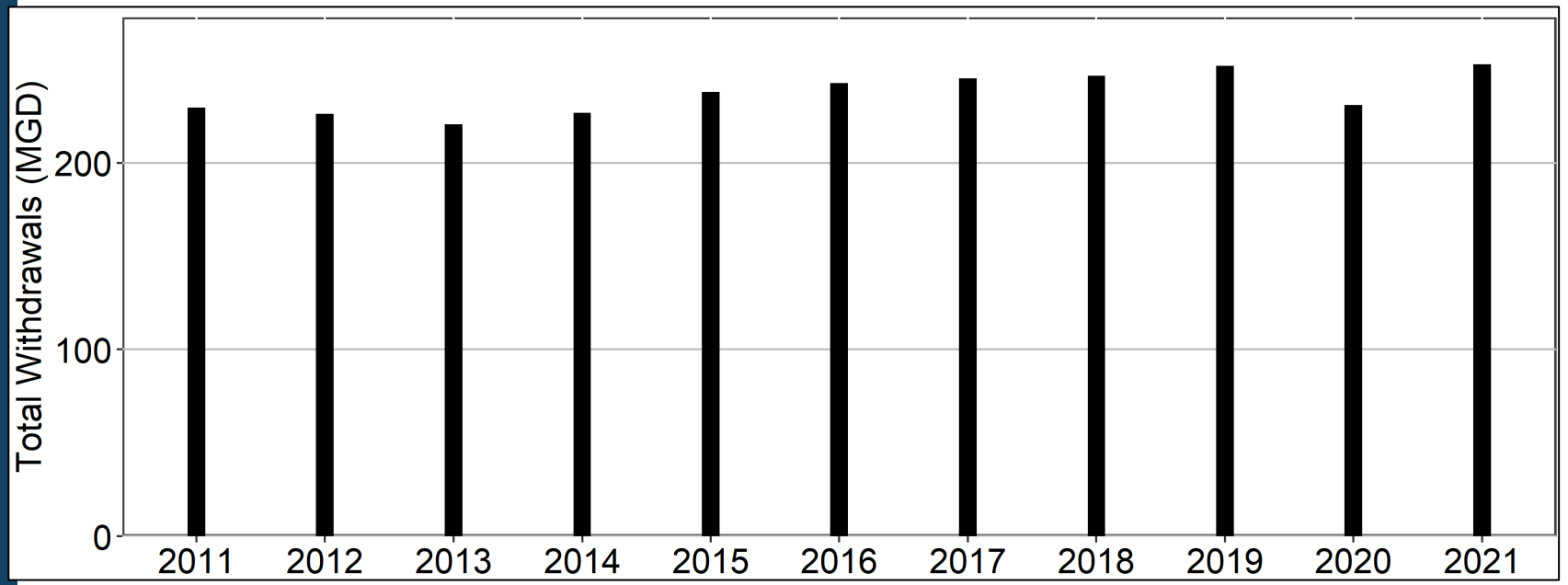
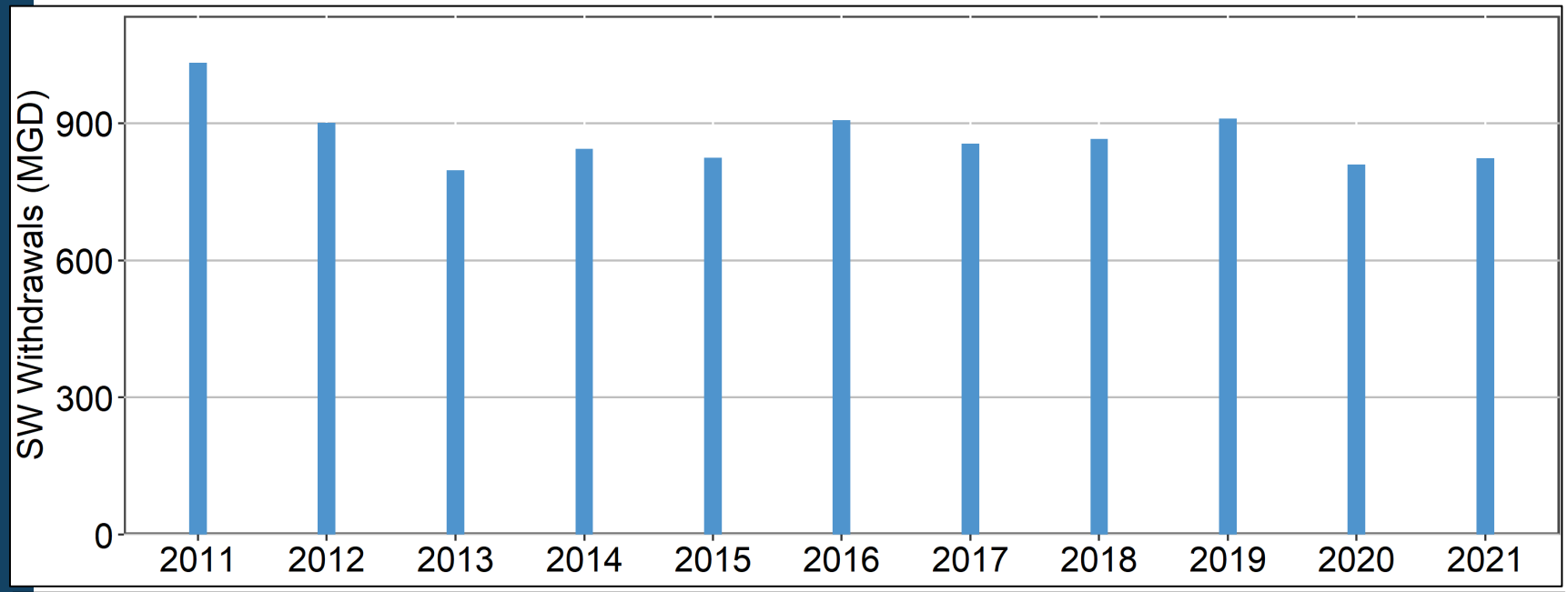


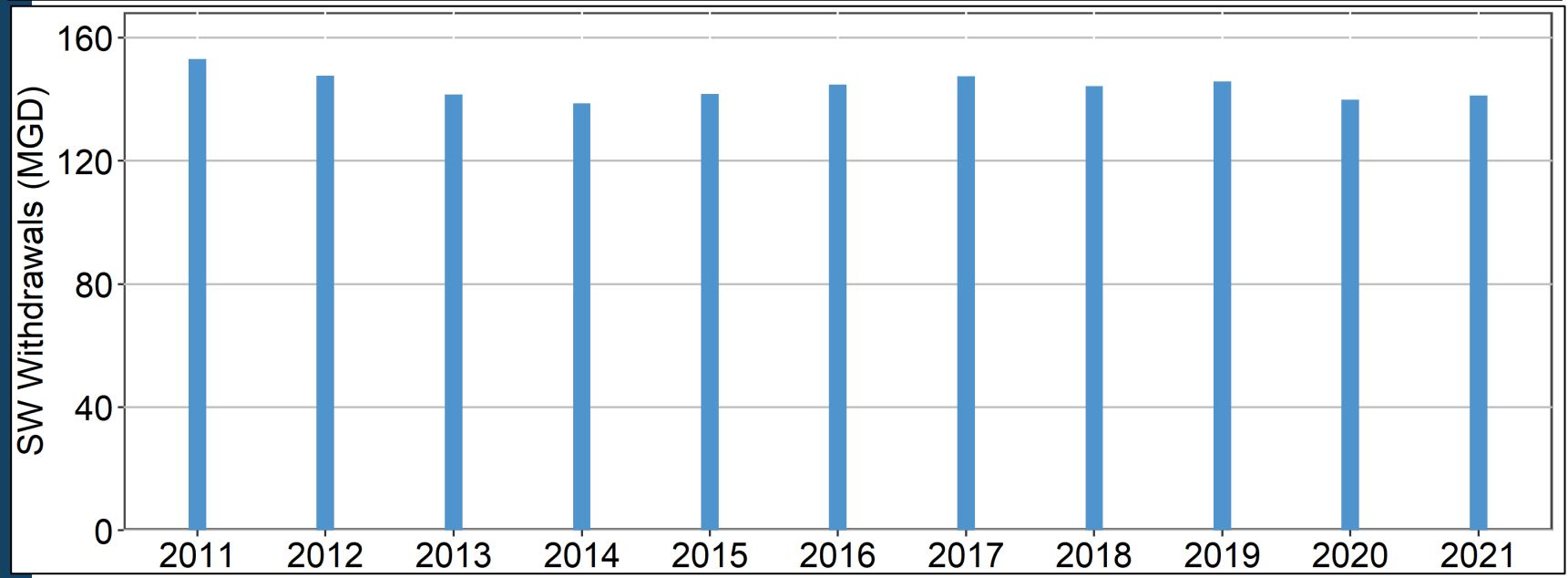
Data source: SCDHEC Water Use Database

Total Surface Water Withdrawals (2011-2021)

Including Power



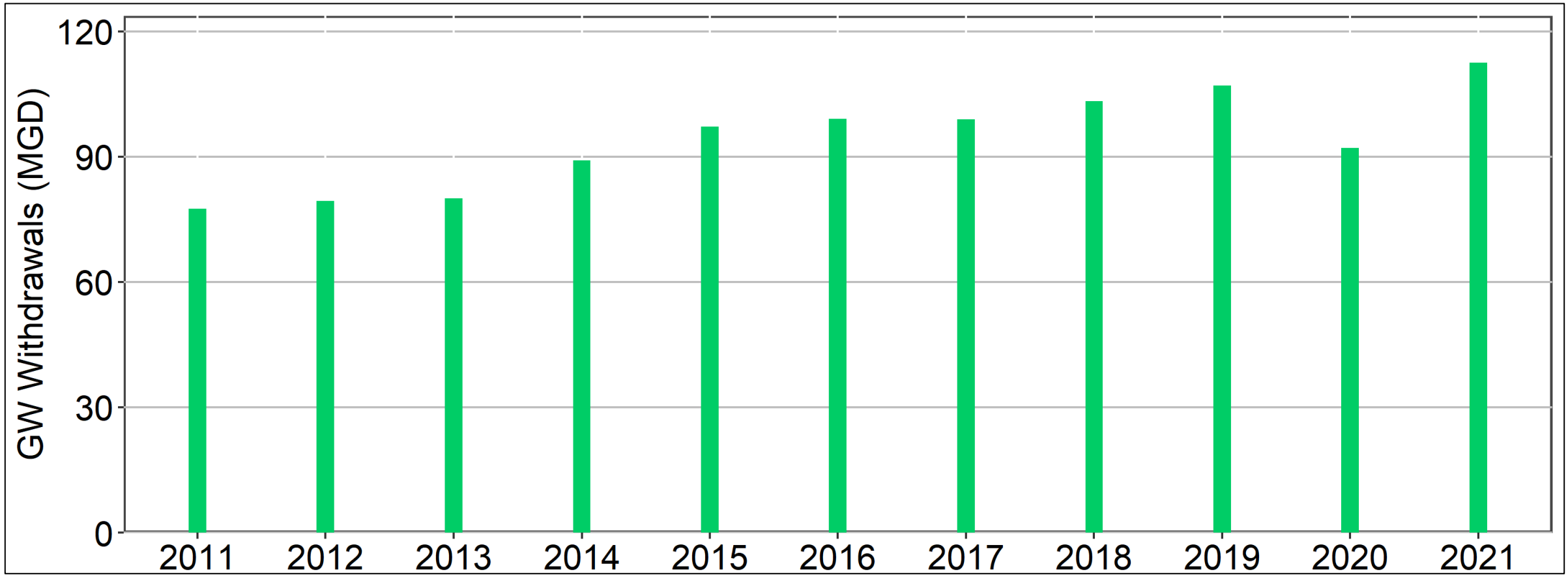
Excluding Power



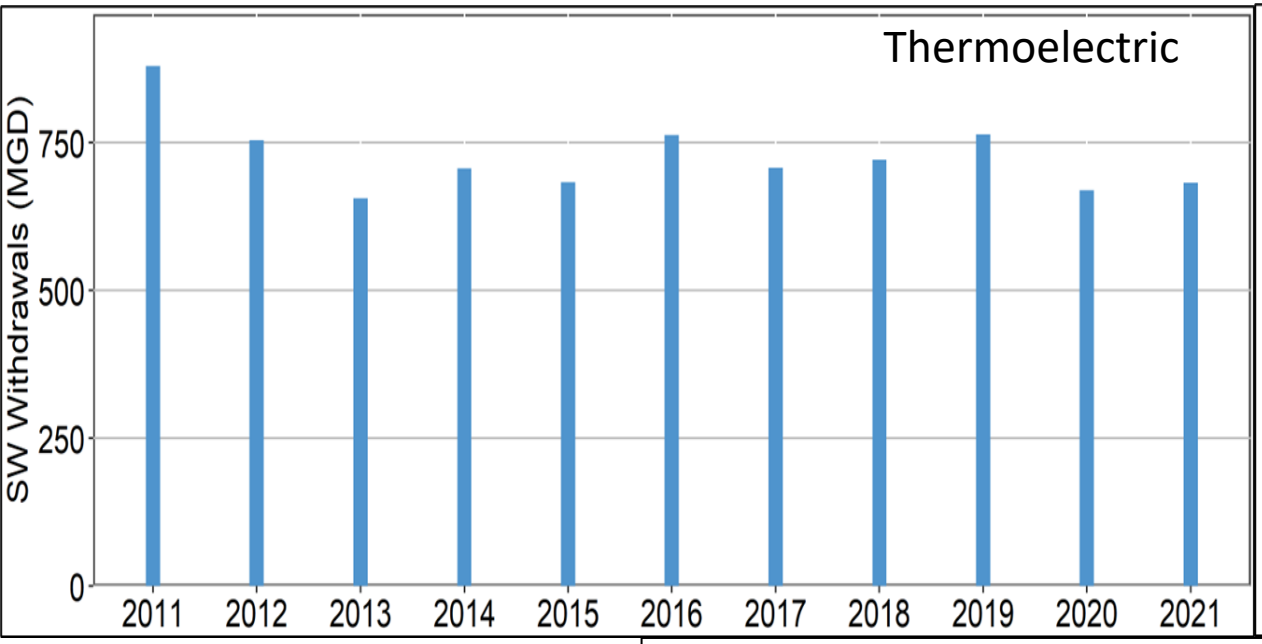
Data source: SCDHEC Water Use Database

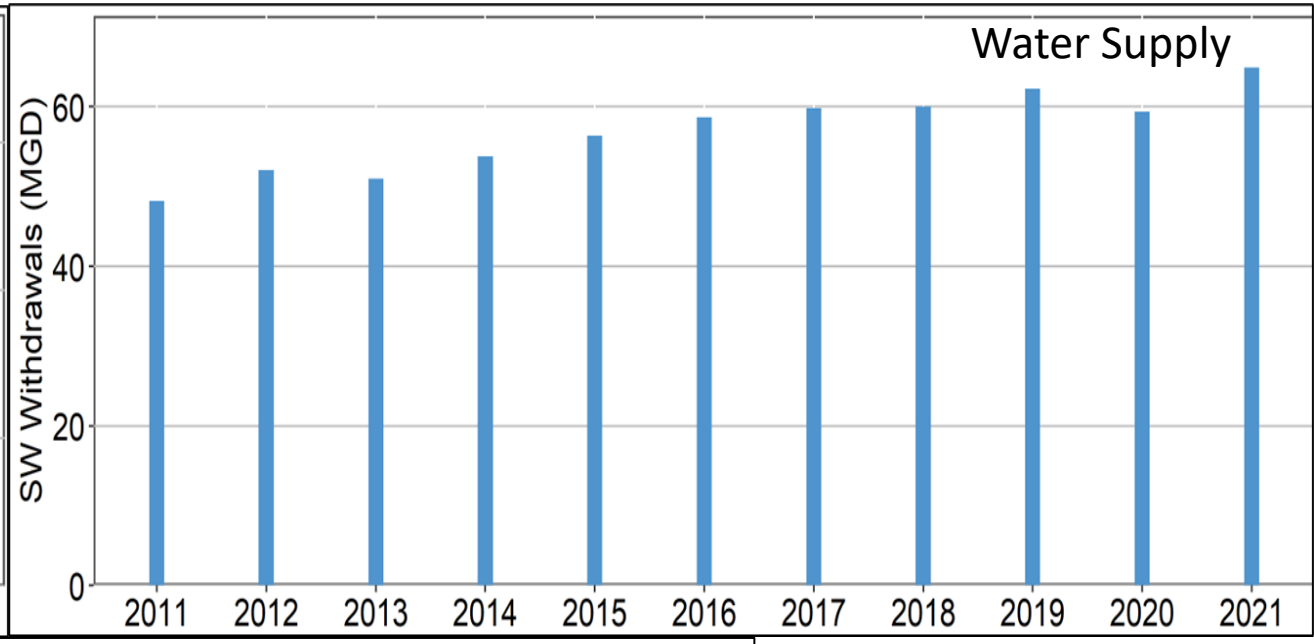
Total Groundwater Withdrawals (2011-2021)

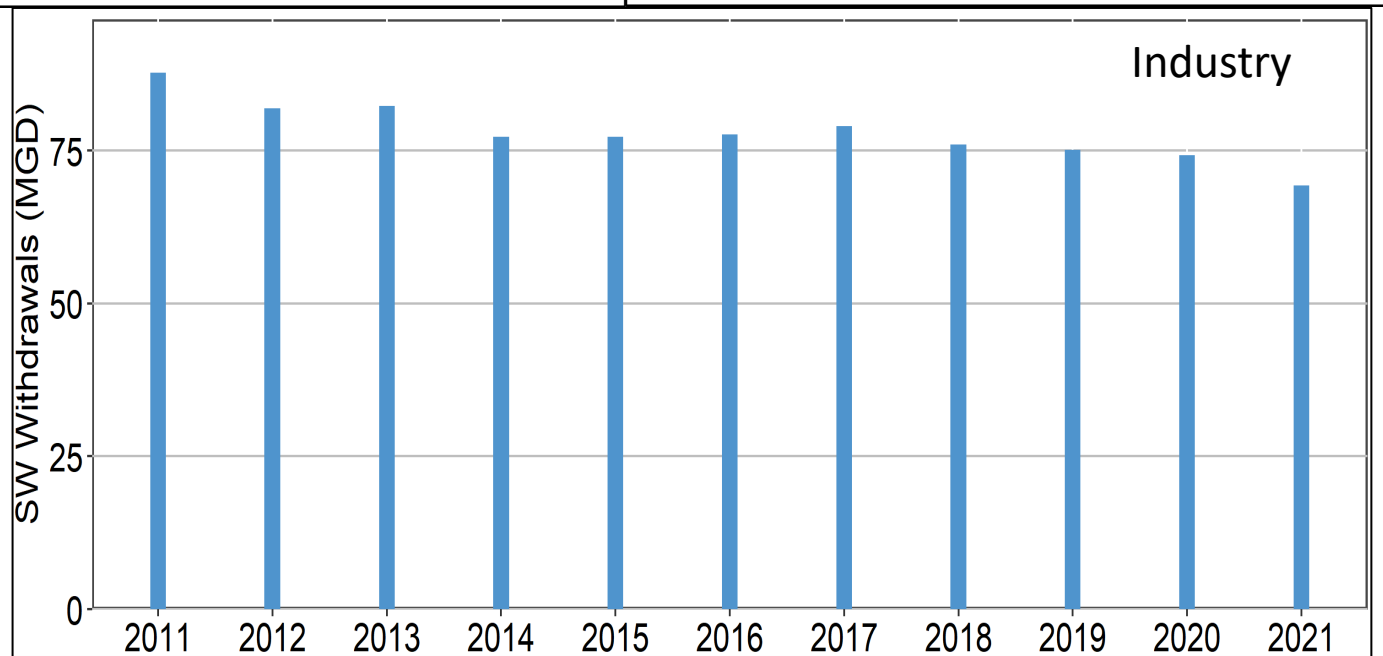
Including Power



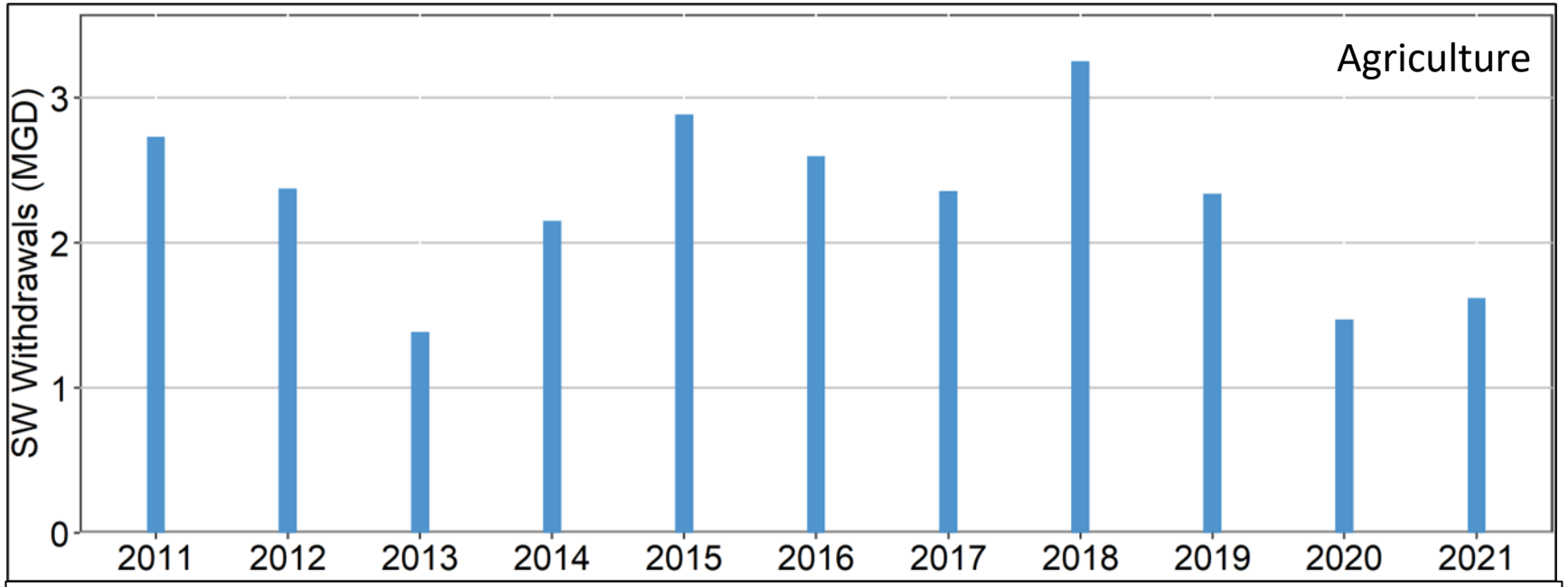
Surface Water Withdrawals by Categories (2011-2021)

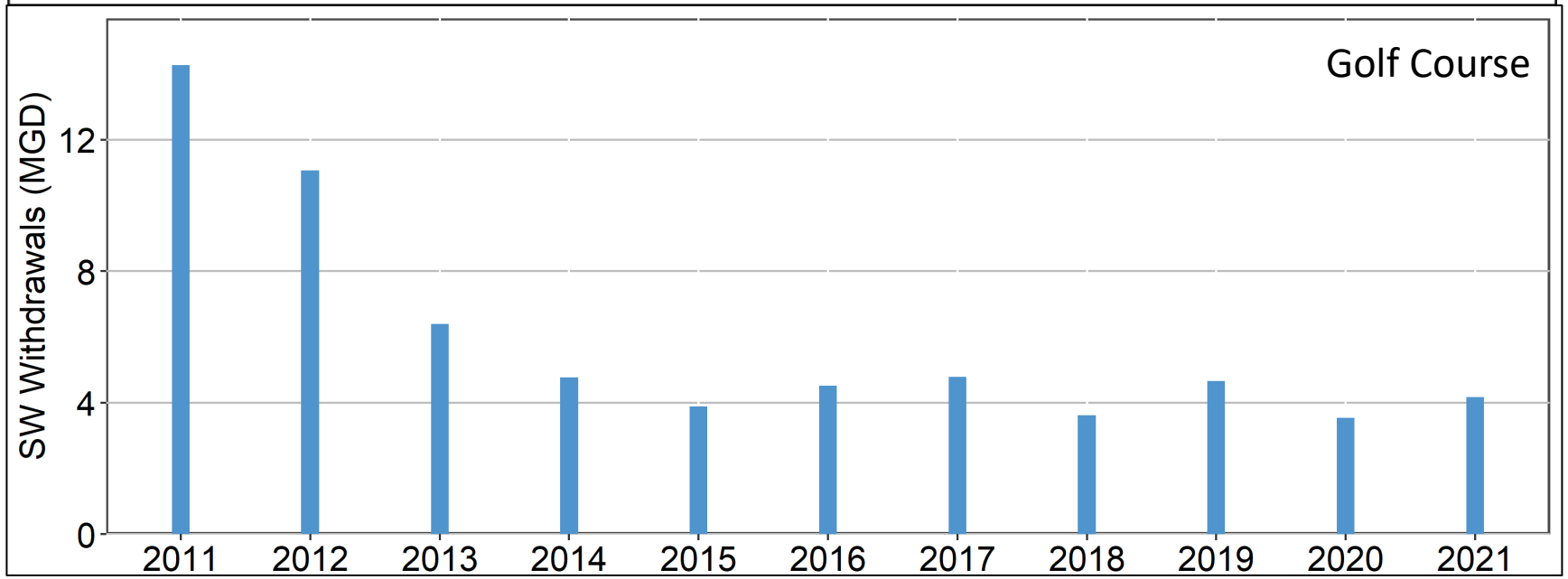




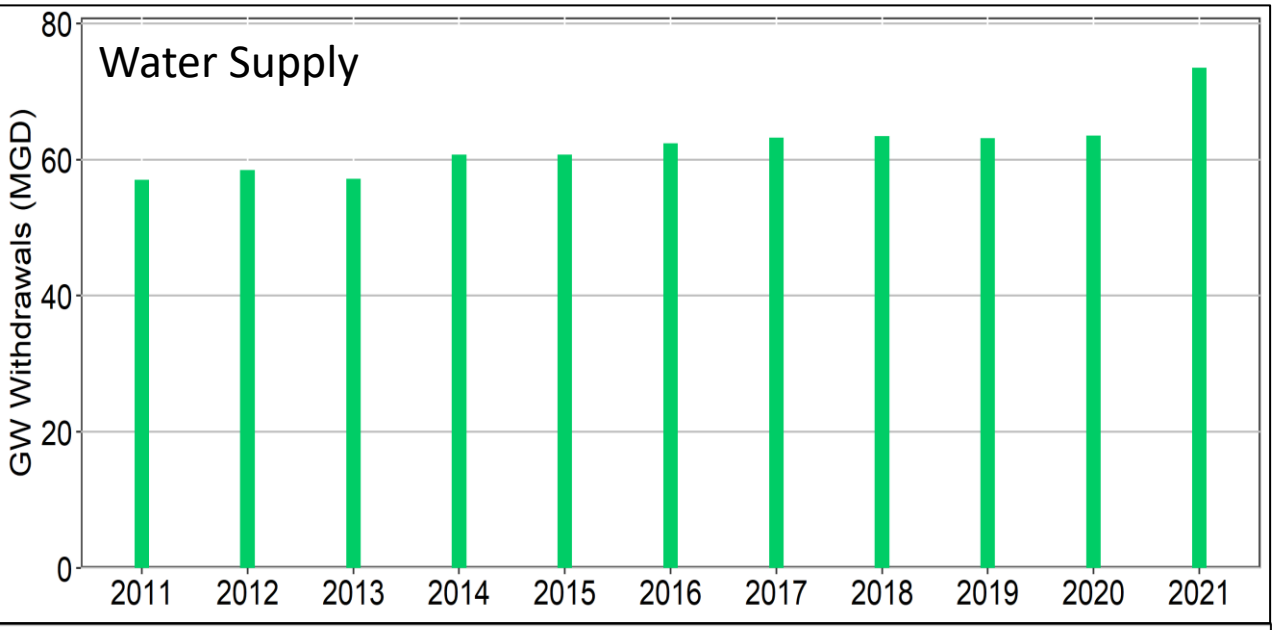


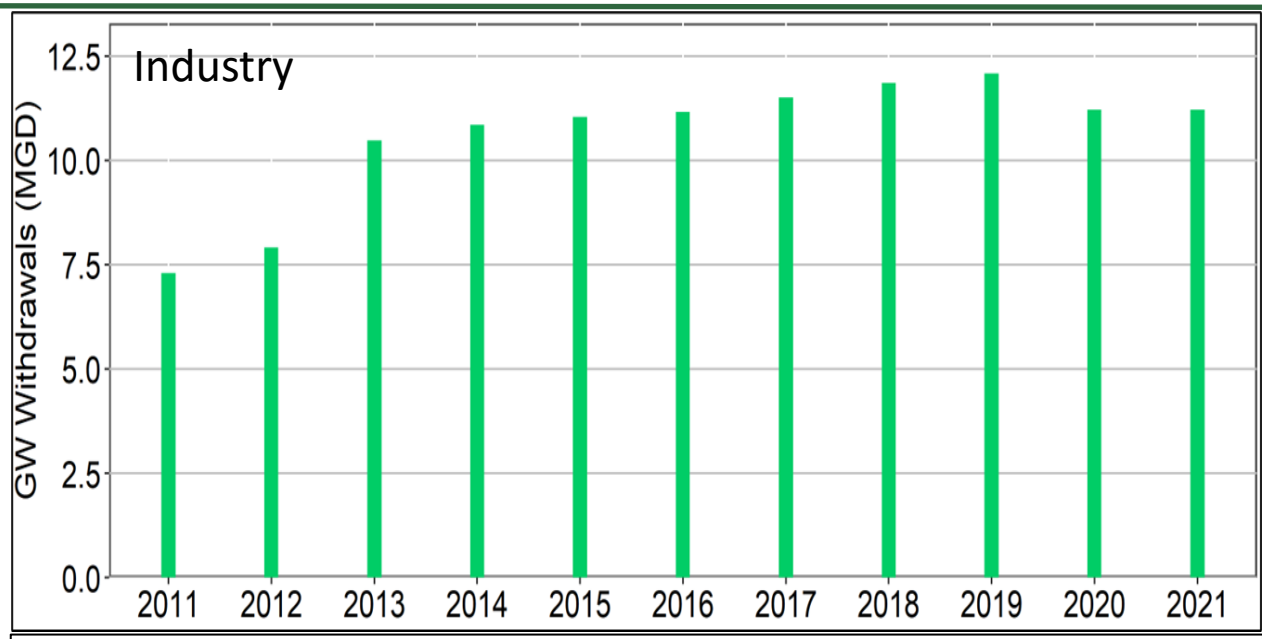
Surface Water Withdrawals by Categories (2011-2021)

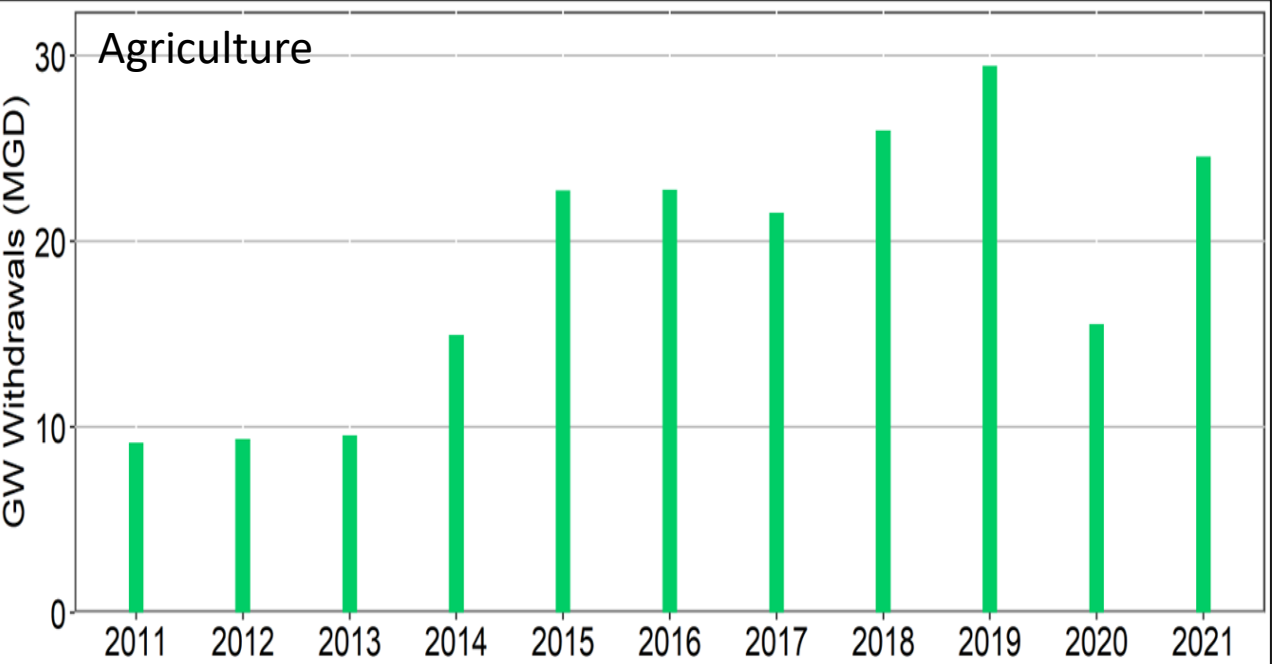


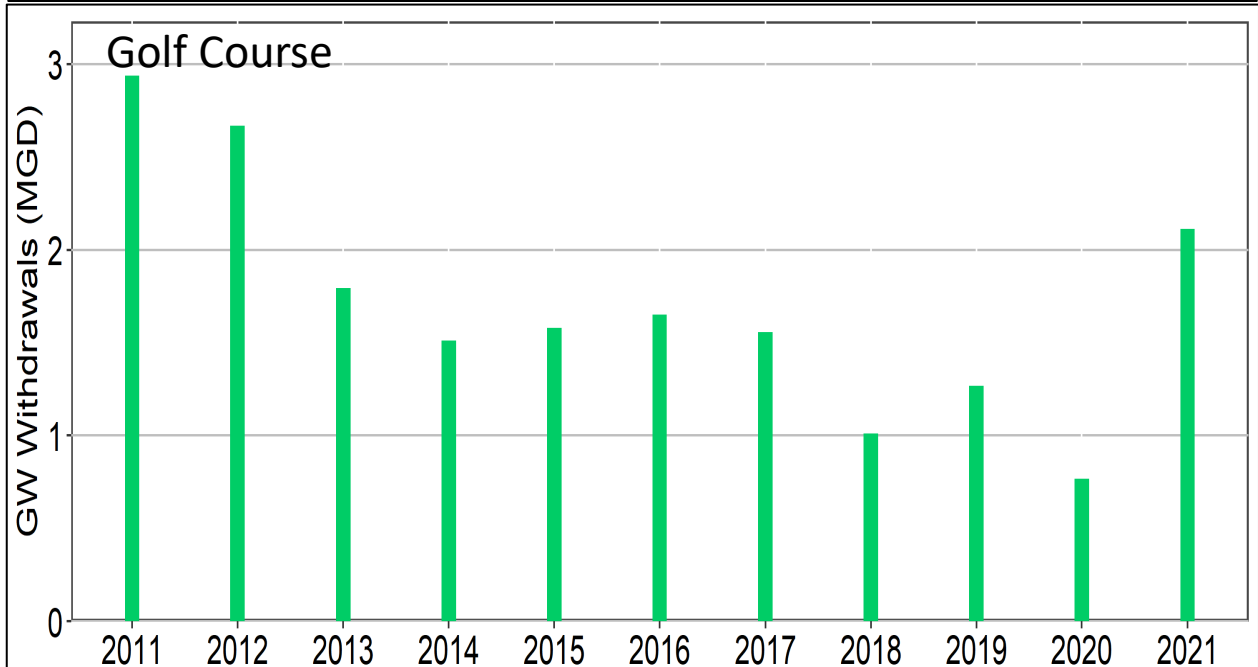


Groundwater Withdrawals by Categories (2011-2021)

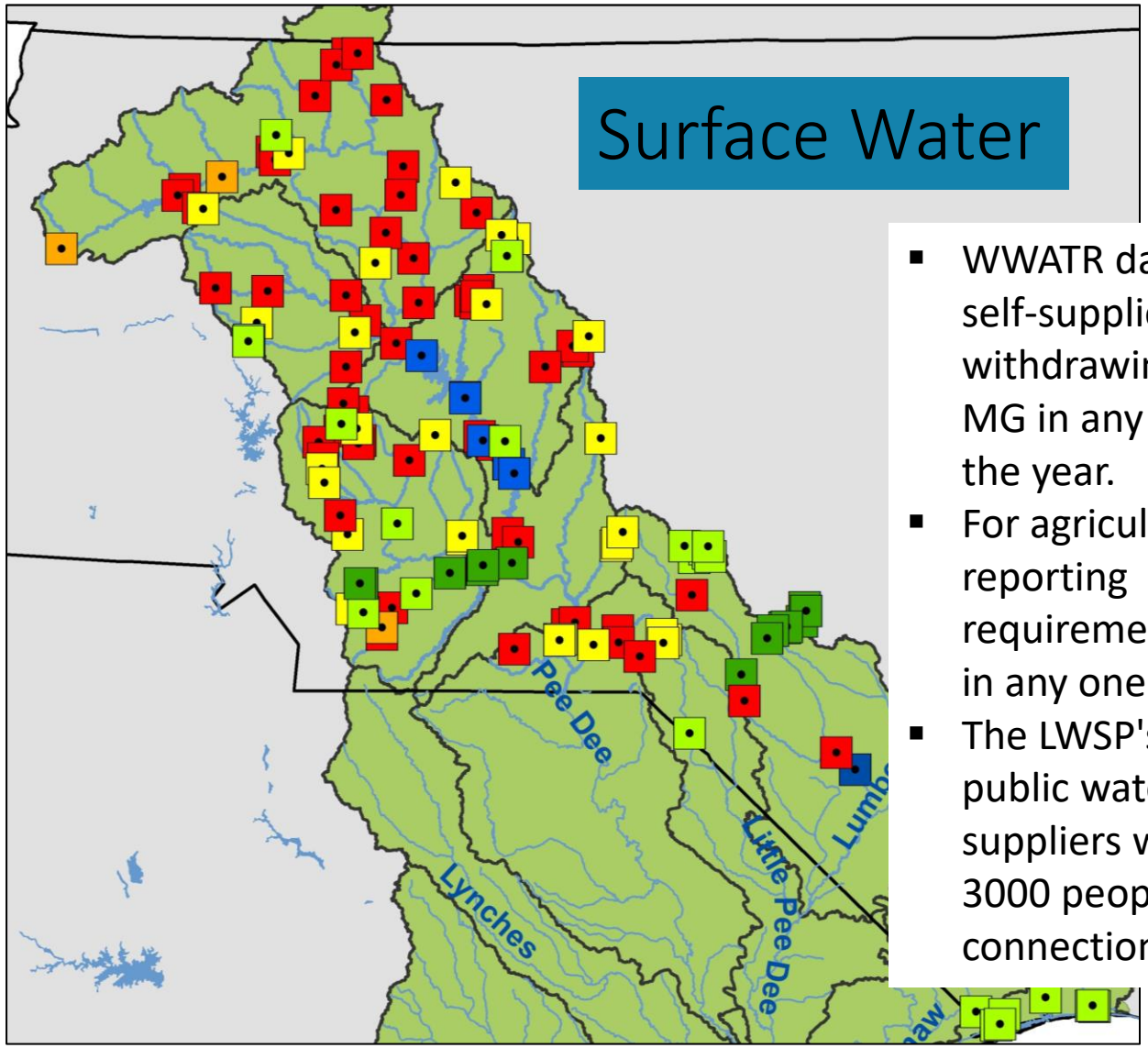


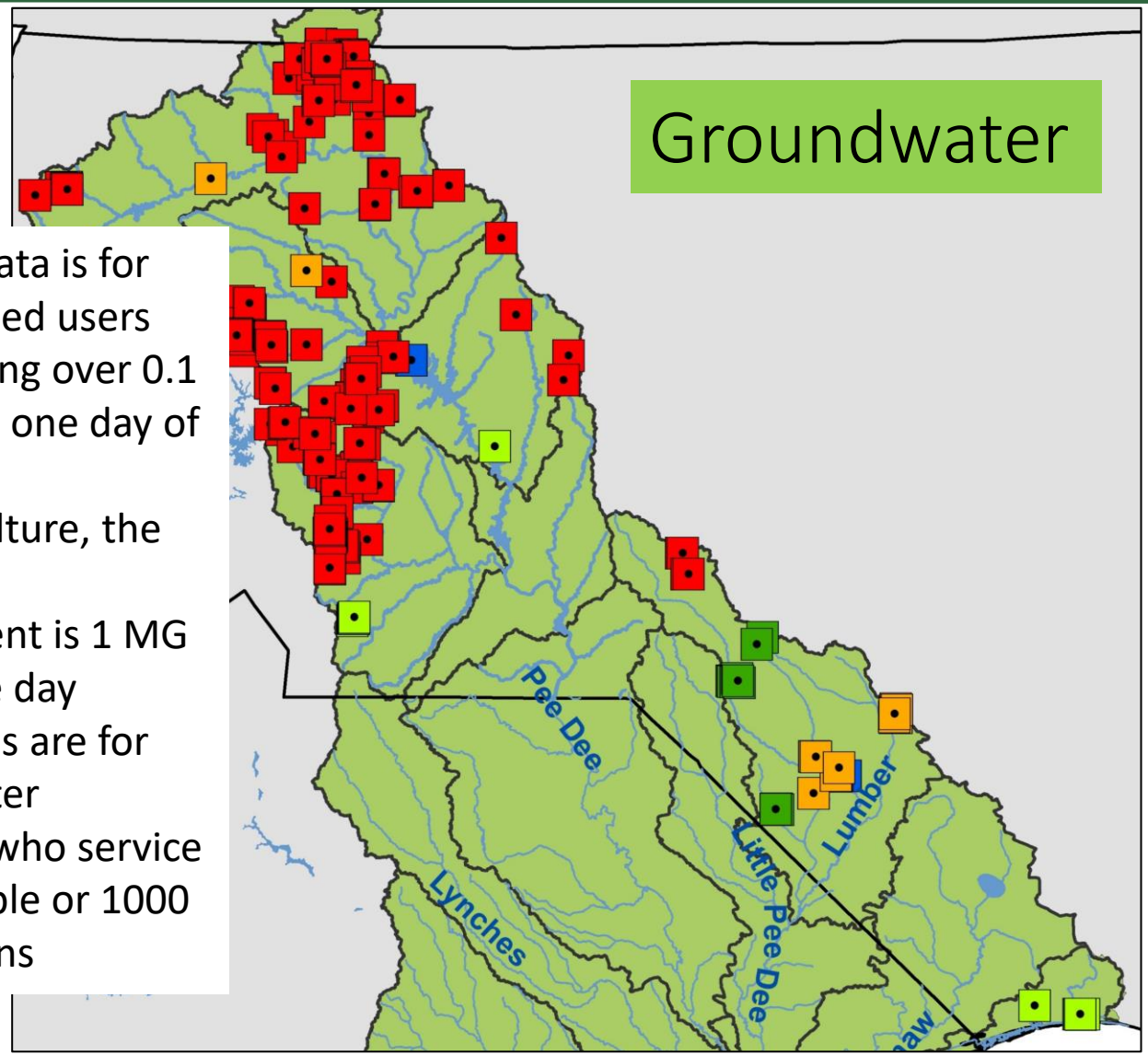






Reported Withdrawals in North Carolina (2020)





- WWATR data is for self-supplied users withdrawing over 0.1 MG in any one day of the year.
- For agriculture, the reporting requirement is 1 MG in any one day
- The LWSP's are for public water suppliers who service 3000 people or 1000 connections

Energy
Public Water Supply
Industrial
Mining
Agricultural
Recreation

WWATR: Water Withdrawal and Transfer Registration

Summary

SCDNR Contacts

Priyanka More
morep@dnr.sc.gov

- Both surface and groundwater are important resources in the basin
- Most of the basin in SC lies within the Coastal Plain region and therefore has relatively high GW use
- SW top three categories: Thermoelectric (83%), Industry (~8%), and Water Supply (~8%)
- GW top three categories: Water Supply (65%), Agriculture (22%), Industry (10%)
- For SW use, most users are located on the Mainstem (including Black Creek) and the Waccamaw region
- Excluding power, an increase in overall water withdrawals is observed (2011-2020), 2020 being an exception
  - Public Water Supply shows an increasing trend for both surface and groundwater use
  - Agricultural irrigation shows an increasing trend for groundwater use