

# PFAS in North Carolina Drinking Water Sources

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# PFAS are known contaminants in some North Carolina drinking water sources

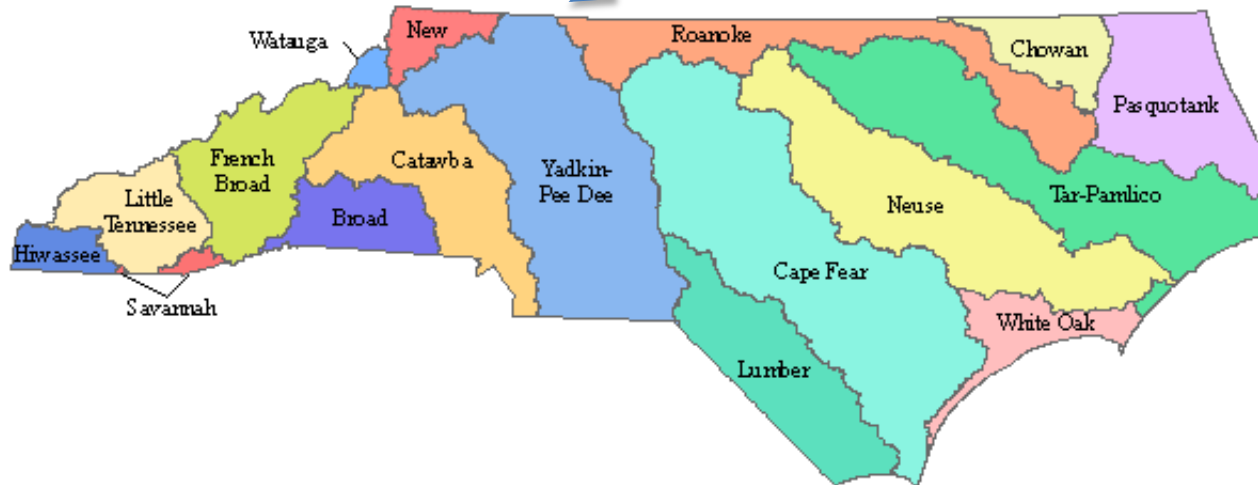
## PFAS Sources:

- Industrial wastewater discharges
  - Fluorochemicals (Chemours plant)
- Municipal wastewater discharges and sludge disposal
  - Landfill leachate
  - Industrial pretreatment
- Aqueous film-forming foam (AFFF)
  - Military bases
  - Firefighting training areas
  - Airports

Is MY drinking water impacted by PFAS?

## Impacts:

- PFAS-impacted private and public drinking water wells
- PFAS-impacted surface water
- Water treatment burden
- Community concerns



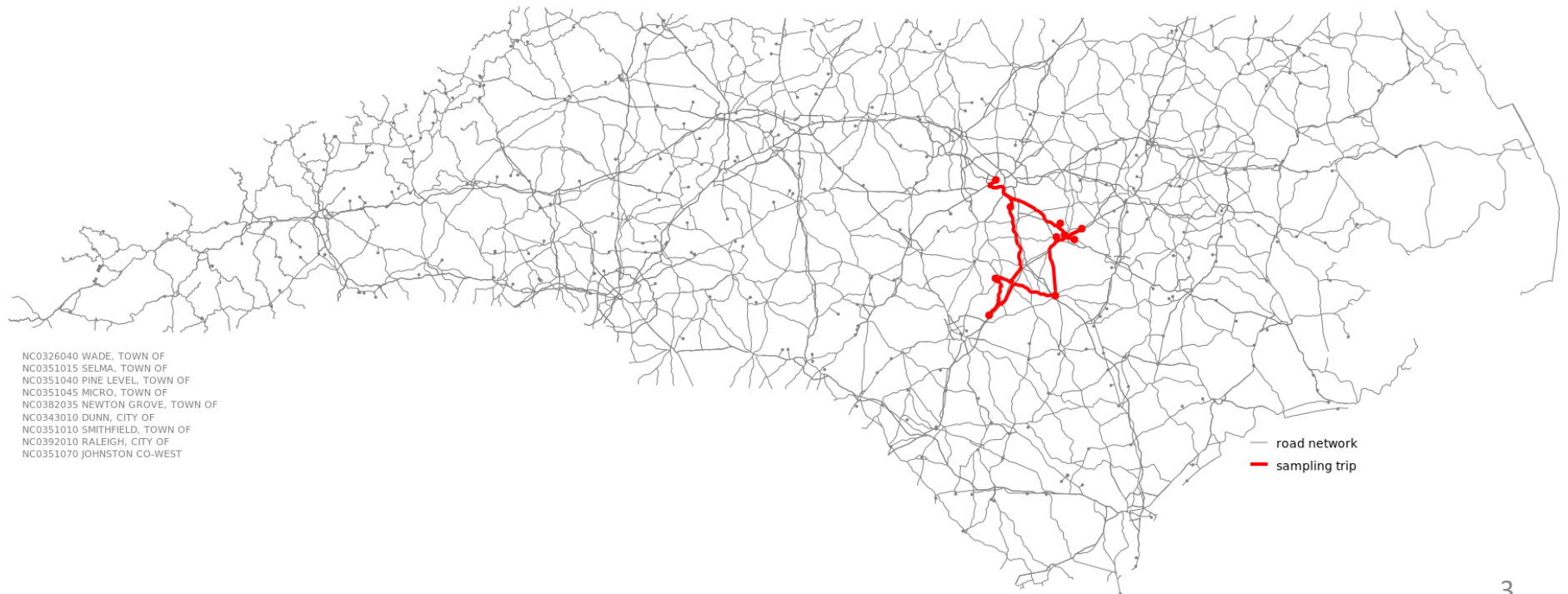
# Statewide sample acquisition: Team 7 trip optimization

Raw drinking water sampled from every NC Public Drinking Water Provider for PFAS quantitation, 2 rounds

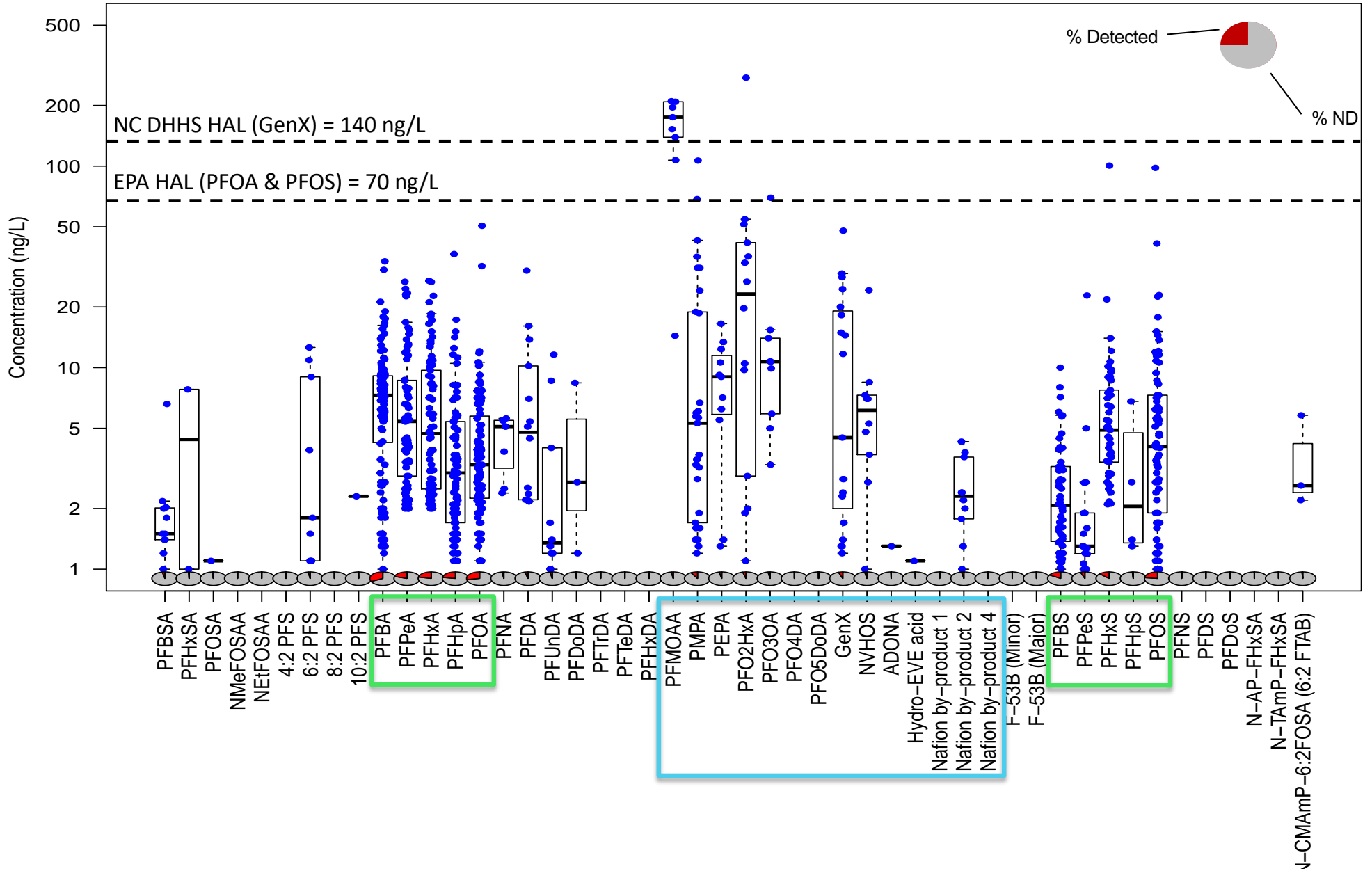
- 191 municipal surface water sites
- 149 municipal ground water sites
- 58 county water sites

Round 1 : **COMPLETED** ✓

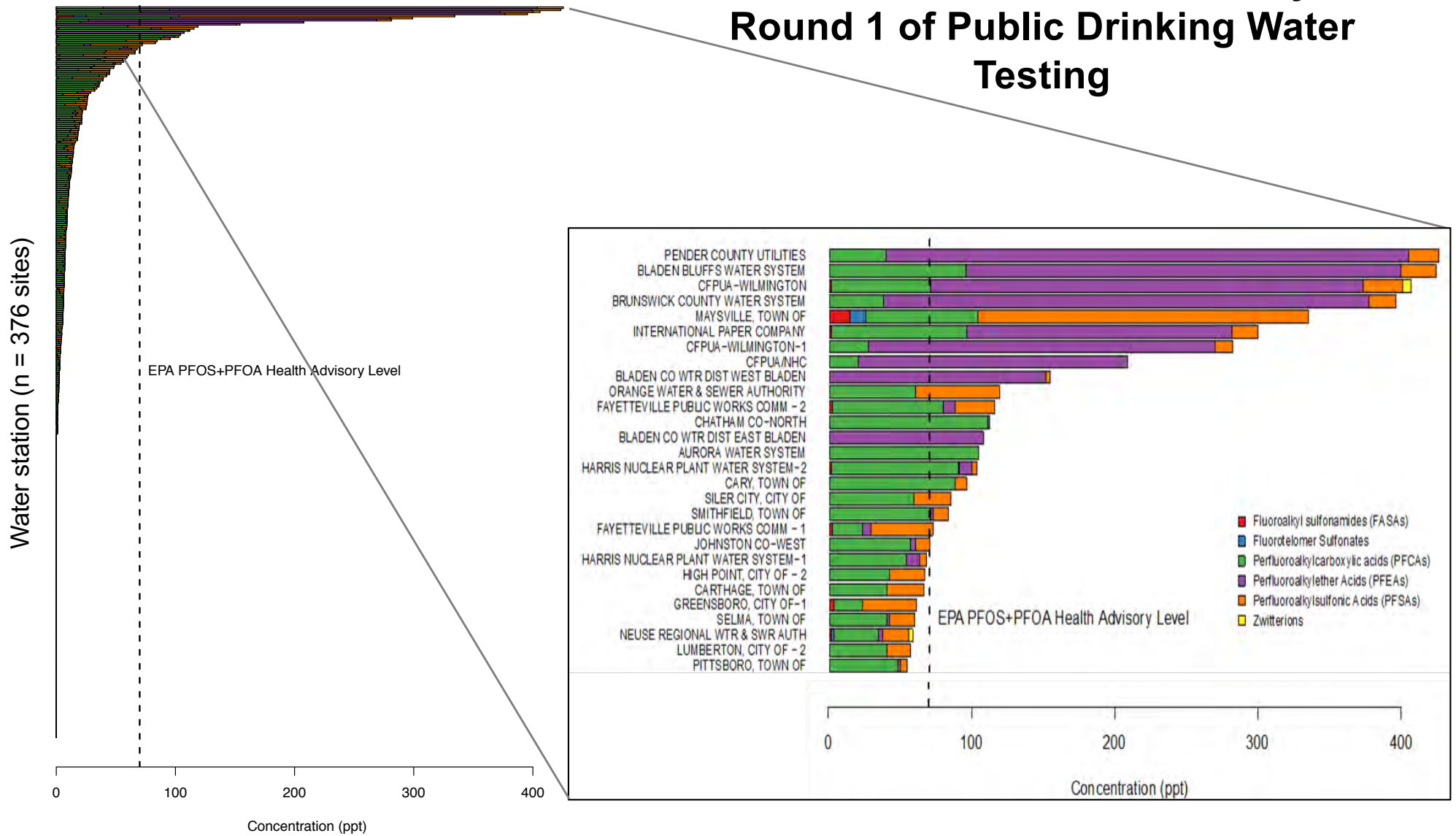
Round 2: **In Progress**



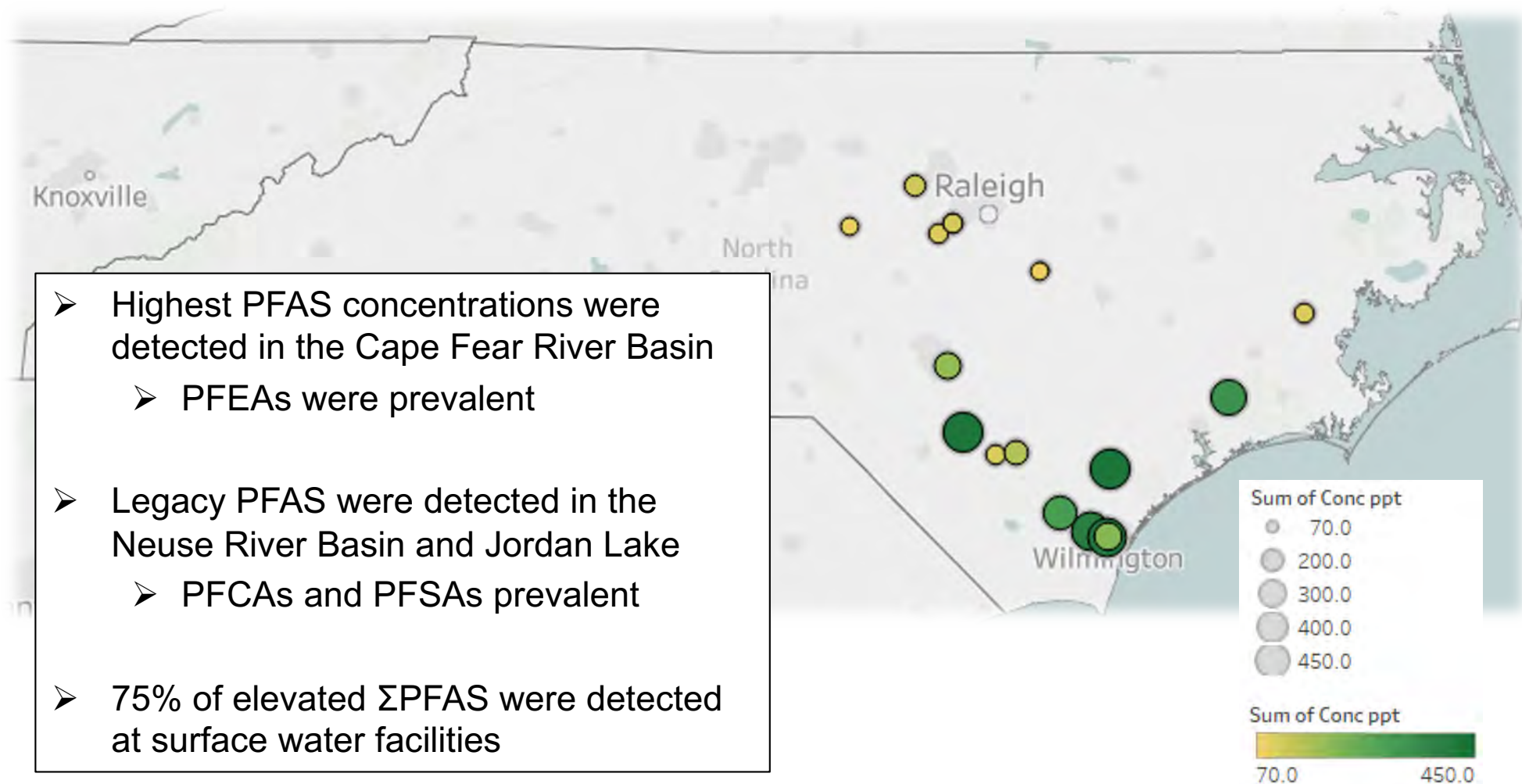
# Quantified PFAS Summary (n = 376)



# PFAS Measurement summary: Round 1 of Public Drinking Water Testing



# Geographical locations of sites with $\Sigma$ PFAS > 70 ppt

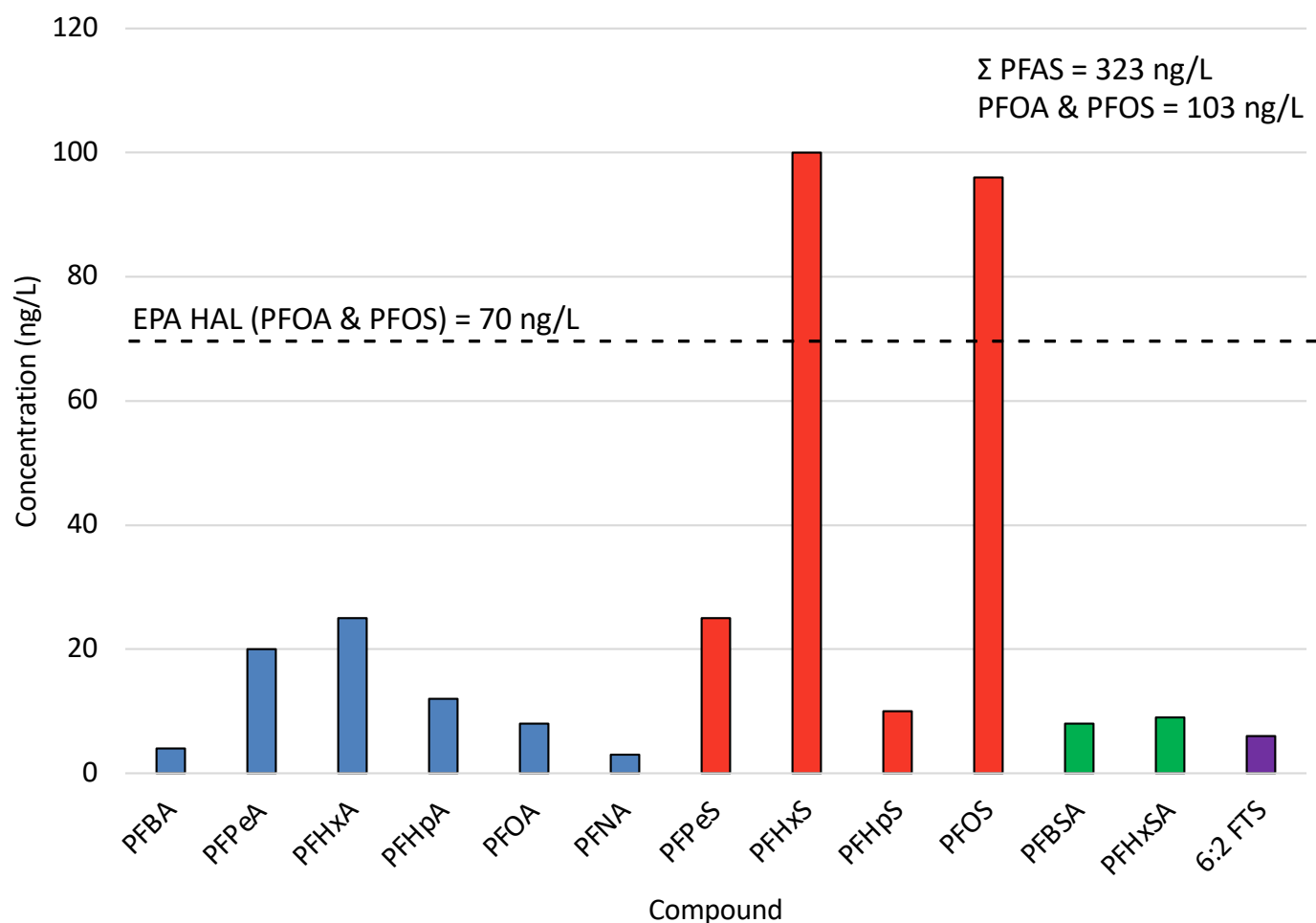


# Case Study: Town of Maysville, NC

- Maysville has a population of 1,019 residents
- Drinking water is provided by a groundwater well
- The well was sampled on May 7, 2019 as part of the PFAST Network
- Targeted quantitation was performed for PFAS



# The sum of PFOA and PFAS in Maysville raw drinking water exceeded the EPA HAL



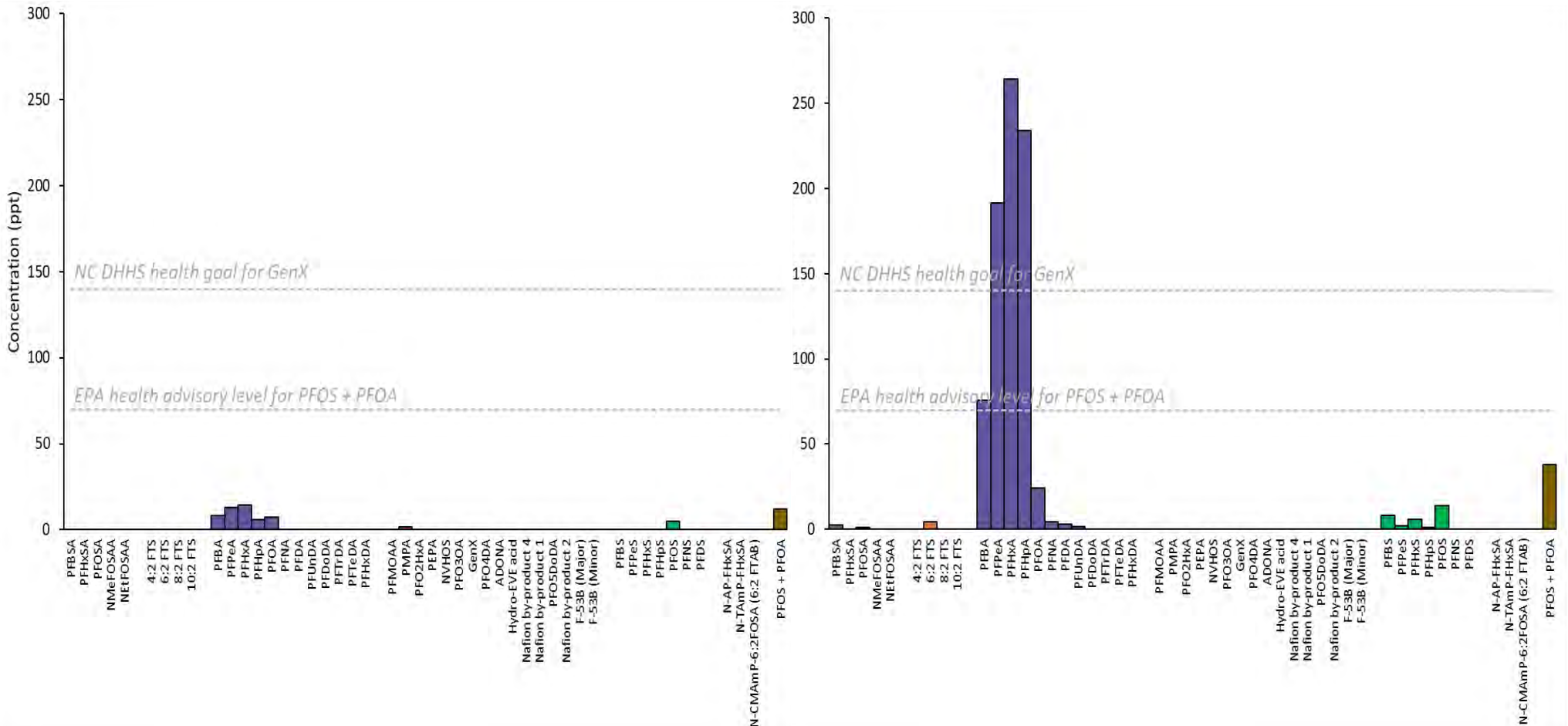
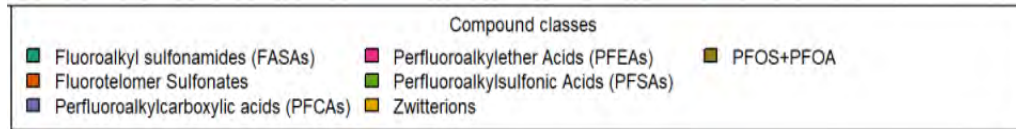
- Results were verified between two PFAST labs
- The town was notified within 10 days
- A second analysis was performed on raw and finished drinking water by a hired lab, confirming initial findings
- The town ultimately switched to an alternative water source (Jones county) on 10, 2019



# Round 2 Comparison: High temporal variability of PFAS in the Haw River at Pittsboro

Round 1 4/9/19  
 ΣPFAS 54.3  
 Discharge 4,120 ft<sup>3</sup>/s  
 Precip. (14d) 1.66"

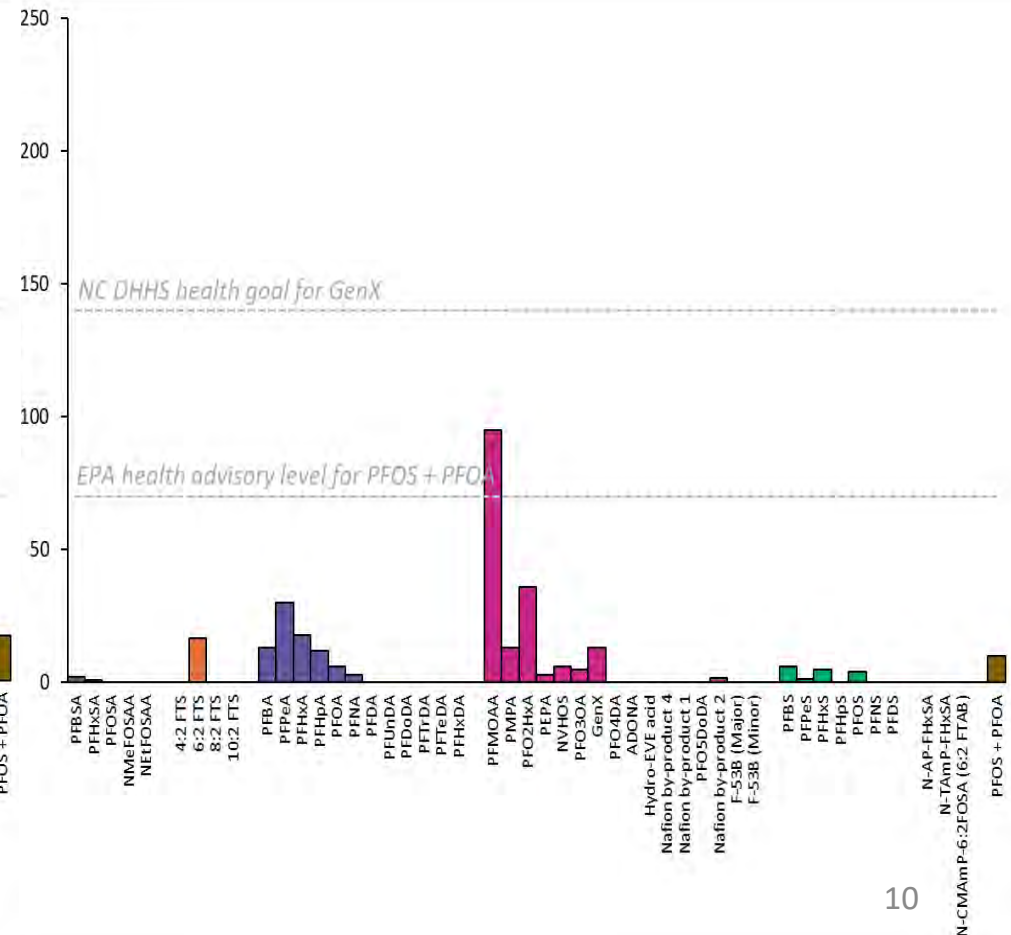
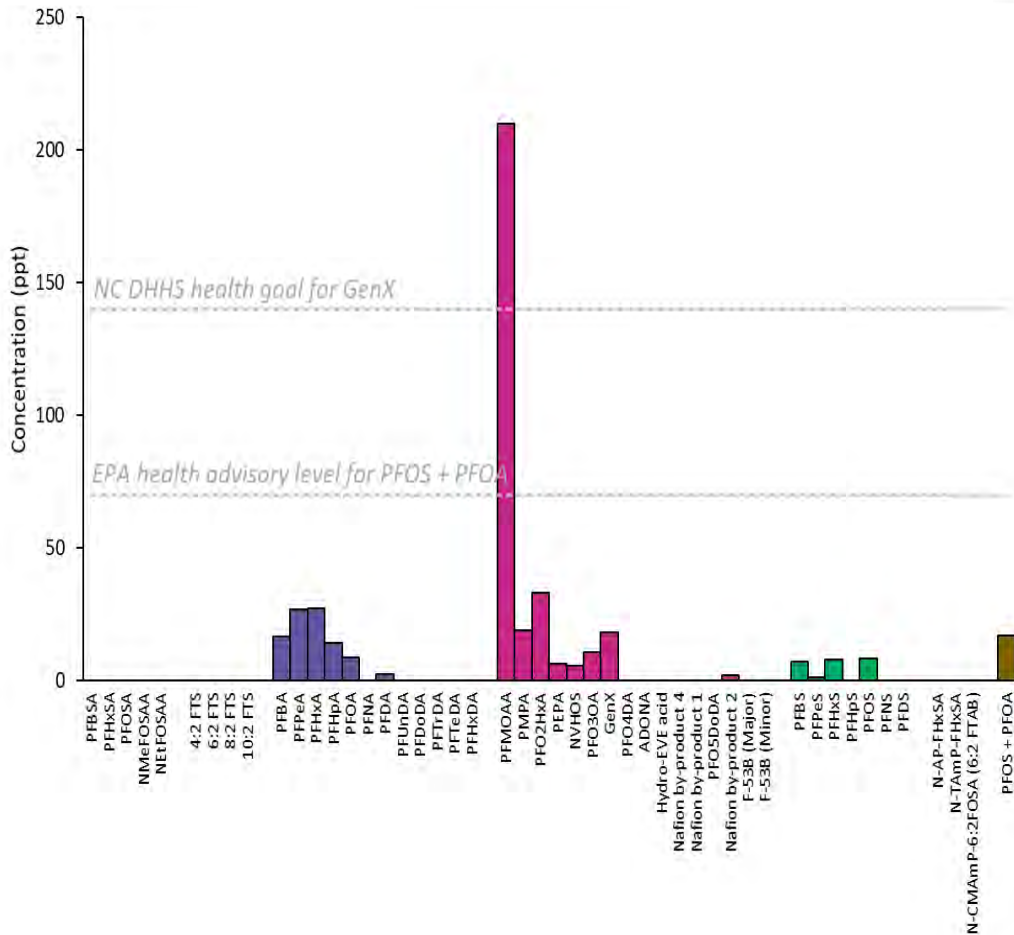
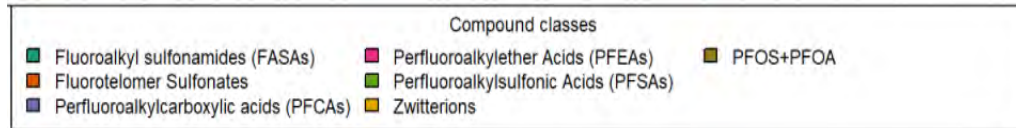
Round 2 9/5/19  
 ΣPFAS 837.4  
 Discharge 119 ft<sup>3</sup>/s  
 Precip. (14d) 0.70"



# Round 2 Comparison: PFAS in the Lower Cape Fear River at Bladen Bluffs

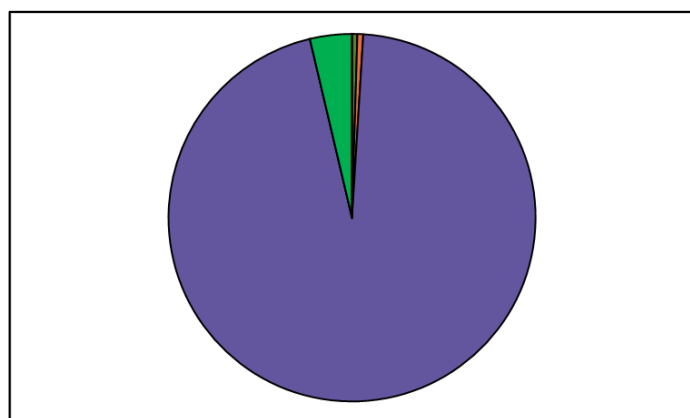
Round 1 8/22/19  
 ΣPFAS 423.5  
 Discharge 1,830 ft<sup>3</sup>/s  
 Precip. (14d) 2.03"

Round 2 11/5/19  
 ΣPFAS 285.7  
 Discharge 2,070 ft<sup>3</sup>/s  
 Precip. (14d) 0.41"

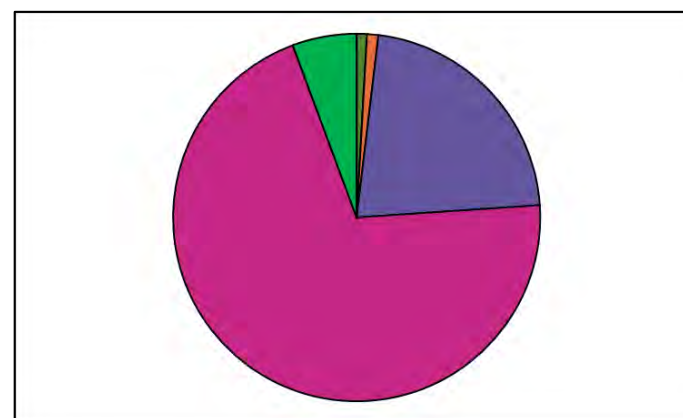


# PFAS Class Profiles Differ and point to different sources of PFAS contamination

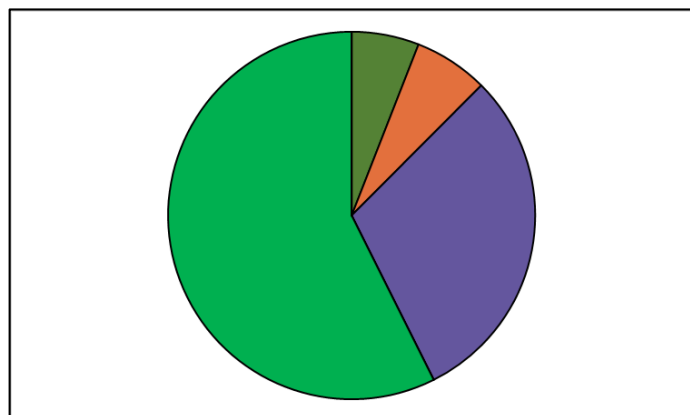
Pittsboro / Haw River:  
Industrially-impacted wastewater



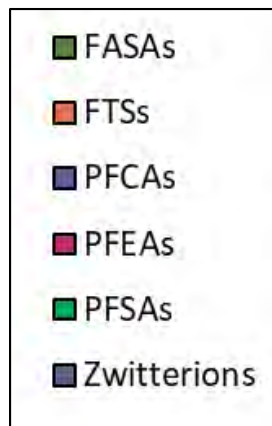
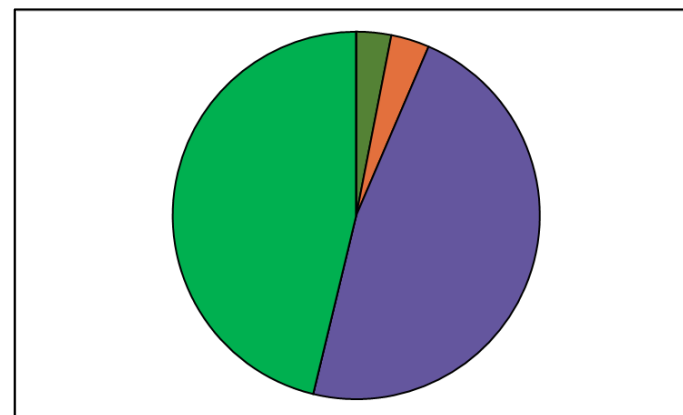
Bladen Bluffs / Cape Fear River:  
Fluorochemical manufacturing



Greensboro / Lake Brandt:  
AFFF



OWASA / Cane Creek:  
Land application of biosolids



# Take-Home Messages

- 93% of systems tested to date had  $\Sigma$ PFAS below 70 ppt
- Most PFAS were below method reporting limits for the majority of sites
- “Legacy” C4-C8 PFCAs and PFOS were the most frequently observed
- “Emerging” ether acids/sulfonates were only measured downstream of Chemours plant in Cape Fear water
- Temporal variability is observed due to precipitation and industrial effluent flow (underscoring the need for ongoing testing)
- PFAS profiles may provide insight to possible contamination sources