NC STATE UNIVERSITY

Center for Human Health and the Environment

Update on GenX and other fluorochemicals in New Hanover drinking water

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Wilmington, April 17, 2018

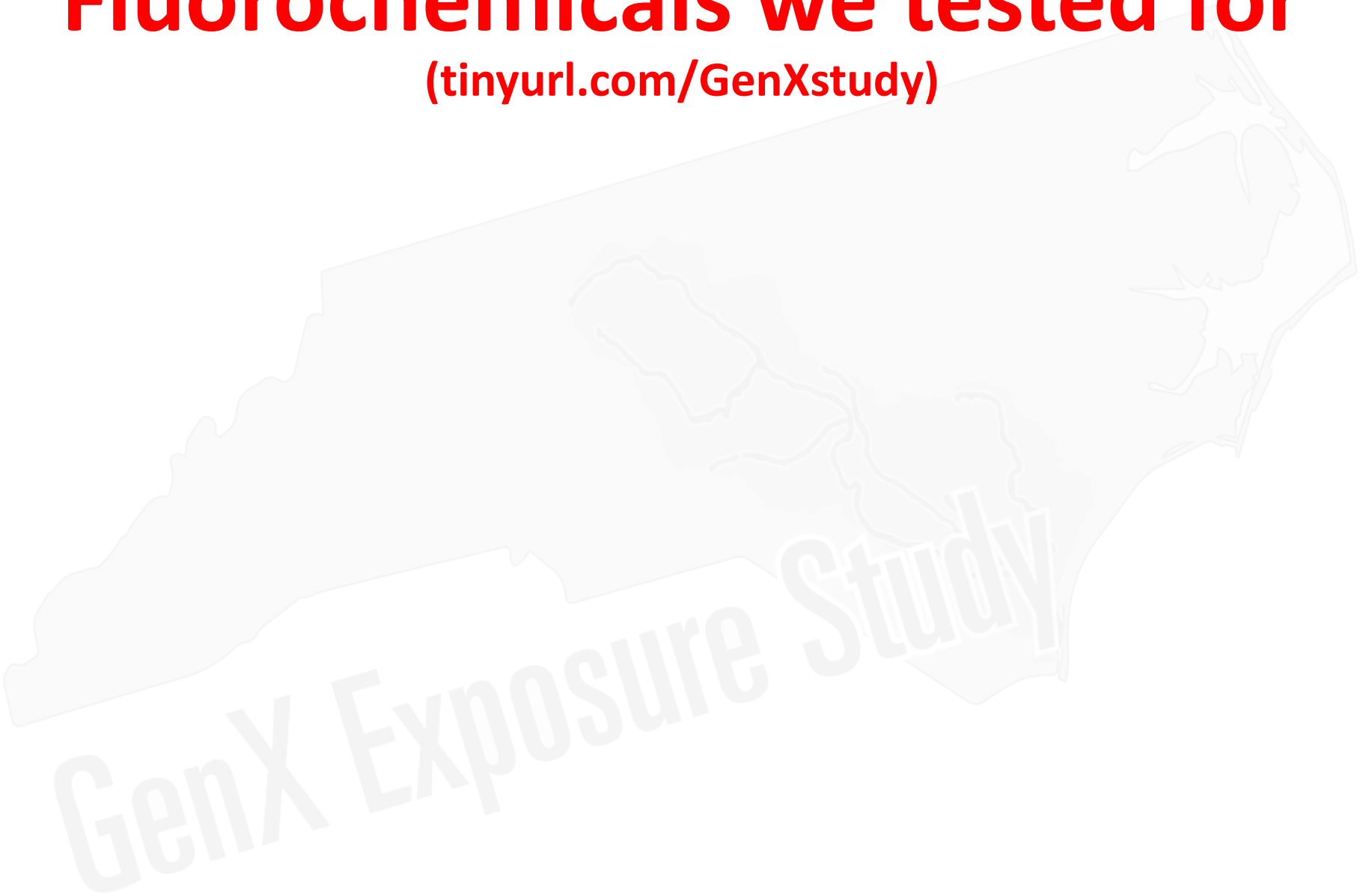
Why collect drinking water samples?

1. Get updated information about GenX

2. Analyze for other fluorochemicals

Fluorochemicals we tested for

(tinyurl.com/GenXstudy)



Fluorochemicals we tested for

(tinyurl.com/GenXstudy)

Fluorochemicals

“Legacy”

1. PFBA
2. PFPeA
3. PFHxA
4. PFHpA
5. PFOA
6. PFNA
7. PFDA
8. PFBS
9. PFHS
10. PFOS

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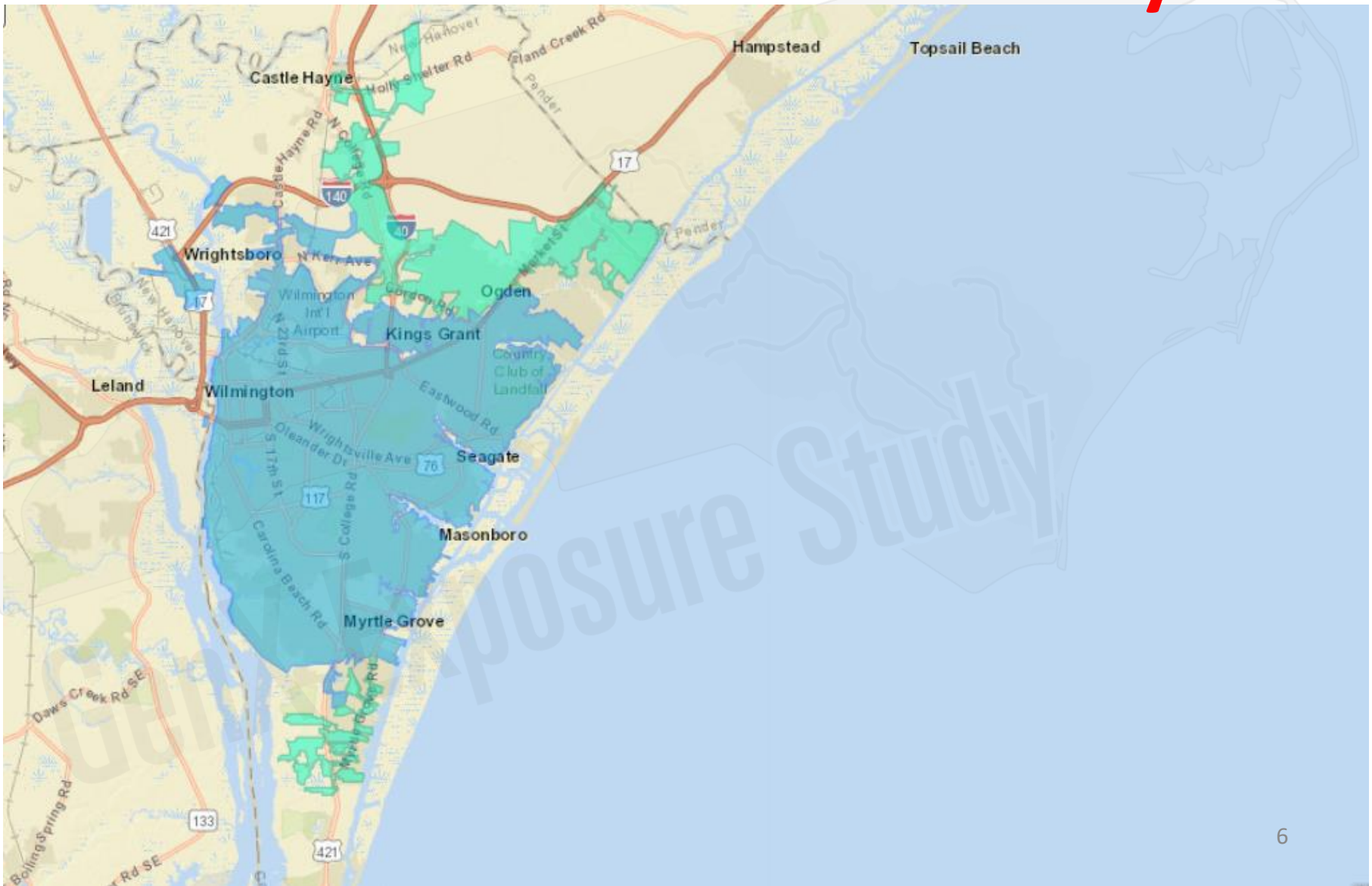
10. PFOS

Newly identified

11. GenX
12. Nafion byproduct 2
13. PFMOAA
14. PFO4DA
15. PFO3OA
16. PFO2HxA
17. 6:2 FTS

Two CFPUA water treatment plants serve New Hanover County



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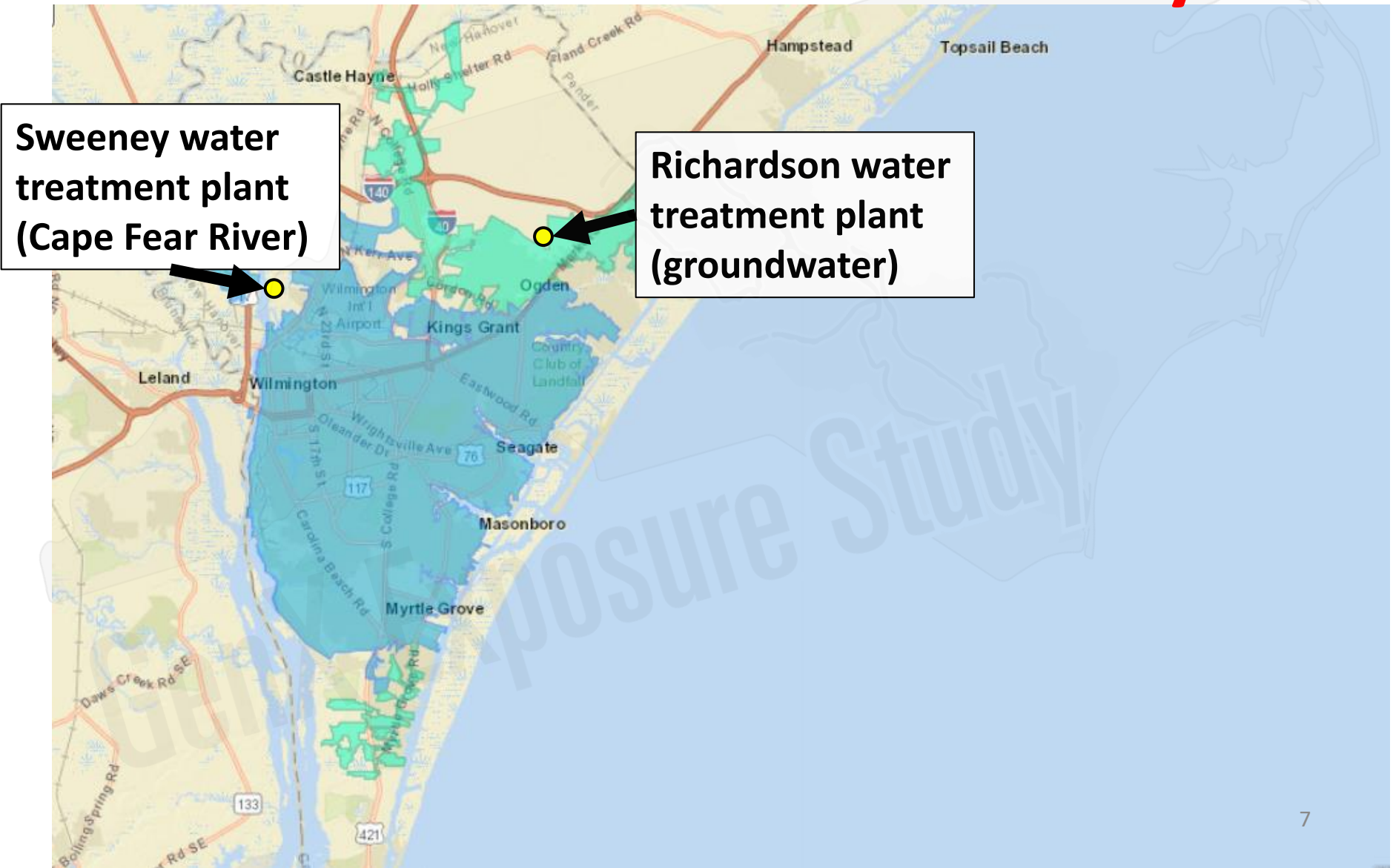
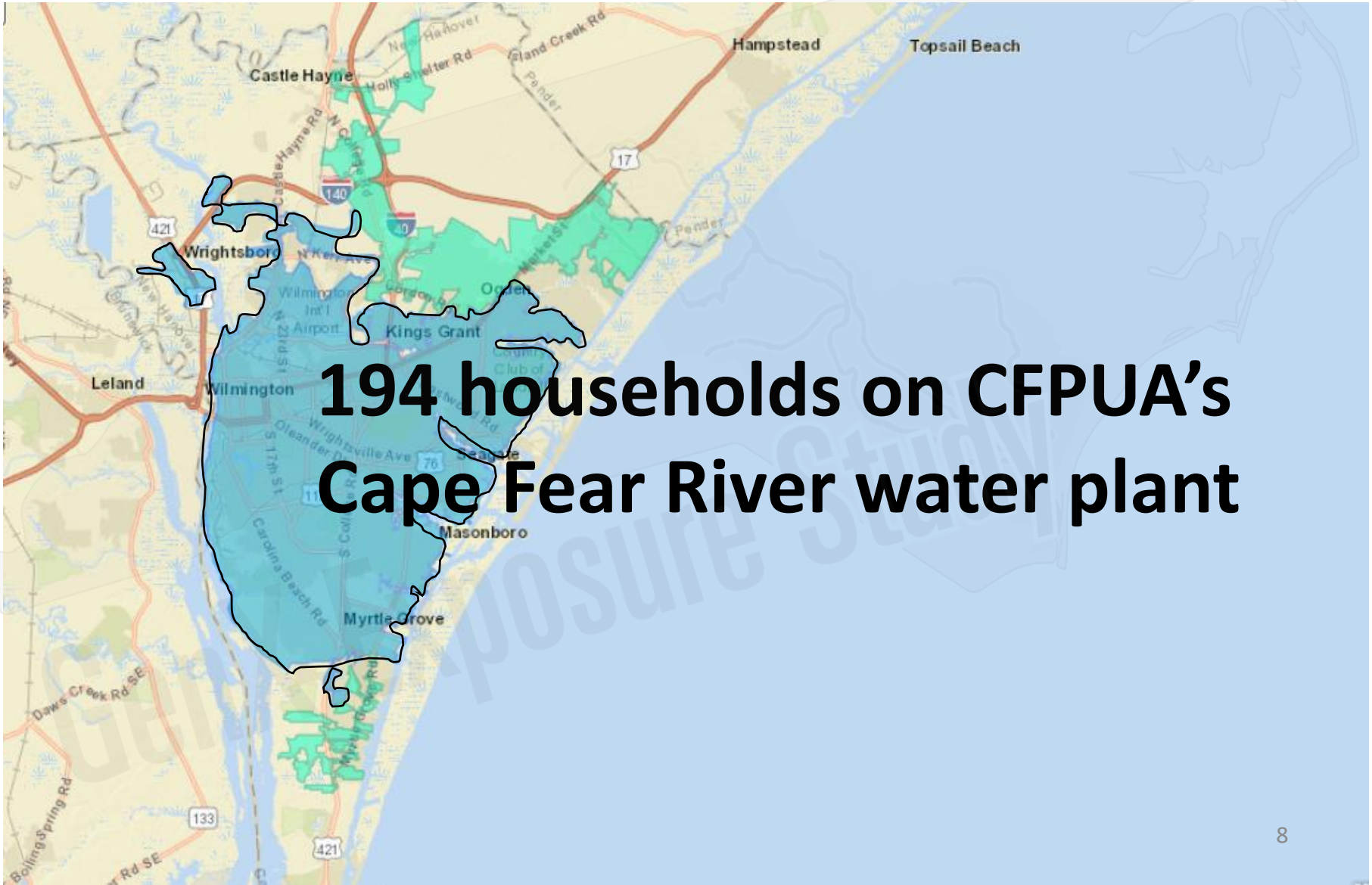


Water source for 198 participating households



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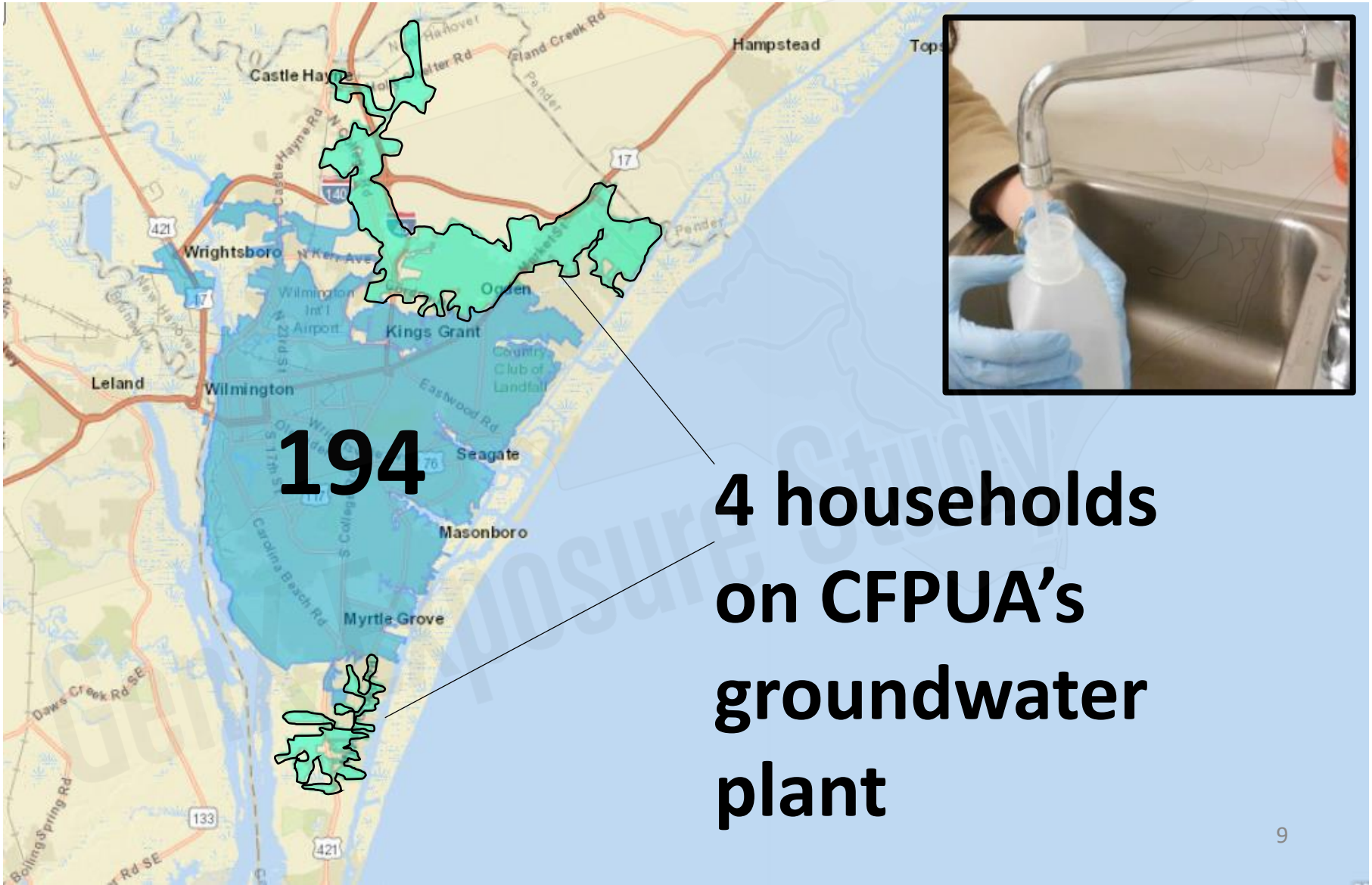
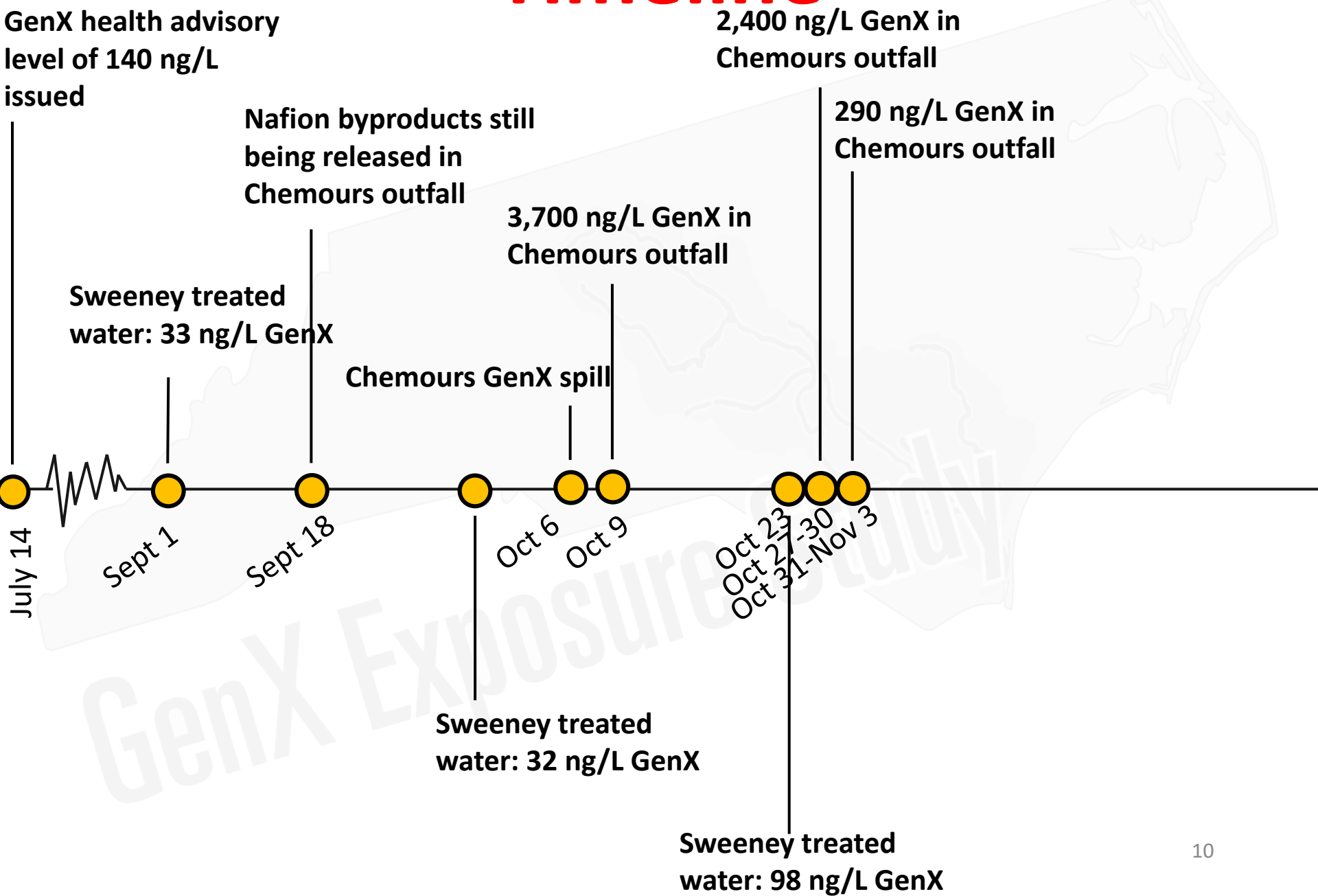


Timeline



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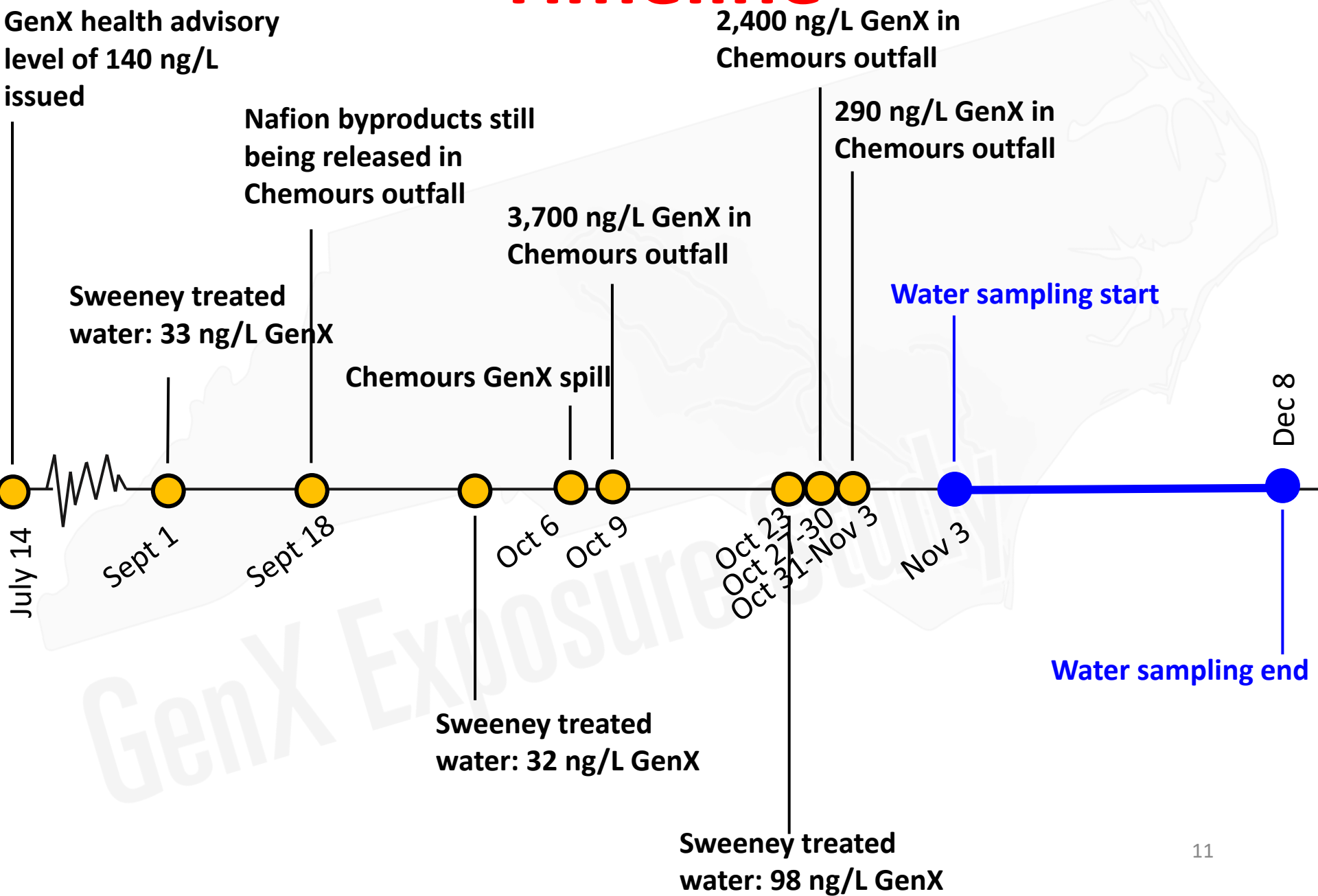

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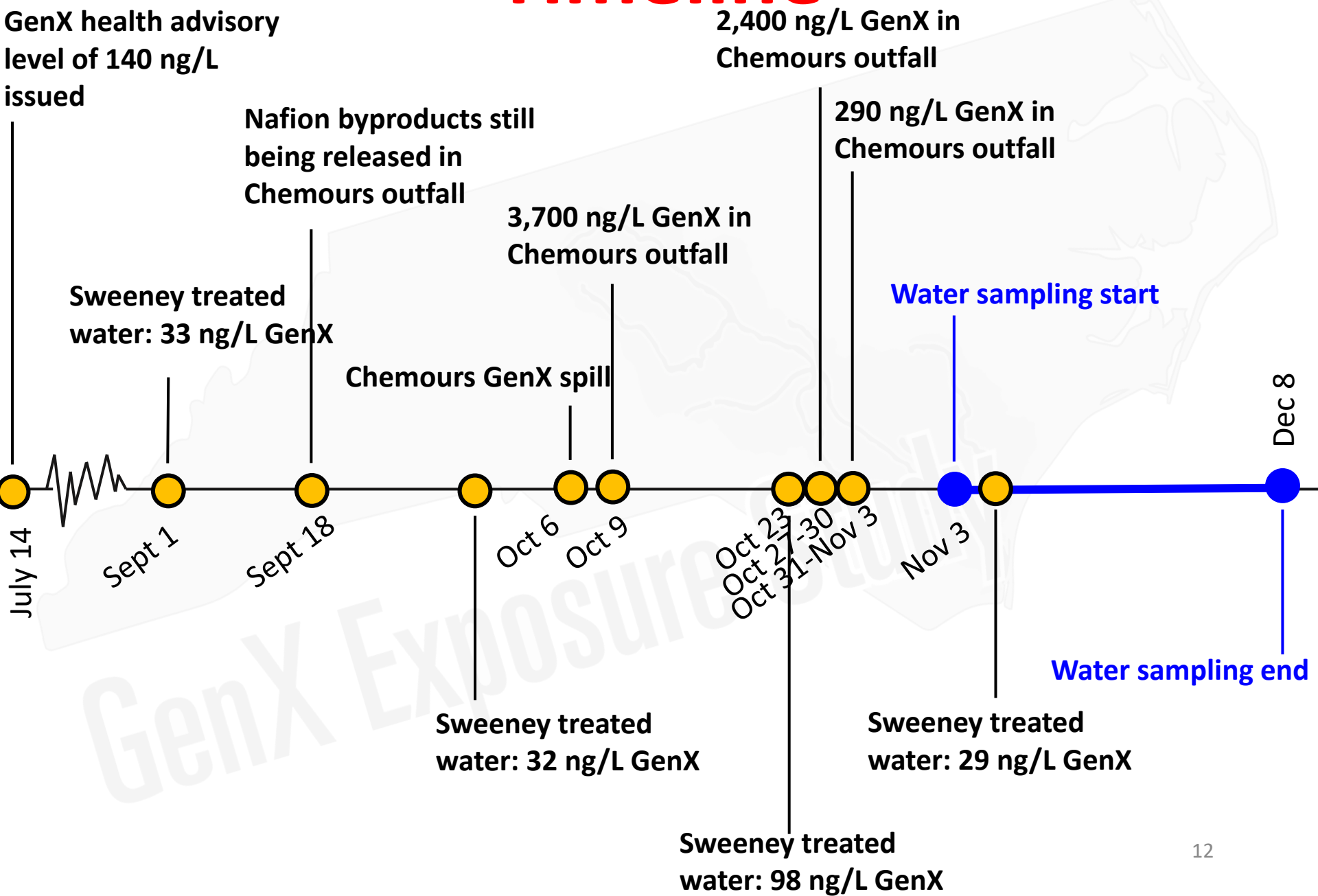
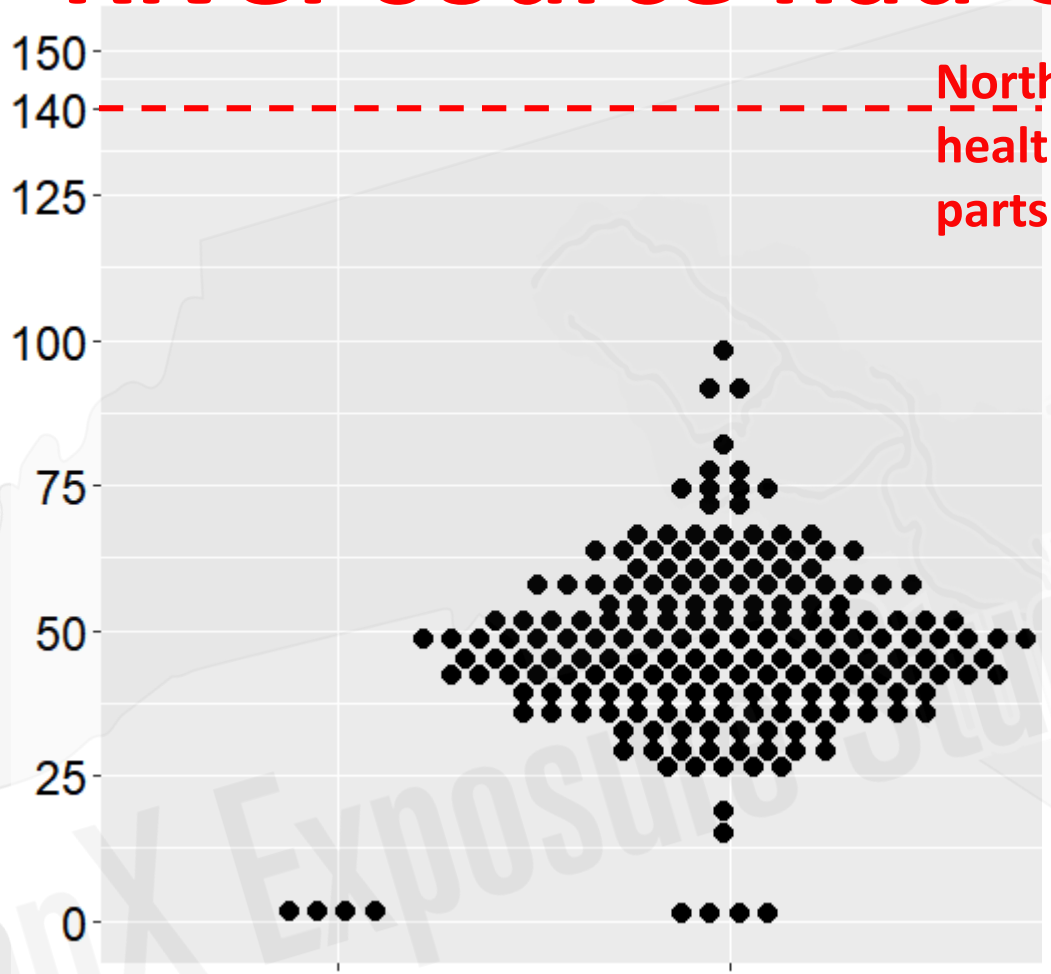
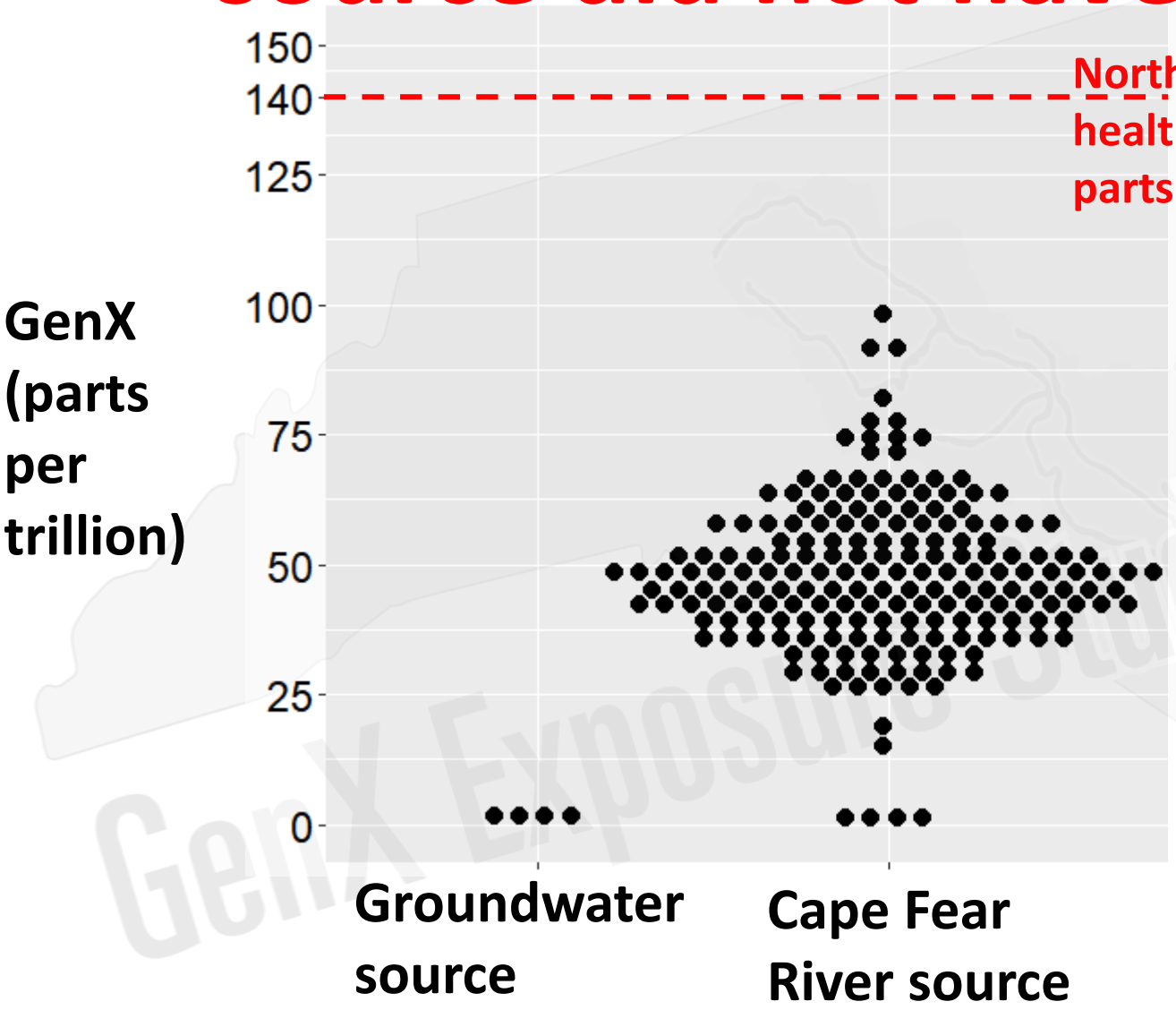


Most samples with Cape Fear River source had GenX

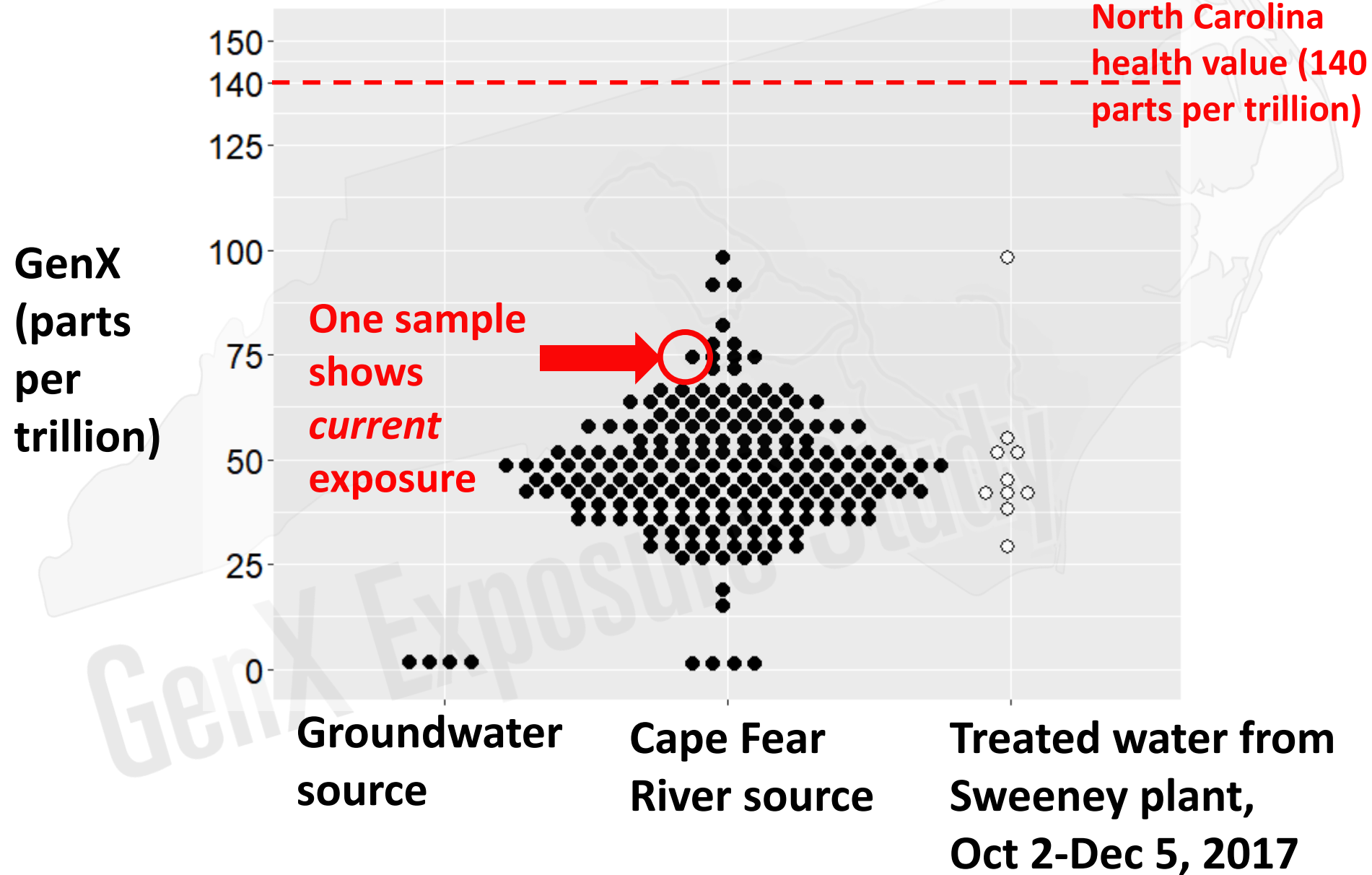


140 parts per trillion = 140 drops in an Olympic size swimming pool

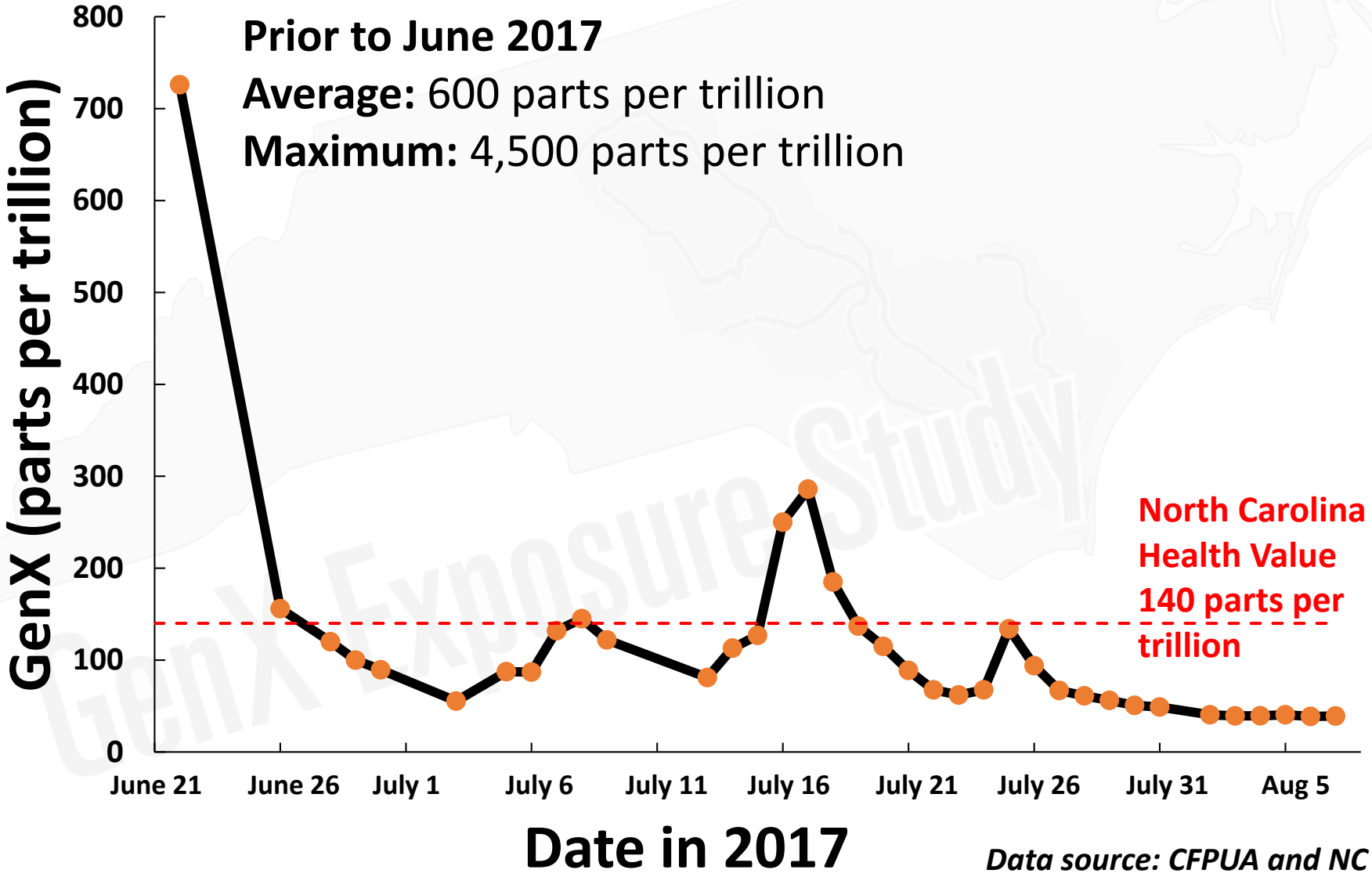
Samples with groundwater source did not have GenX



Similar GenX concentrations in Sweeney treated water



GenX in Sweeney treated water after Chemours stopped discharging GenX



Data source: CFPUA and NC DEQ

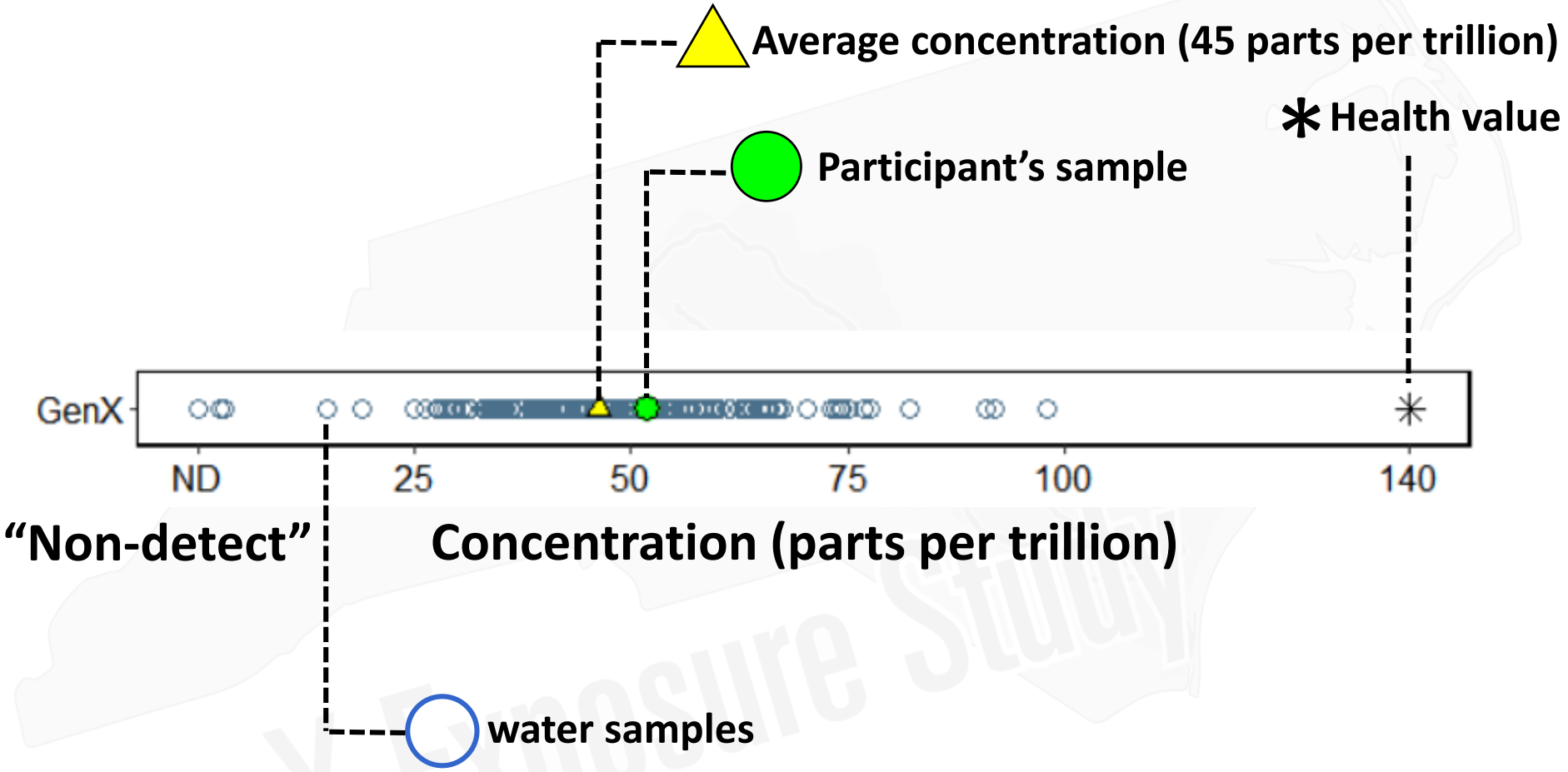
Individualized water results

“Non-detect”

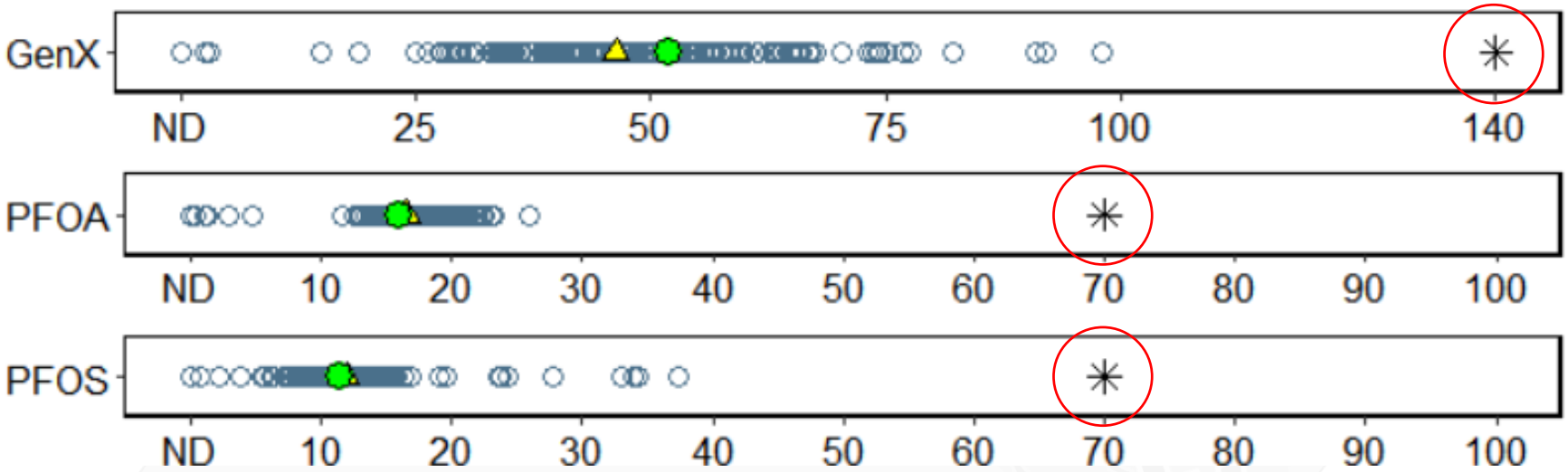
Concentration (parts per trillion)

water samples

Individualized water results

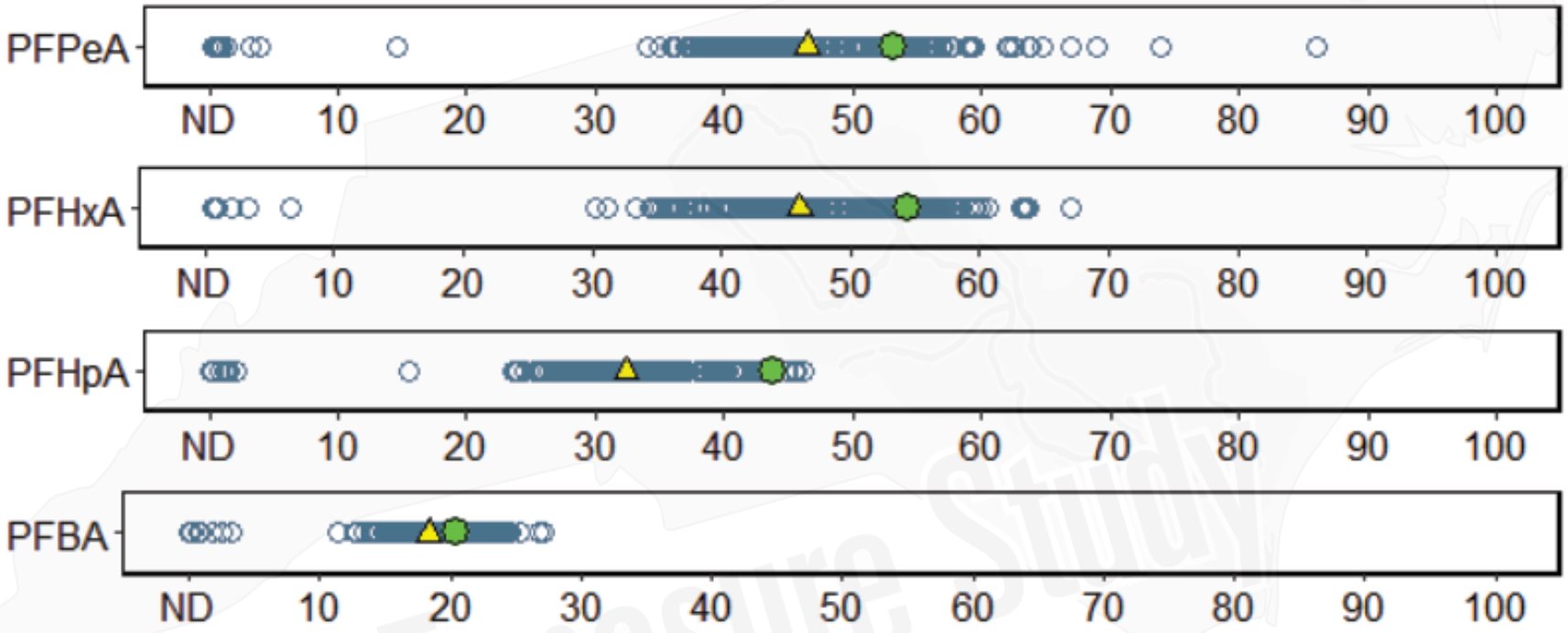


Fluorochemicals with health values



Concentration (parts per trillion)

Other “legacy” fluorochemicals



Concentration (parts per trillion)

A pure sample of each chemical is needed to get concentration

Mass spectrometer

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Average mass spectrometer response

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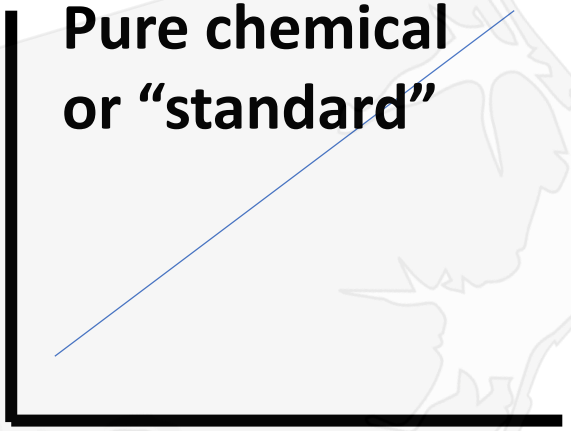
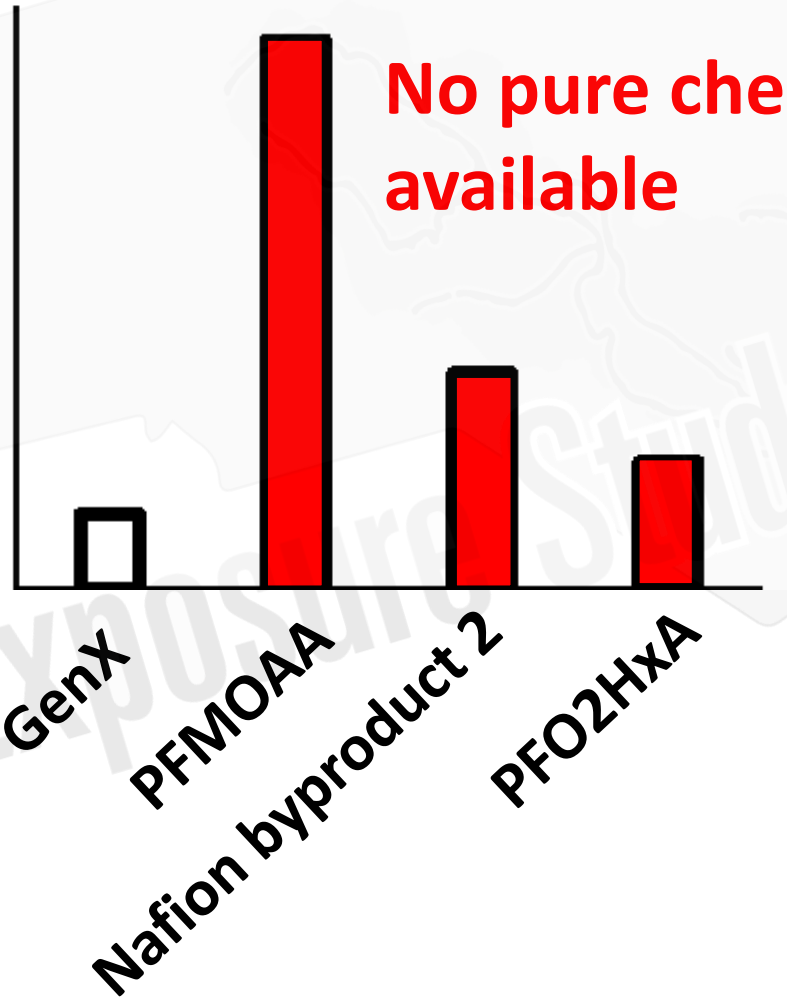


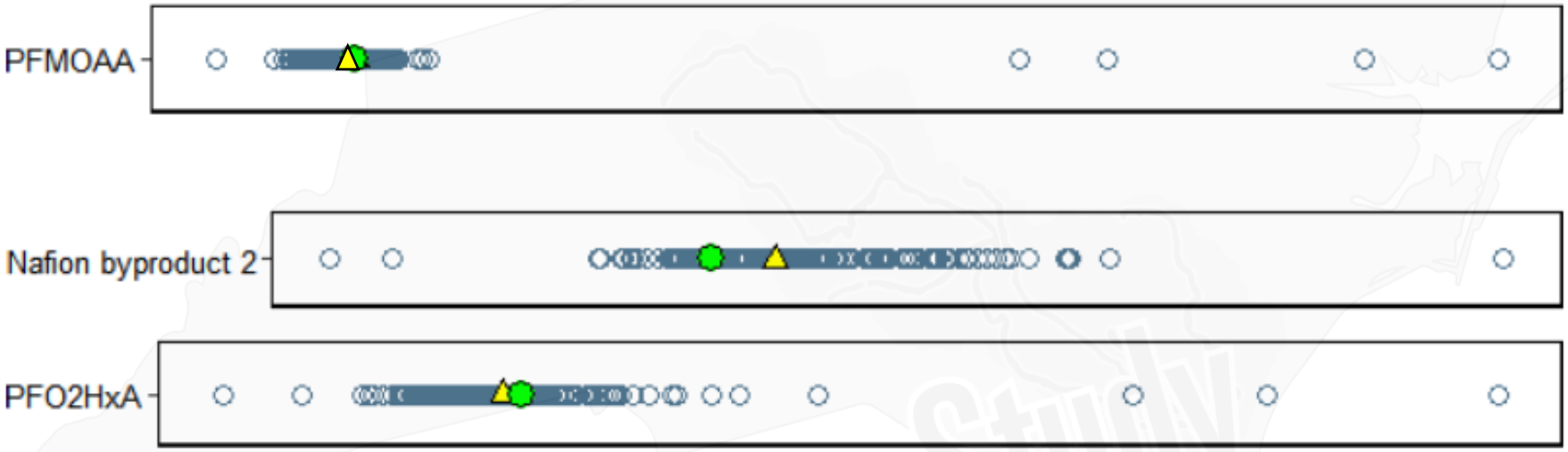
Other fluorochemicals were present

Average mass spectrometer response



No pure chemicals were available

Newly identified fluorochemicals



Conclusions

1. GenX found in most water samples with Cape Fear River source
2. No samples were above current public health values for GenX, PFOA or PFOS
3. Other newly identified fluorochemicals were present in water samples

Blood and urine analyses are ongoing

1. Water analysis helped to characterize *exposure*
2. Water shows current exposure levels but blood levels may provide more information about long-term exposures
3. Fluorochemicals that were low in water may be higher in blood

Acknowledgments

Study participants

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New Hanover County Health Department

Community Science Advisory Panel