PFAS Signatures in Surface Water and Groundwater Samples

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April 4, 2022

Notes about data

- Some data presented is from DEQ, while other data is from reports submitted by Chemours or their contractors (ex. Geosyntec, Parsons)
- J qualifiers (indicating uncertainty in results) were removed from results in order to graph data
- Data for Nafion Byproduct 4, Nafion Byproduct 5, and R-EVE likely artificially high (2 to 10x) due to analytical issues
- Each graph contains data that is a snapshot in time

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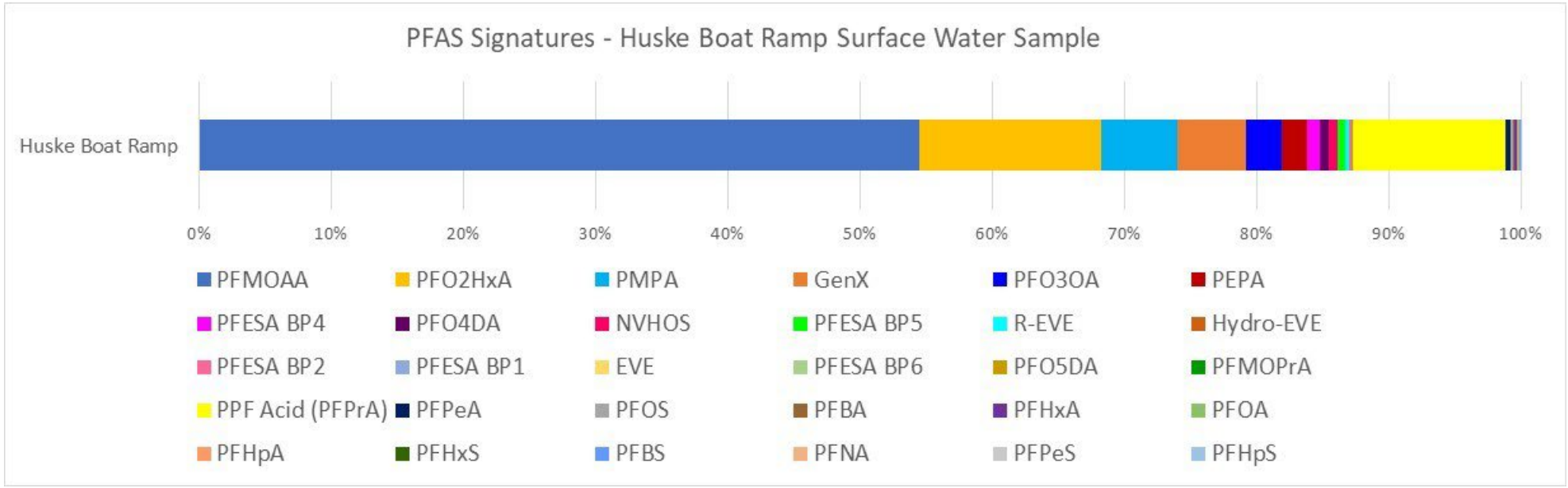
Cape Fear Surface Water from Boat Ramp at Huske Dam – DEQ-Collected Sample in 2021



Total PFAS = 6824 ng/L

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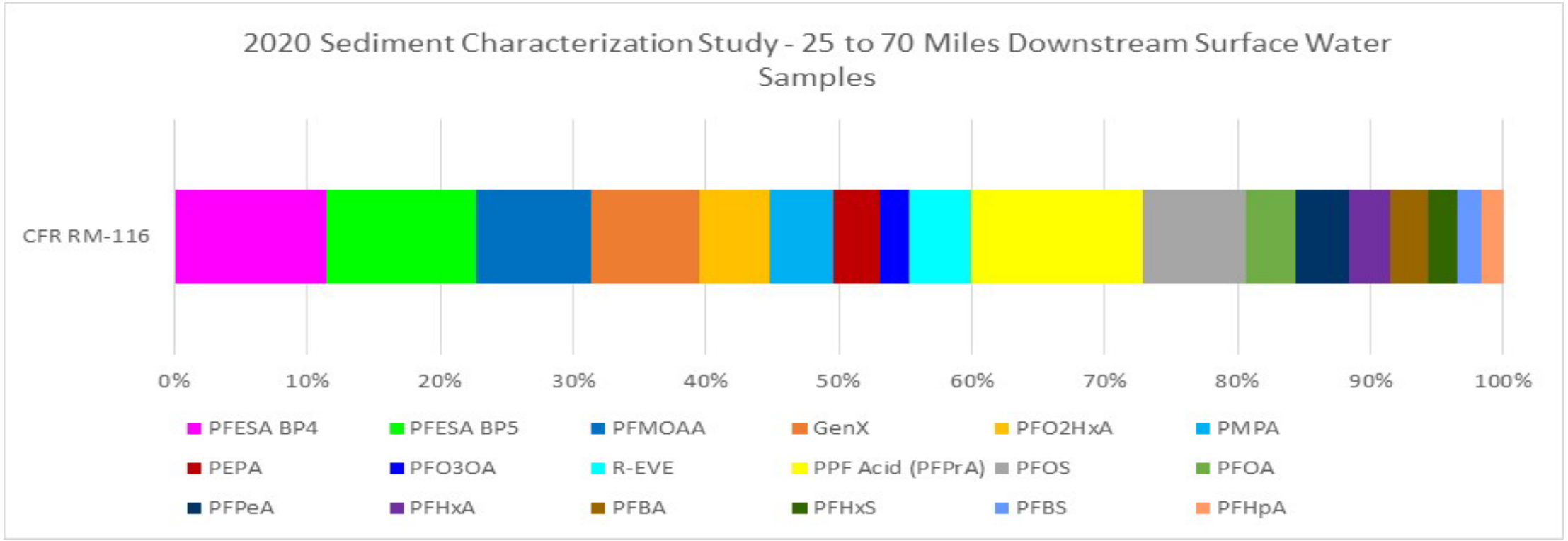
25 to 70 Miles Downstream from Fayetteville Works – 2020 Surface Water Samples



Total PFAS 218 ng/L

Samples from RM 100, 116, and 149 had nearly identical PFAS signatures

Sample collected by Parsons and provided to DEQ. Results from DEQ contract lab shown.

*Concentrations for Nafion Byproduct 4 and 5 and R-EVE are likely over reported (2 – 10x) due to analytical issues

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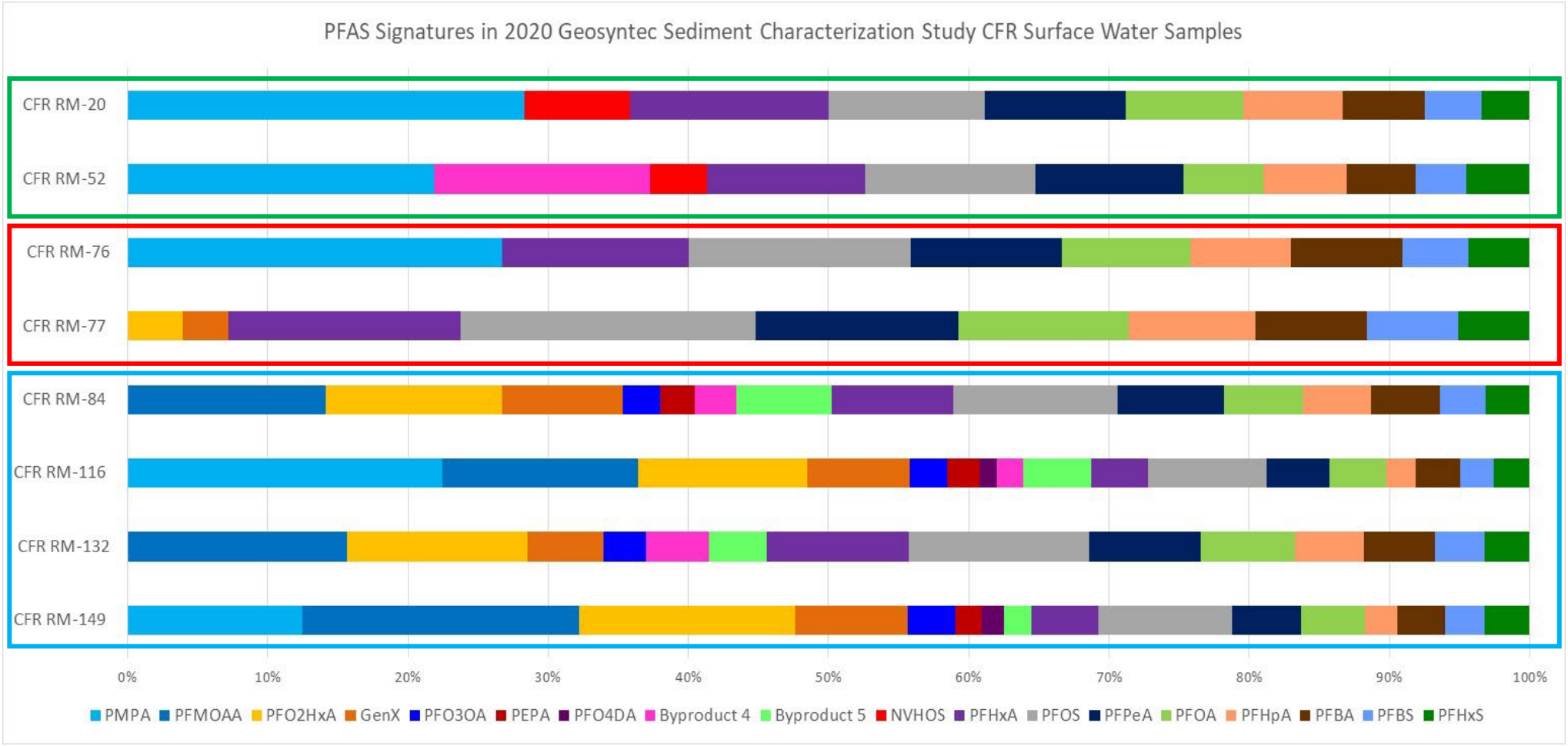
PFAS in Cape Fear River Surface Water Samples –
data from Geosyntec 2020 Sediment Characterization Study



Total PFAS (ng/L)
110
125
100
81
137
169
118
138

Note: PMPA and PEPA may not have been detected in some samples due to higher reporting limit

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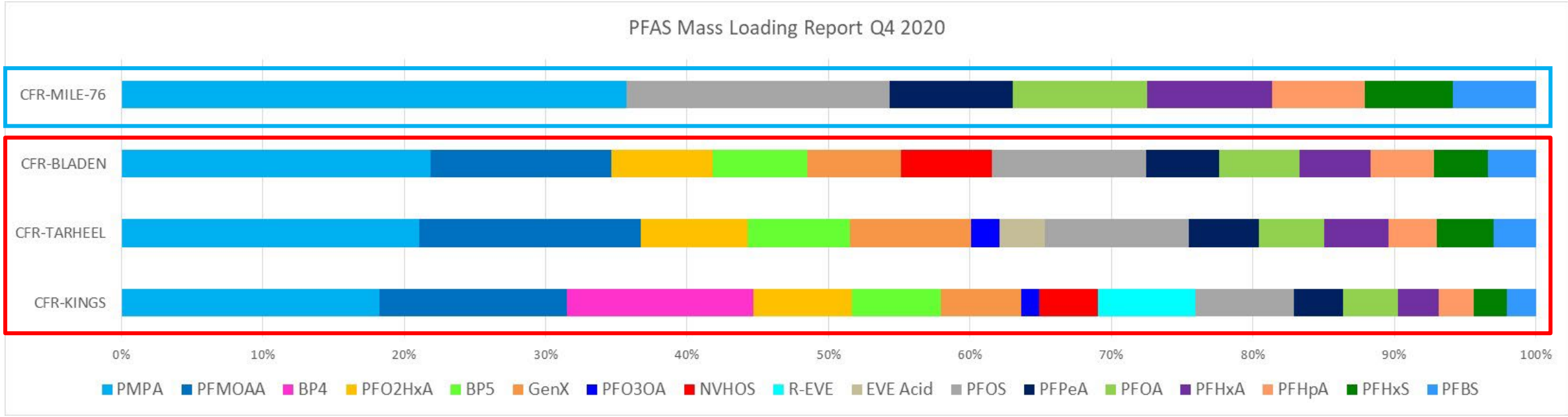
Cape Fear River Samples from Geosyntec Q4 2020 PFAS Mass Loading Report



Total PFAS (ng/L)
64
110
124
159

Blue = Site adjacent sample
Red = Downstream sample

CFR Mile 76 – Adjacent to Northern area of Chemours Facility
CFR Bladen Bluffs Intake and Tarheel– Bladen Bluffs Intake, 7 miles downstream
CFR Kings – Kings Bluff Intake, 55 miles downstream

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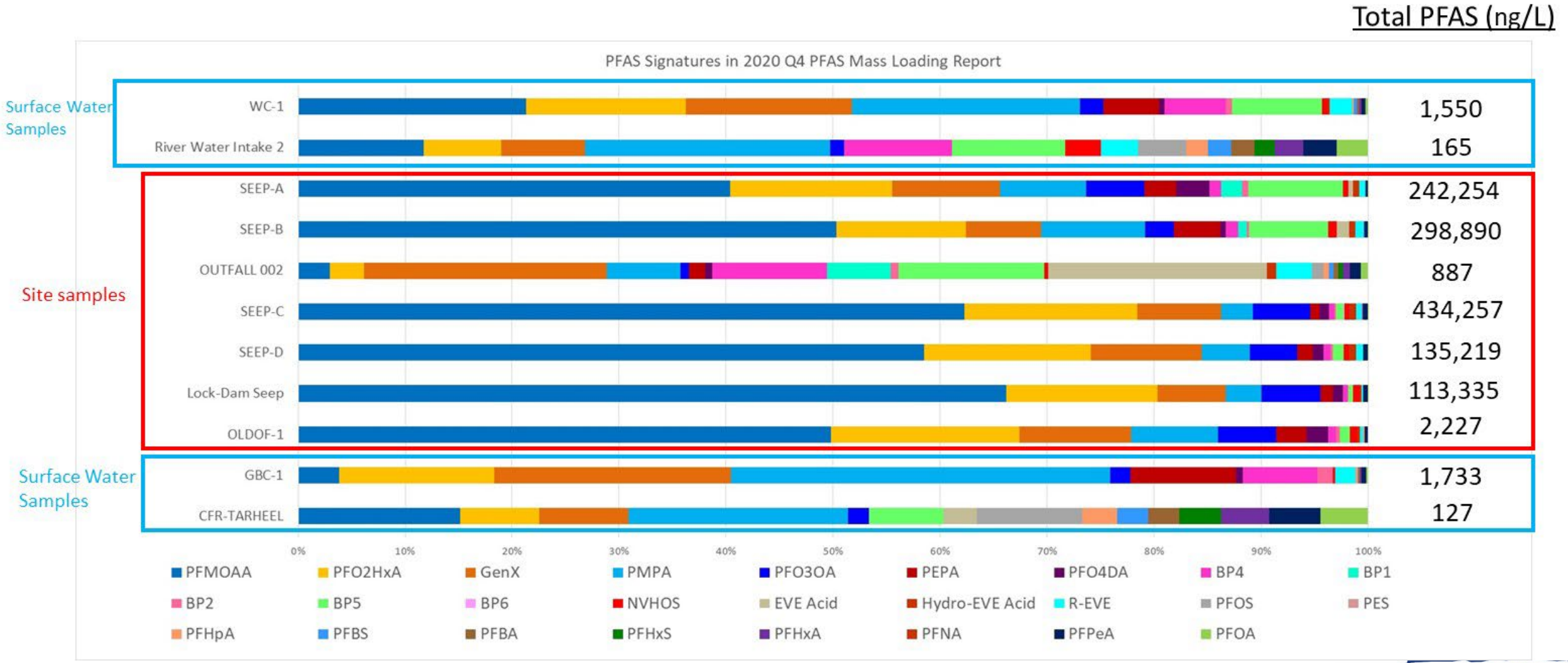
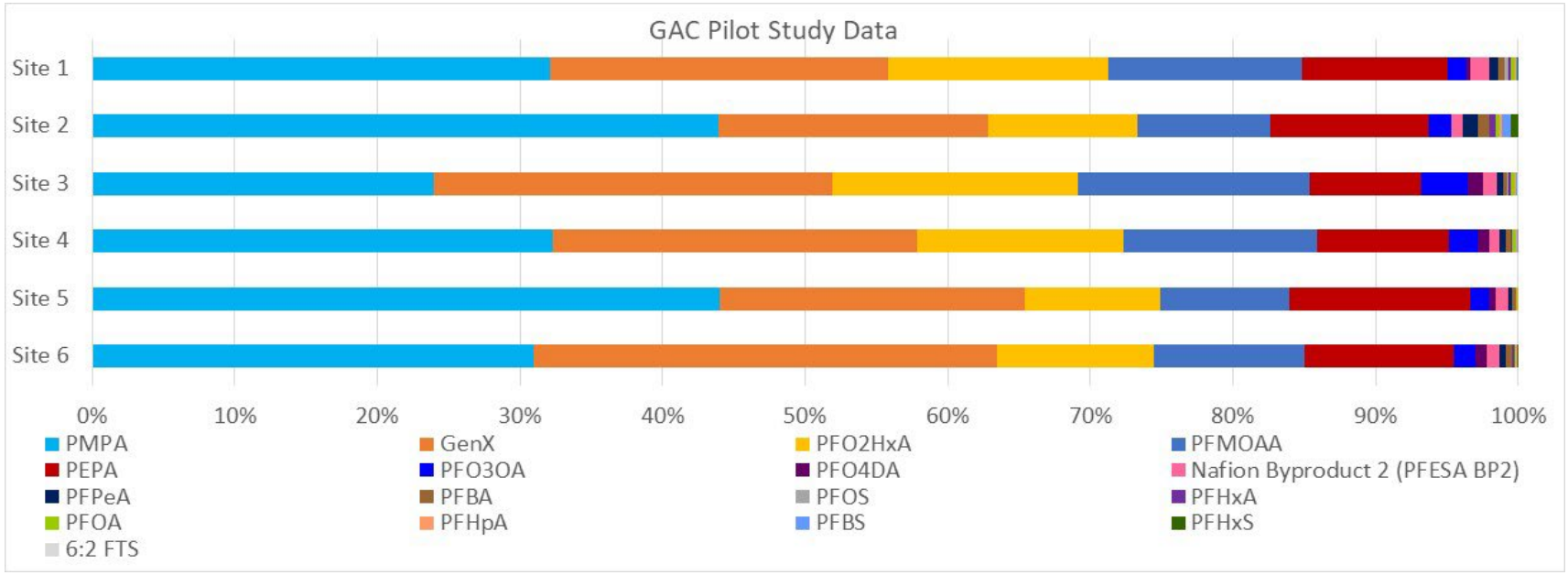
Geosyntec PFAS Mass Loading Report Data – Q4 2020 – Onsite groundwater, Surface Water samples adjacent to facility



GAC and RO Study Data – Offsite Groundwater PFAS Signatures – DEQ Collected Sample



Total PFAS (ng/L)

2,727

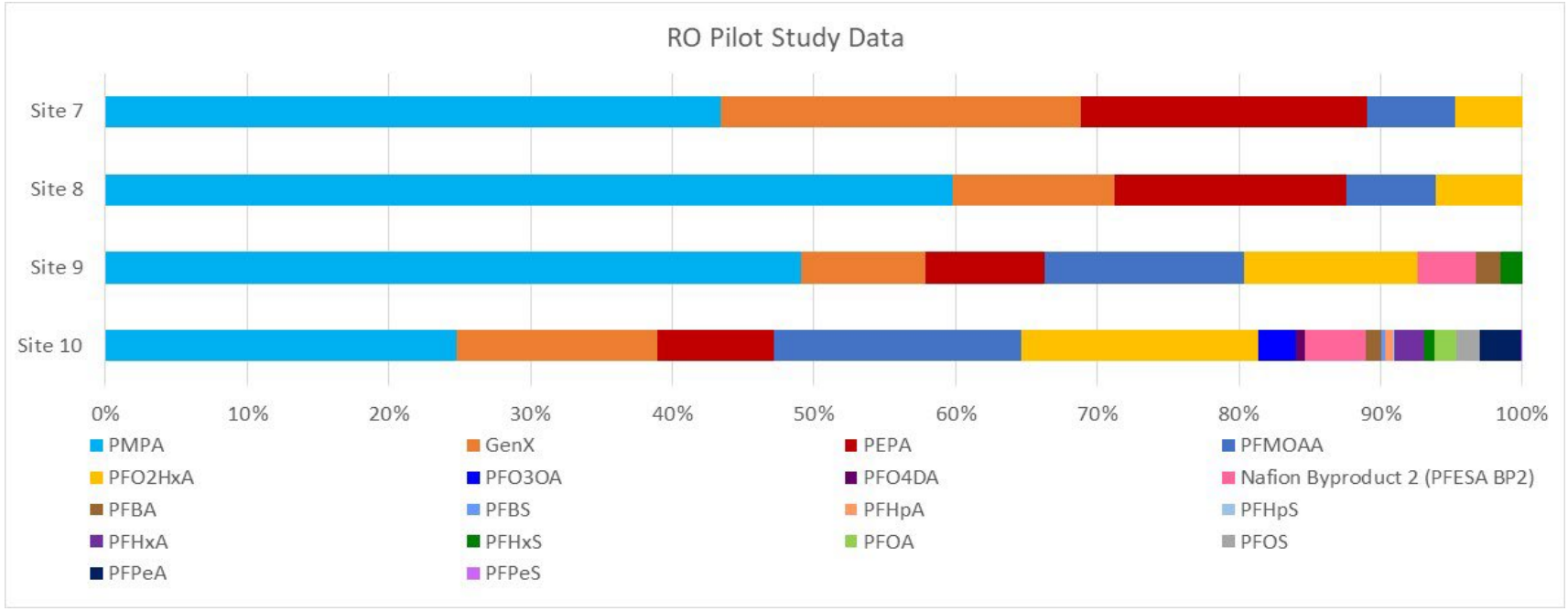
948

5,566

3,314

5,407

5,733



96

147

118

3,121

(GAC eligible site where resident chose RO system)

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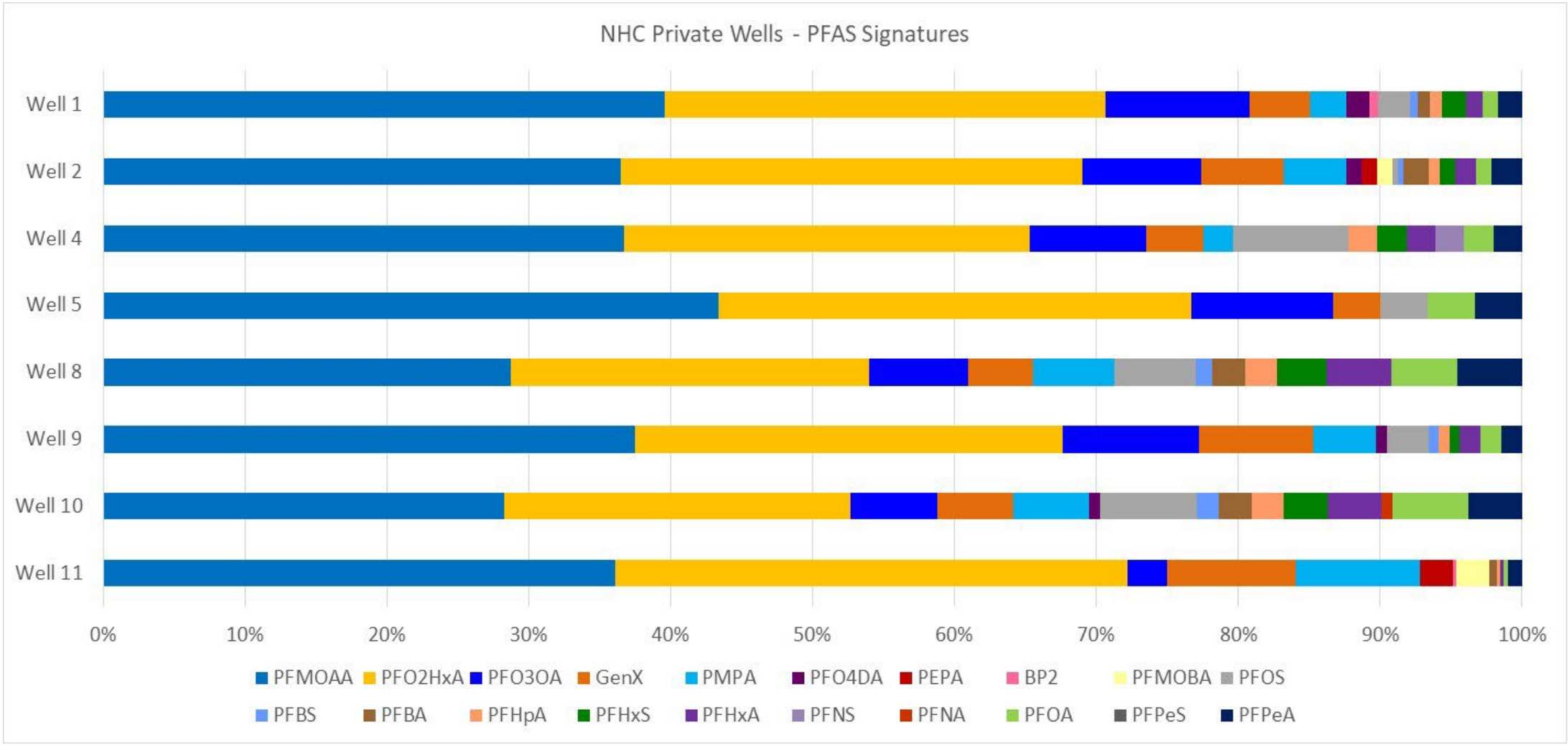
New Hanover County Groundwater Samples from Private Wells – DEQ and CFPUA Collected Samples



Total PFAS (ng/L)
354
274
49
30
87
136
131
388

PFAS Signature very similar for 8 wells. Remaining wells had little or no PFAS.

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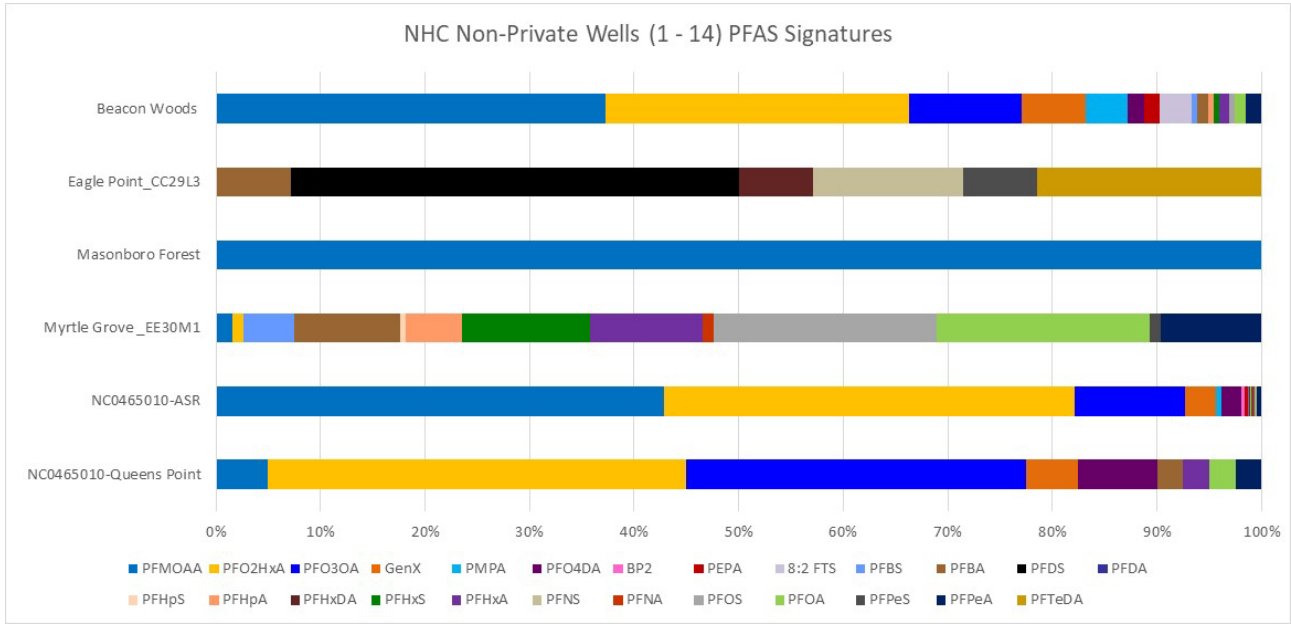
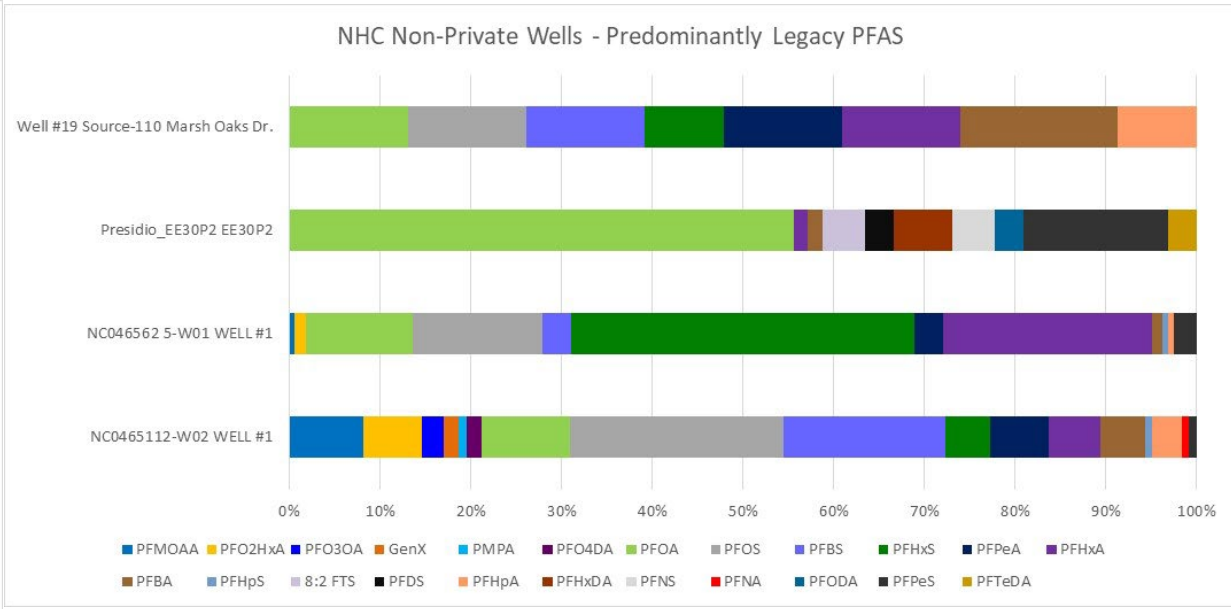
New Hanover County Groundwater Samples from Non-Private Wells – DEQ and CFPUA Collected Samples

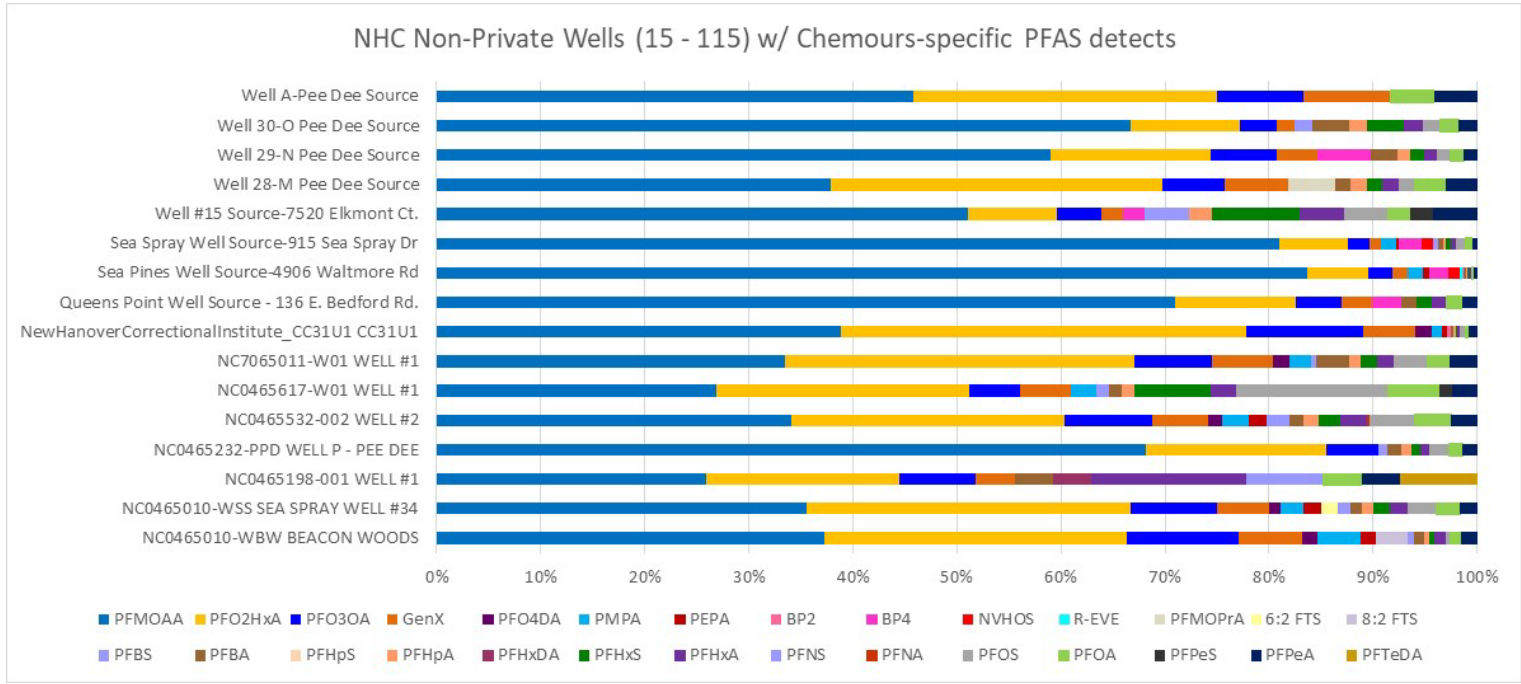


NHC Non-Private Wells range 4 ng/L to 1985 ng/L



Predominantly Legacy PFAS Range 23 to 123 ng/L

Chemours detects range from 24 ng/L to 7197 (median = 180 ng/L)



PFAS Signatures by Aquifer

Data from Geosyntec 2020 Groundwater Monitoring Annual Report

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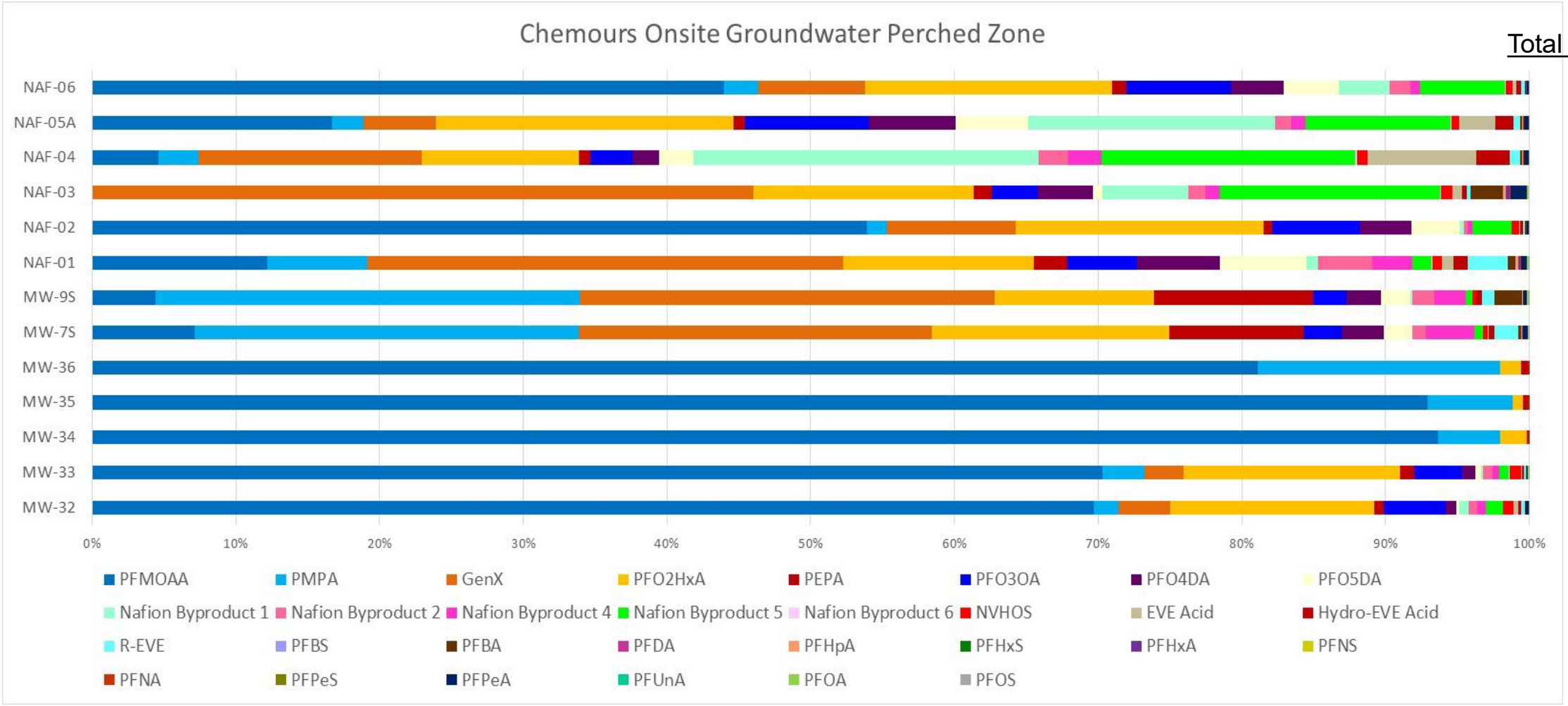

Total PFAS (ng/L)

NAF-06	1,160,600
NAF-05A	1,980,117
NAF-04	2,378,463
NAF-03	97,764
NAF-02	2,780,222
NAF-01	90,486
MW-9S	16,262
MW-7S	44,831
MW-36	16,028
MW-35	20,440
MW-34	39,500
MW-33	51,218
MW-32	70,275

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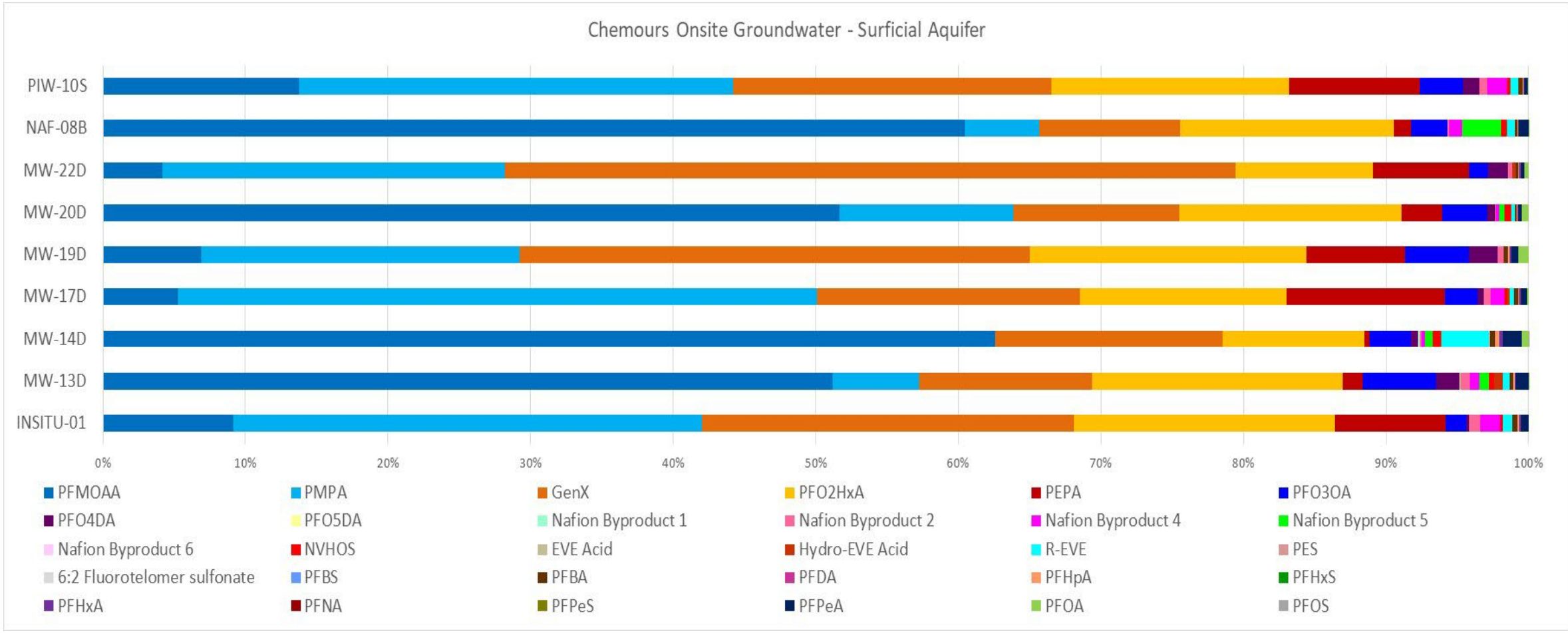
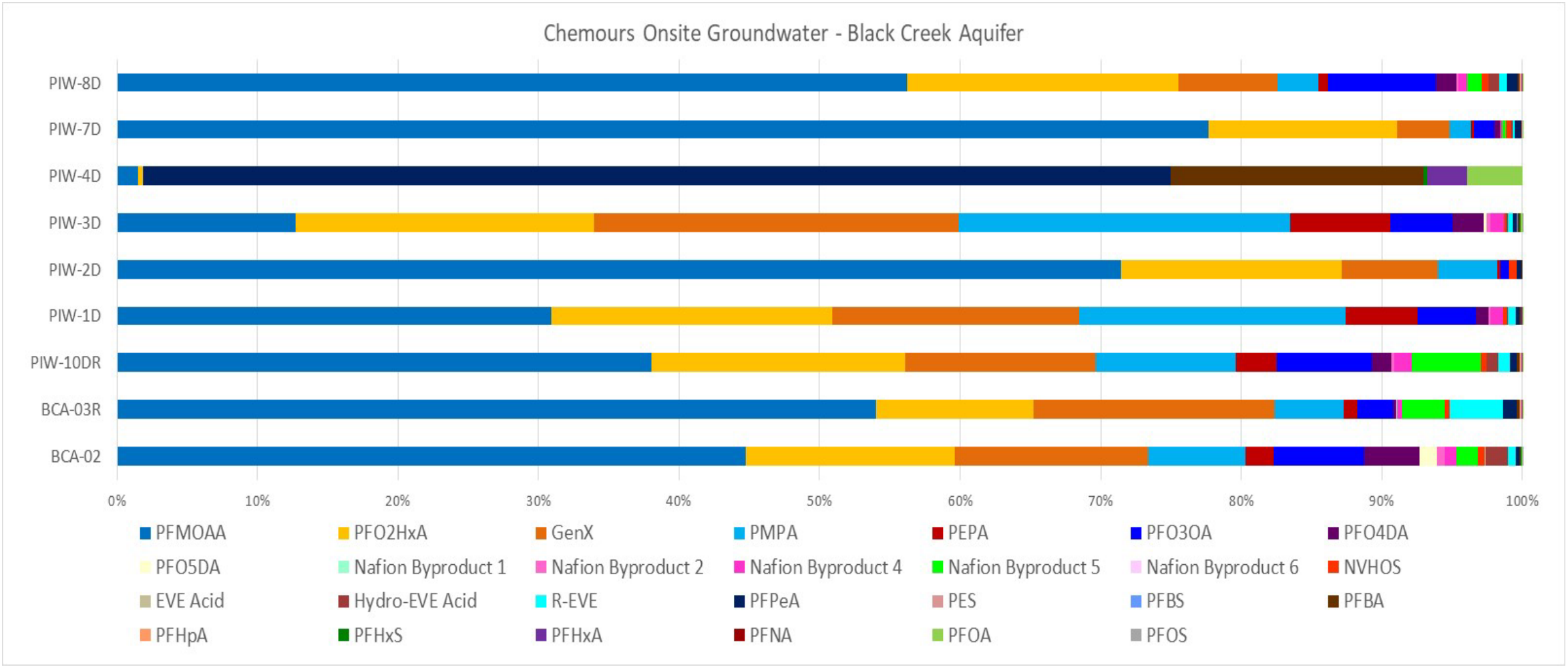


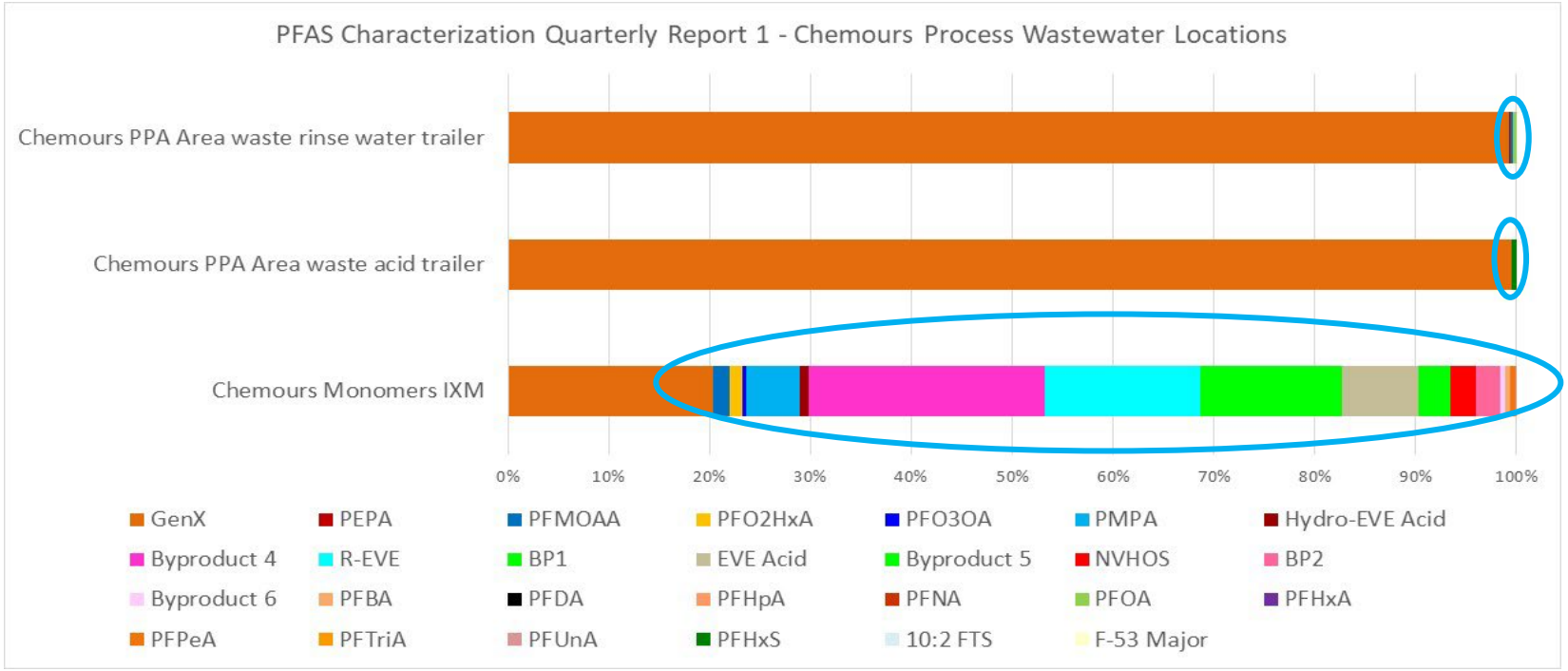
Total PFAS (ng/L)
17,429
62,860
5,582
18,006
4,478
3,793
81,470
312,727
2,188



Total PFAS (ng/L)
622,282
244,728
944
42,398
27,991
48,503
110,508
75,857
87,208

Data from Geosyntec Quarterly Report #1 on Characterization of PFAS in Process and Non-process Wastewater and Stormwater

2019 Chemours Process Wastewater PFAS Signature with GenX



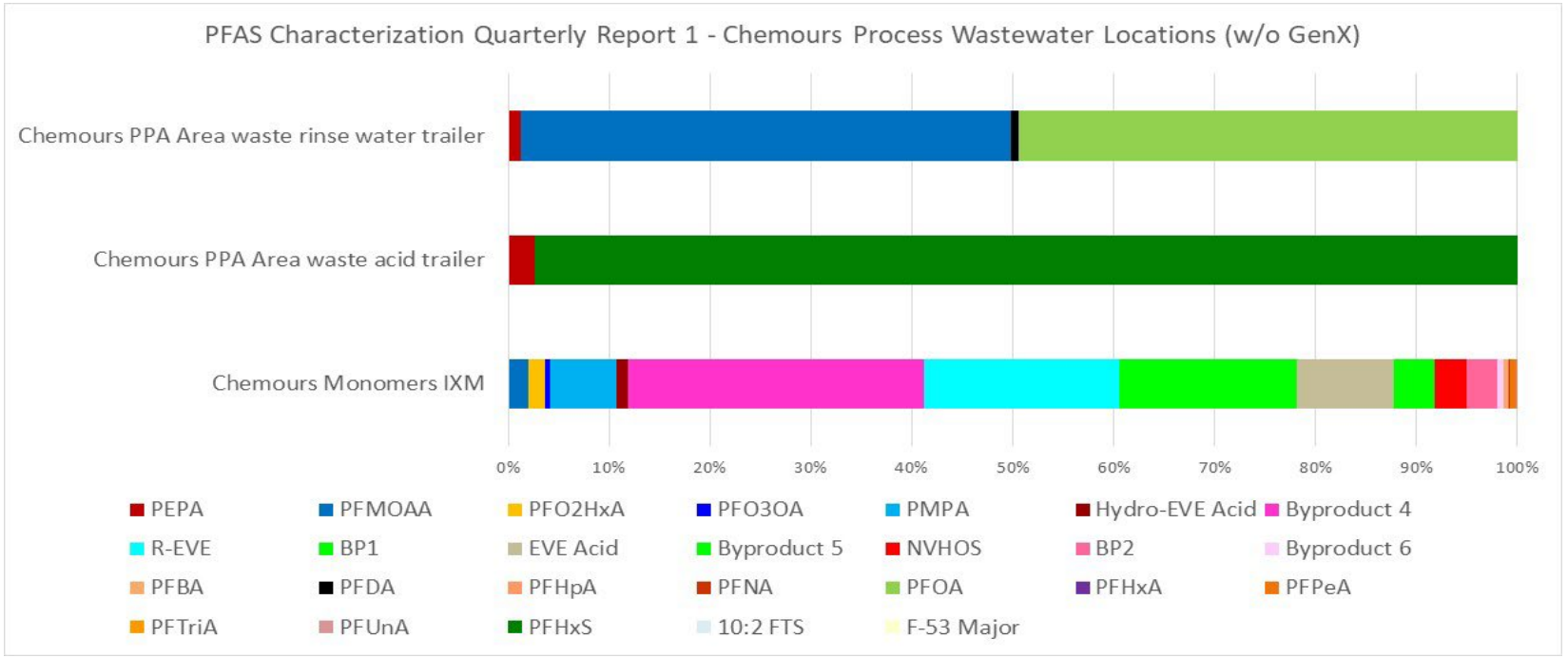
Total PFAS (ng/L)

553,645,000

864,210,000

10,303,150

2019 Chemours Process Wastewater PFAS Signature for remaining PFAS



Total PFAS w/out GenX (ng/L)

3,645,000

4,210,000

8,203,150

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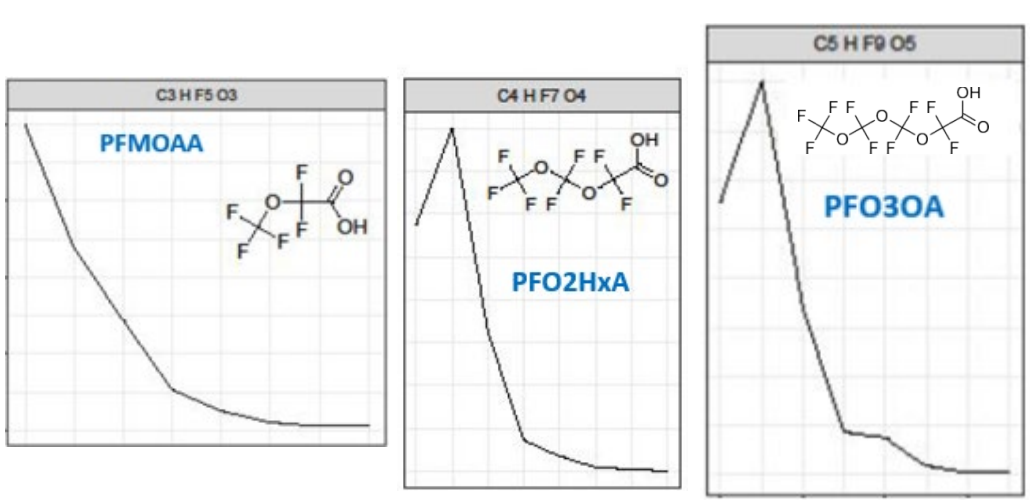
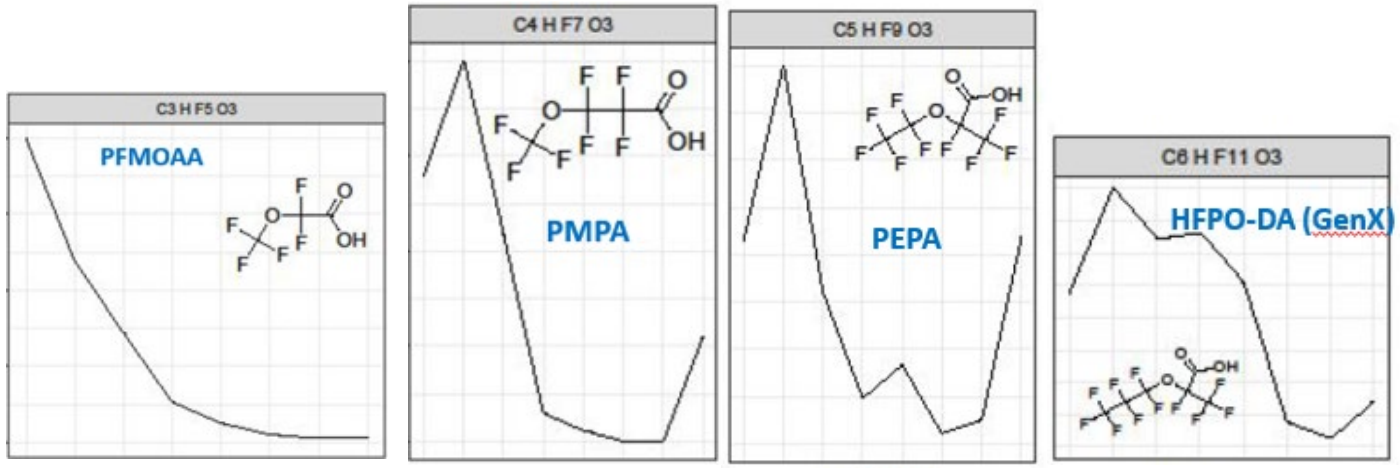
McCord and Strynar 2019 showed that repeated samples taken over the summer of 2017 had greatly reduced amounts of several Chemours PFAS as a result of discontinuation of Chemours process wastewater discharge to the Cape Fear River (see figures below).

Ion abundance data from Strynar et al. 2015 indicated that in 2012, the top 6 Chemours compounds were present in the Cape Fear River, and it appears that they are present in high concentrations.

More information about PFAS signatures in the Cape Fear River in 2017 or earlier (while DuPont/Chemours process wastewater discharge occurred to the CFR) would be helpful.





Polyether acids

Compound	Approximate x-fold Decrease
PFMOAA	77
PFO2HxA	156
PFO3OA	126

Monoether compounds

Compound	Approximate x-fold Decrease
PMPA	12
PEPA	8
GenX	17

Questions?

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