



Polymer based PFAS as long-term source to surface water in the Alabama River System

Charles Andrews, **Erica DiFilippo**, Beth Hoagland

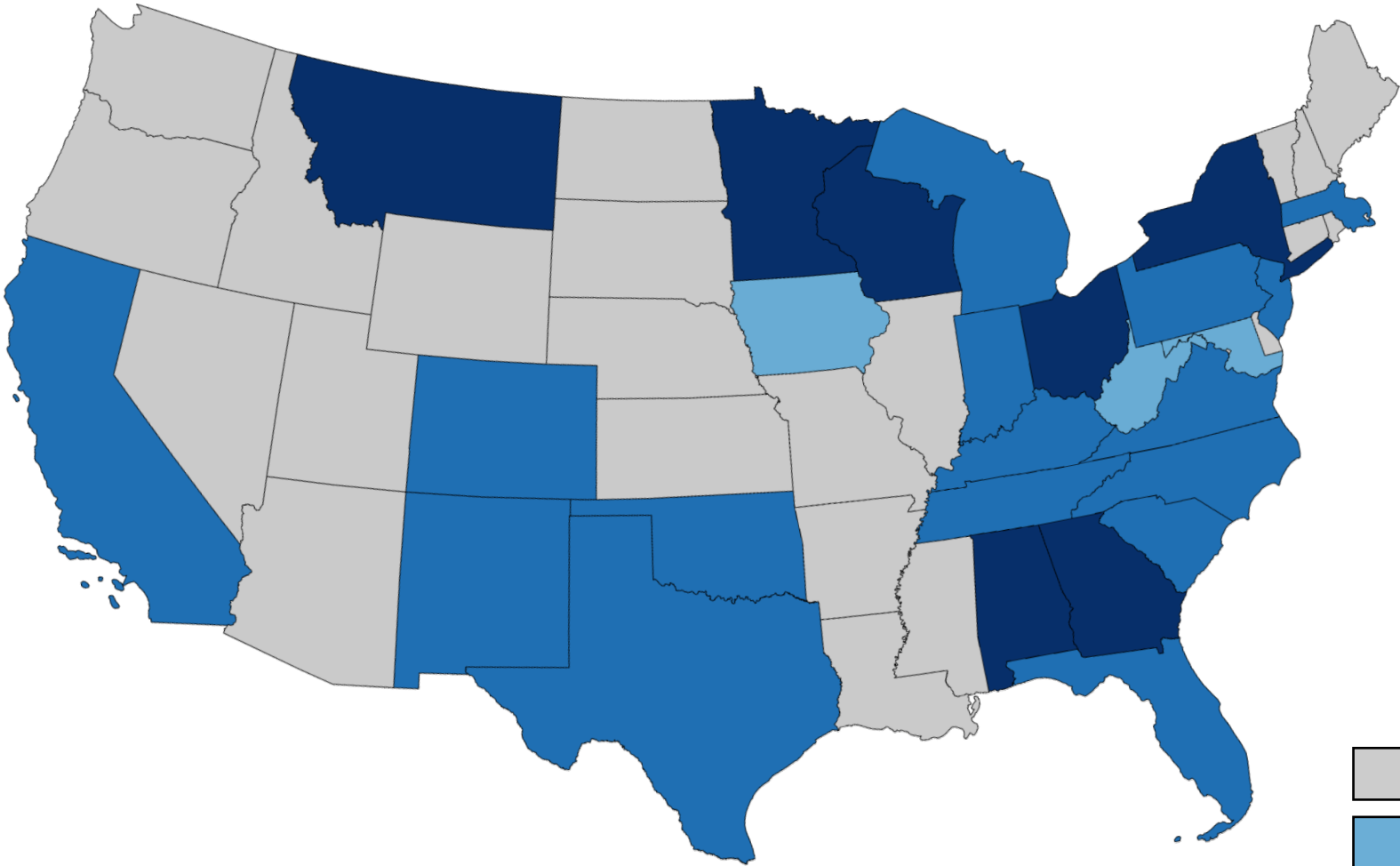
S.S. Papadopoulos & Associates, Inc.

Gary Davis

Davis Environmental Attorneys

Data Sources:
National Water Quality Monitoring Council
UCMR

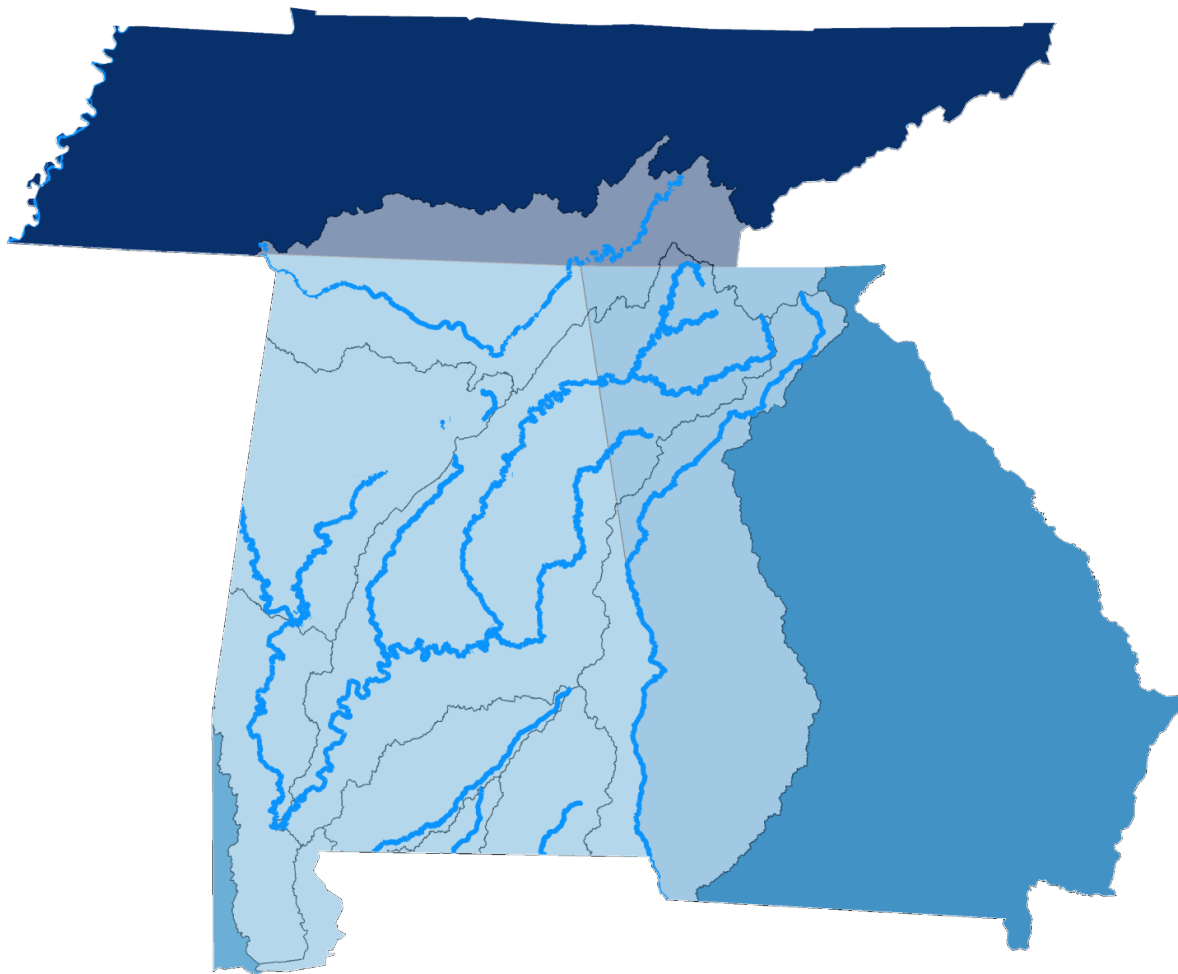
PFOS in Surface Water



- Non-Detect
- Max < 4 ng/L
- 4 ng/L < Max < 100 ng/L
- Max > 100 ng/L

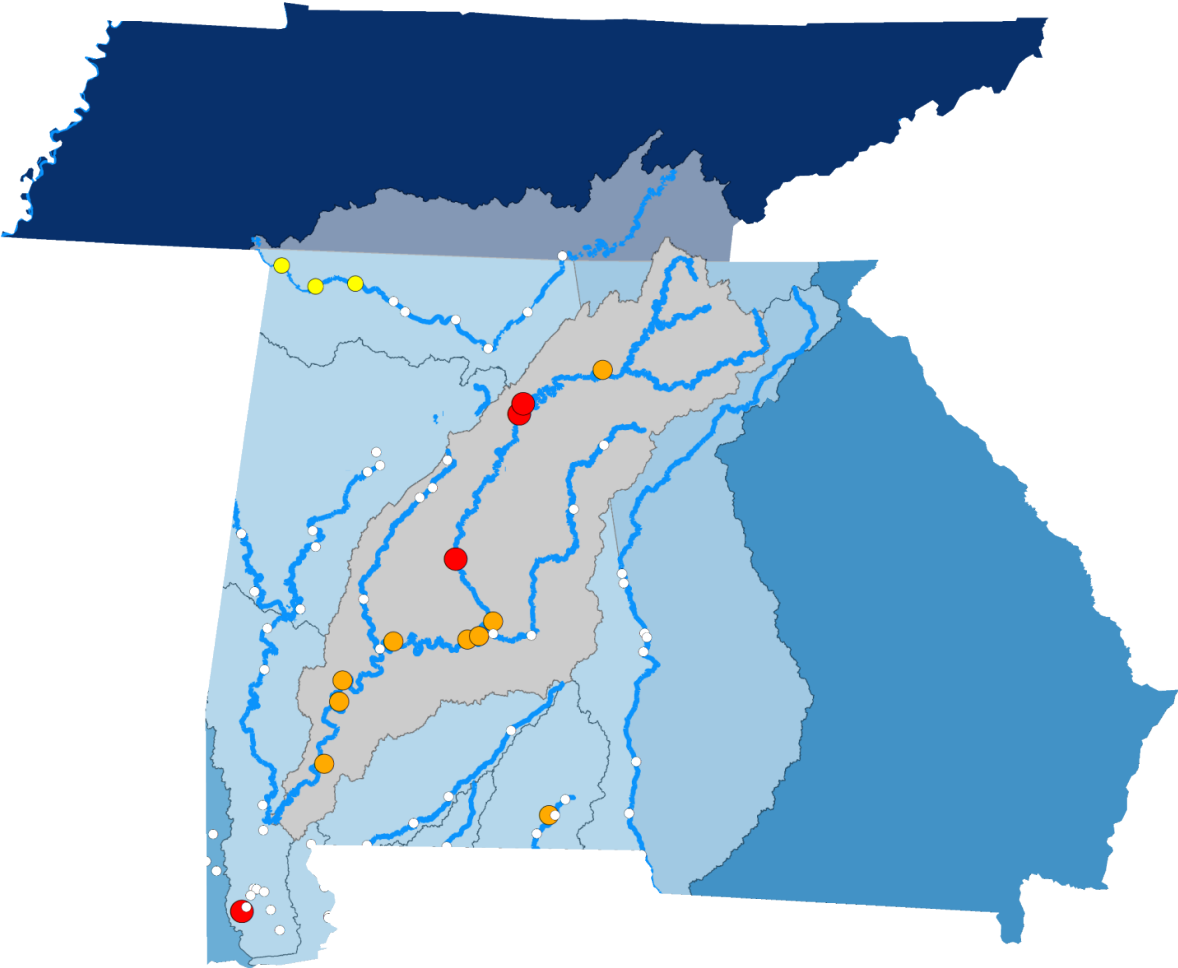




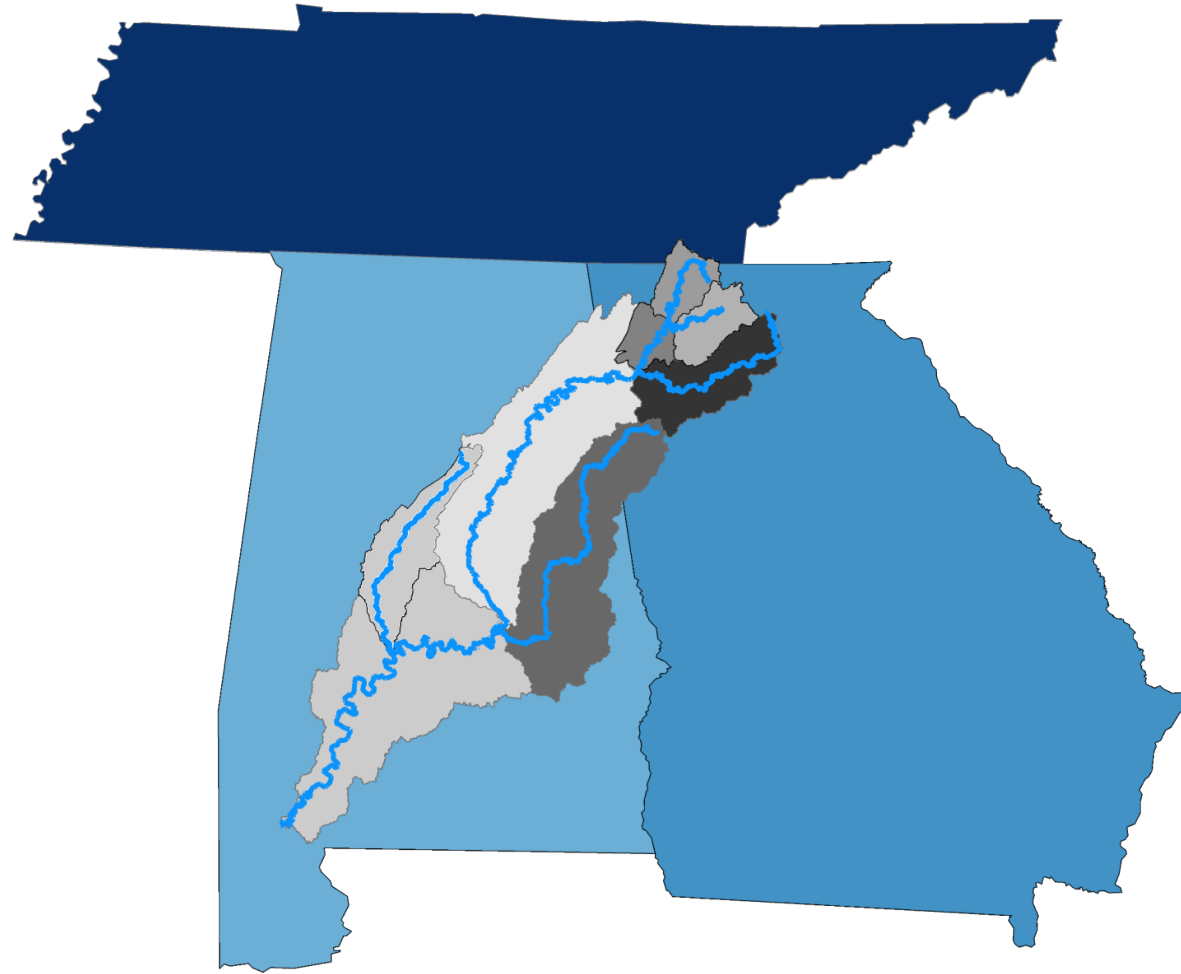


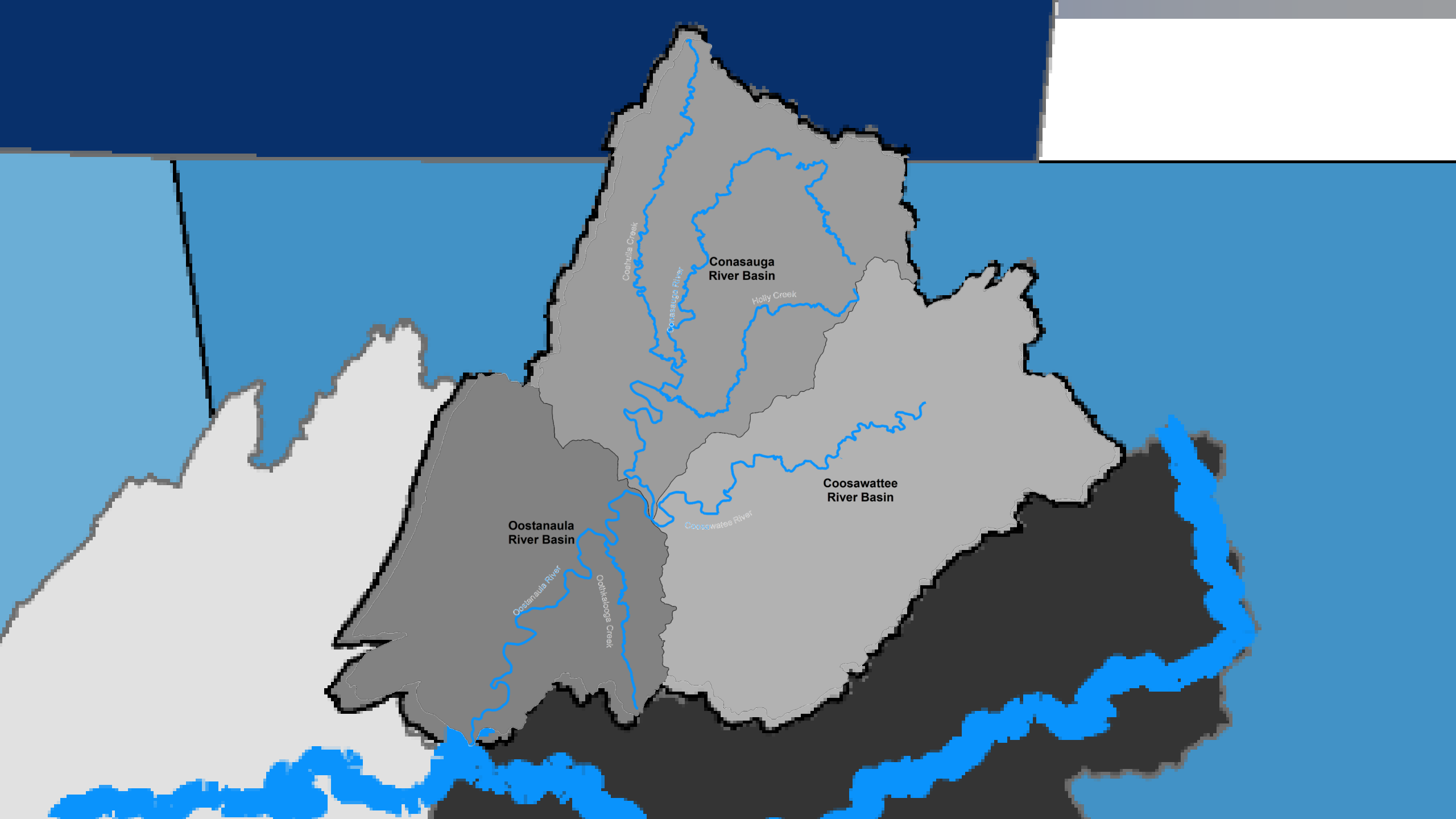
Data Sources:
Viticoski et al., 2022

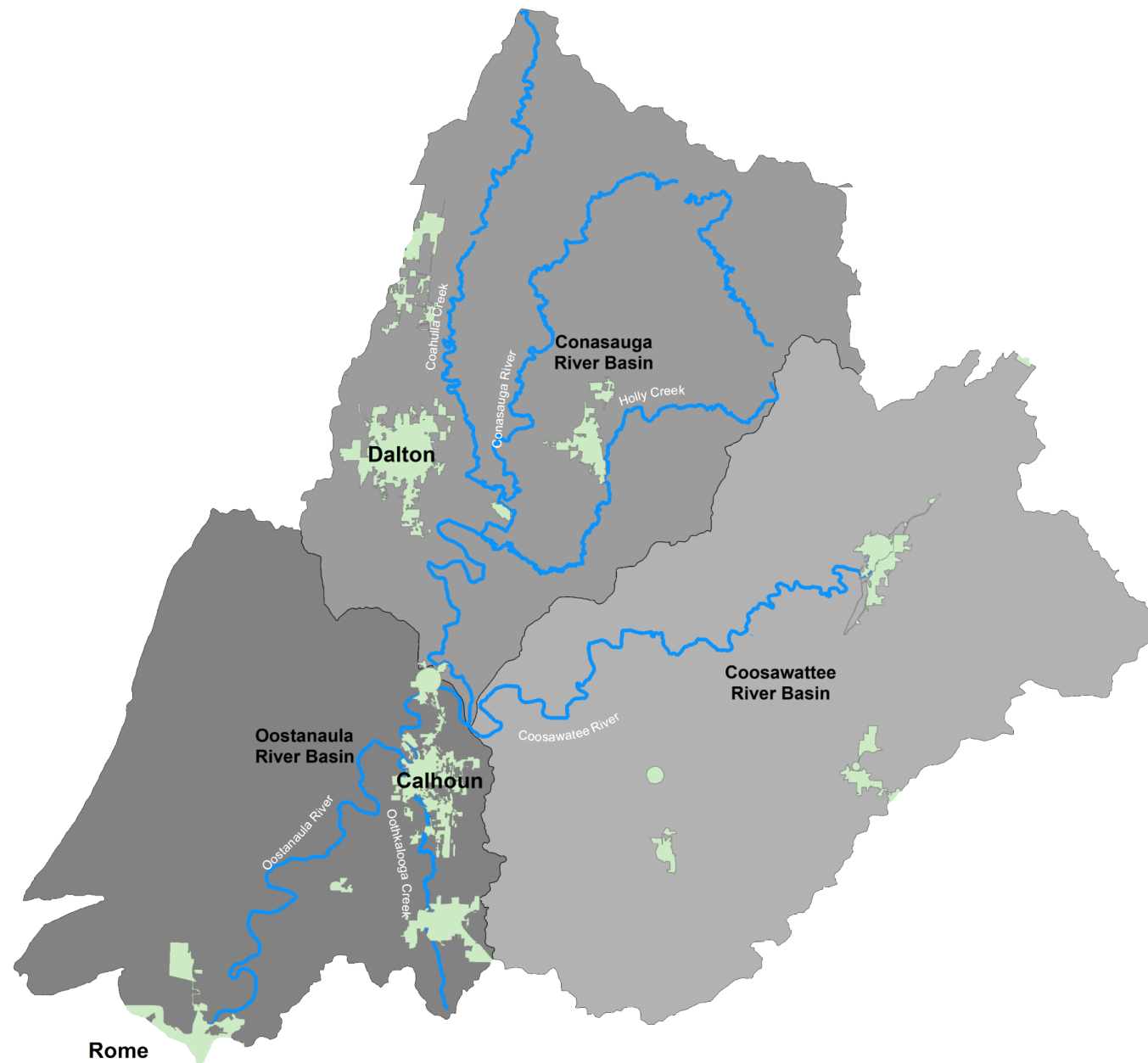
PFOS in Surface Water

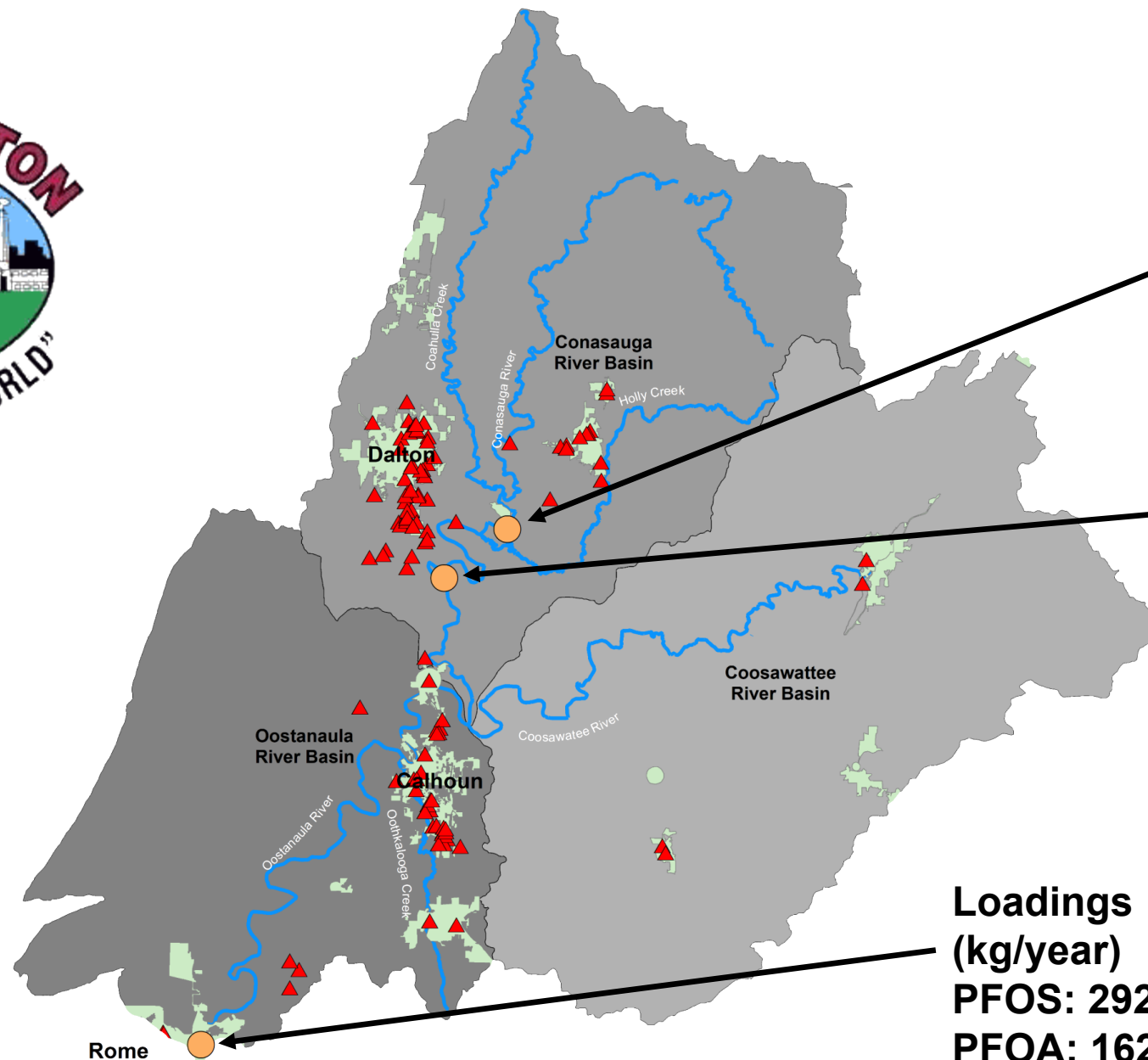


- ≥ 20 ng/L
- ≥ 10 to < 20 ng/L
- ≥ 4 to < 10 ng/L
- < 4 ng/L
- Non-Detect





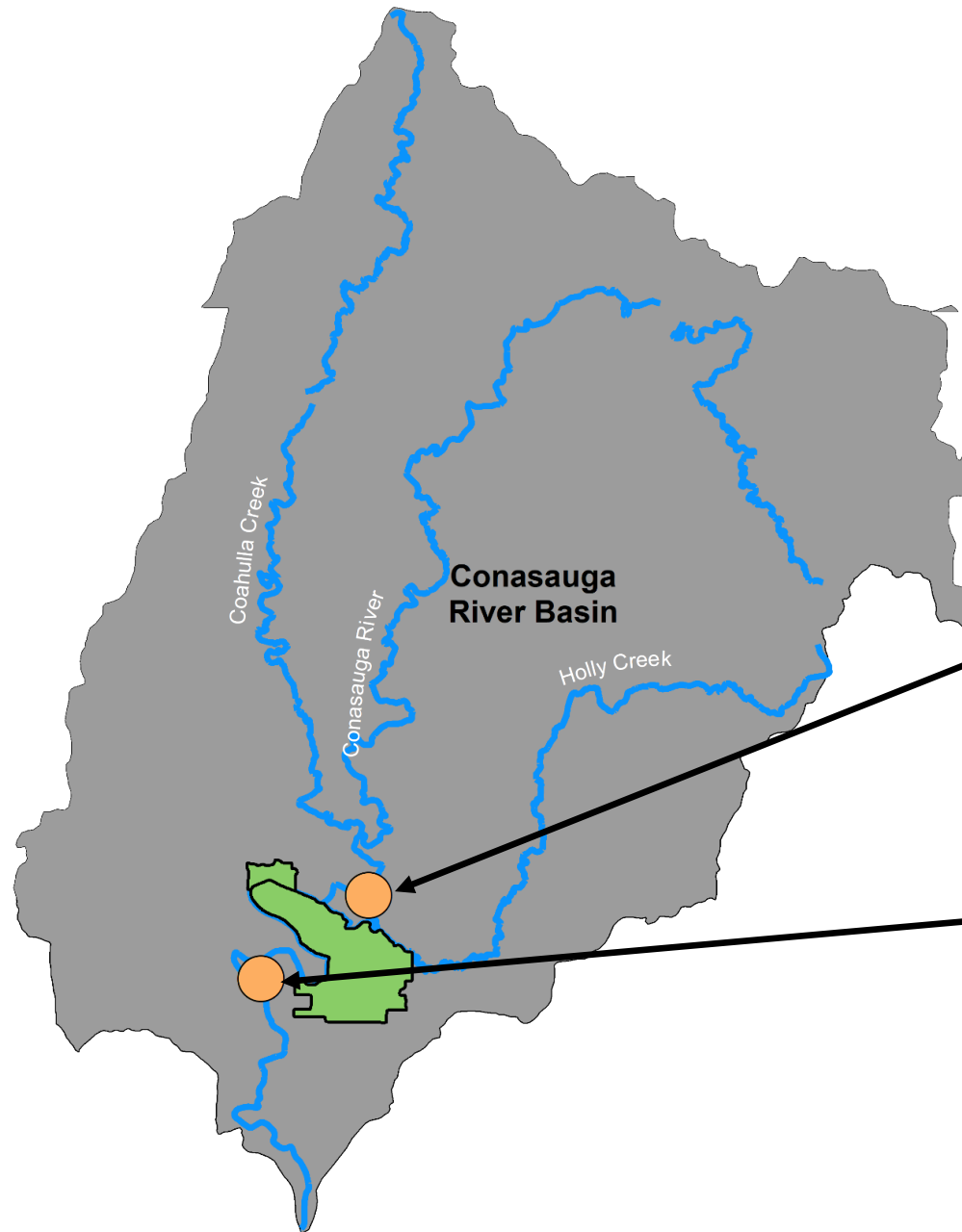




Loadings (kg/year)
PFOS: 13
PFOA: 11

Loadings (kg/year)
PFOS: 234
PFOA: 165

Loadings
(kg/year)
PFOS: 292
PFOA: 162

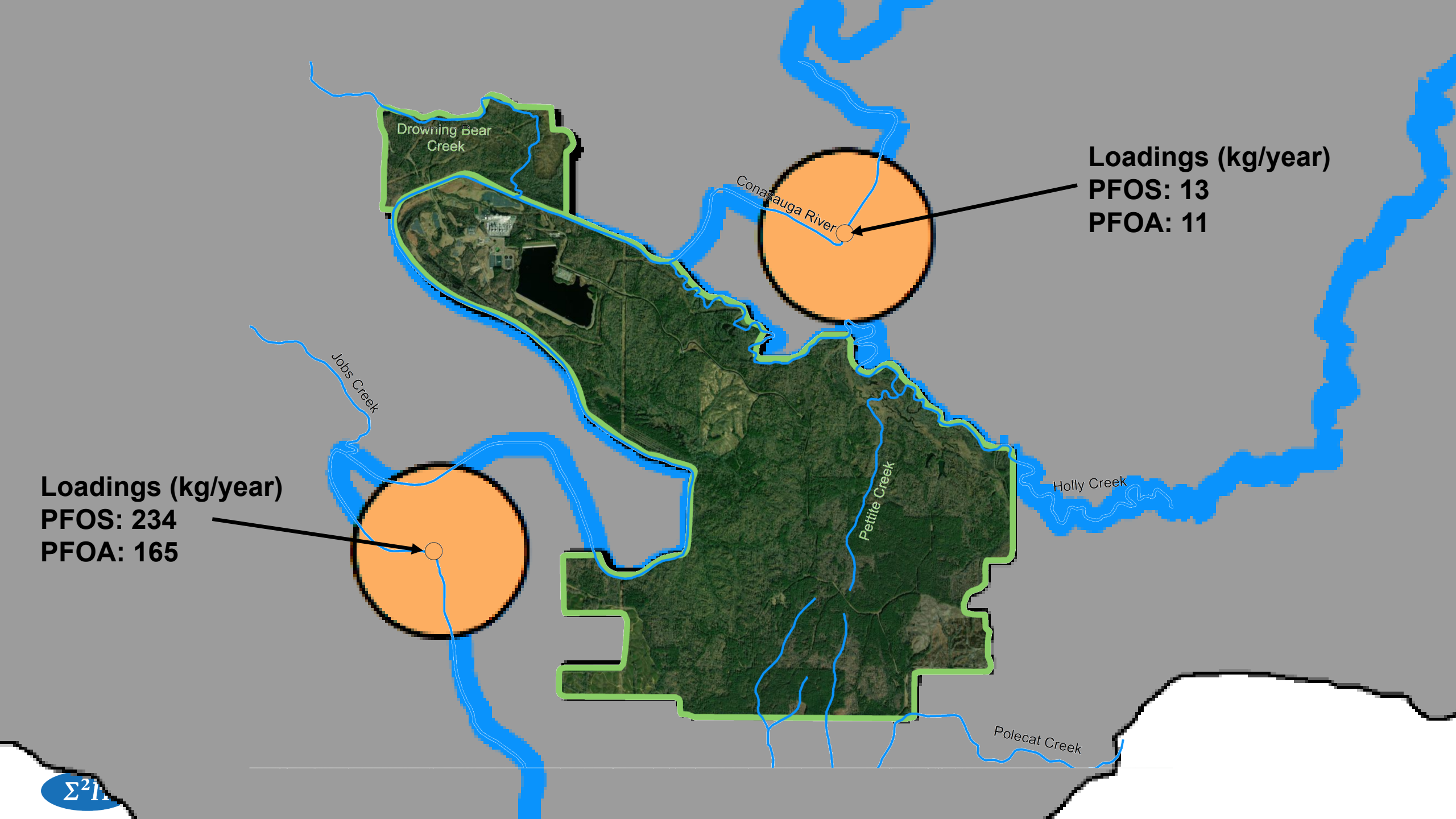


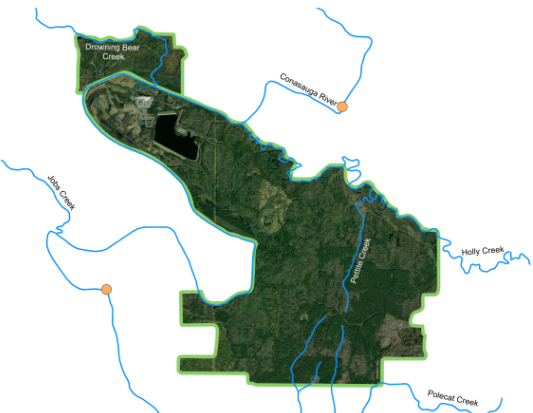
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PFOA: 11

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PFOS: 234
PFOA: 165

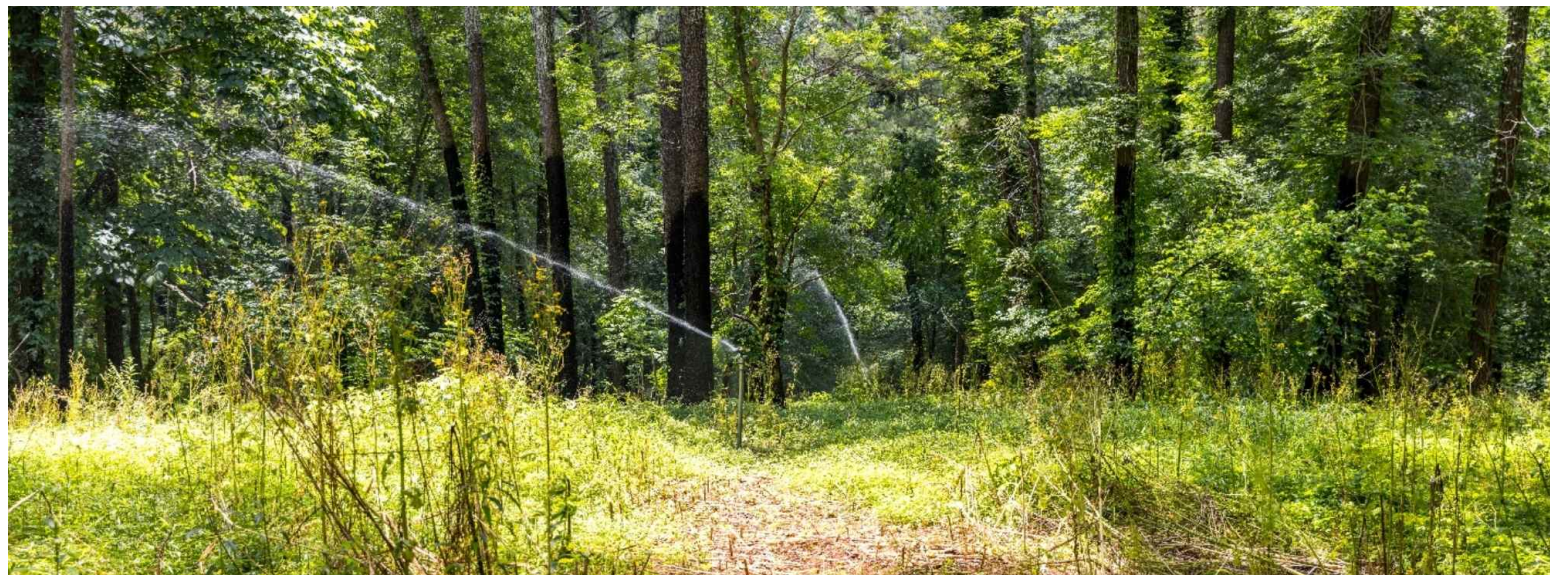
Loadings (kg/year)
PFOS: 234
PFOA: 165

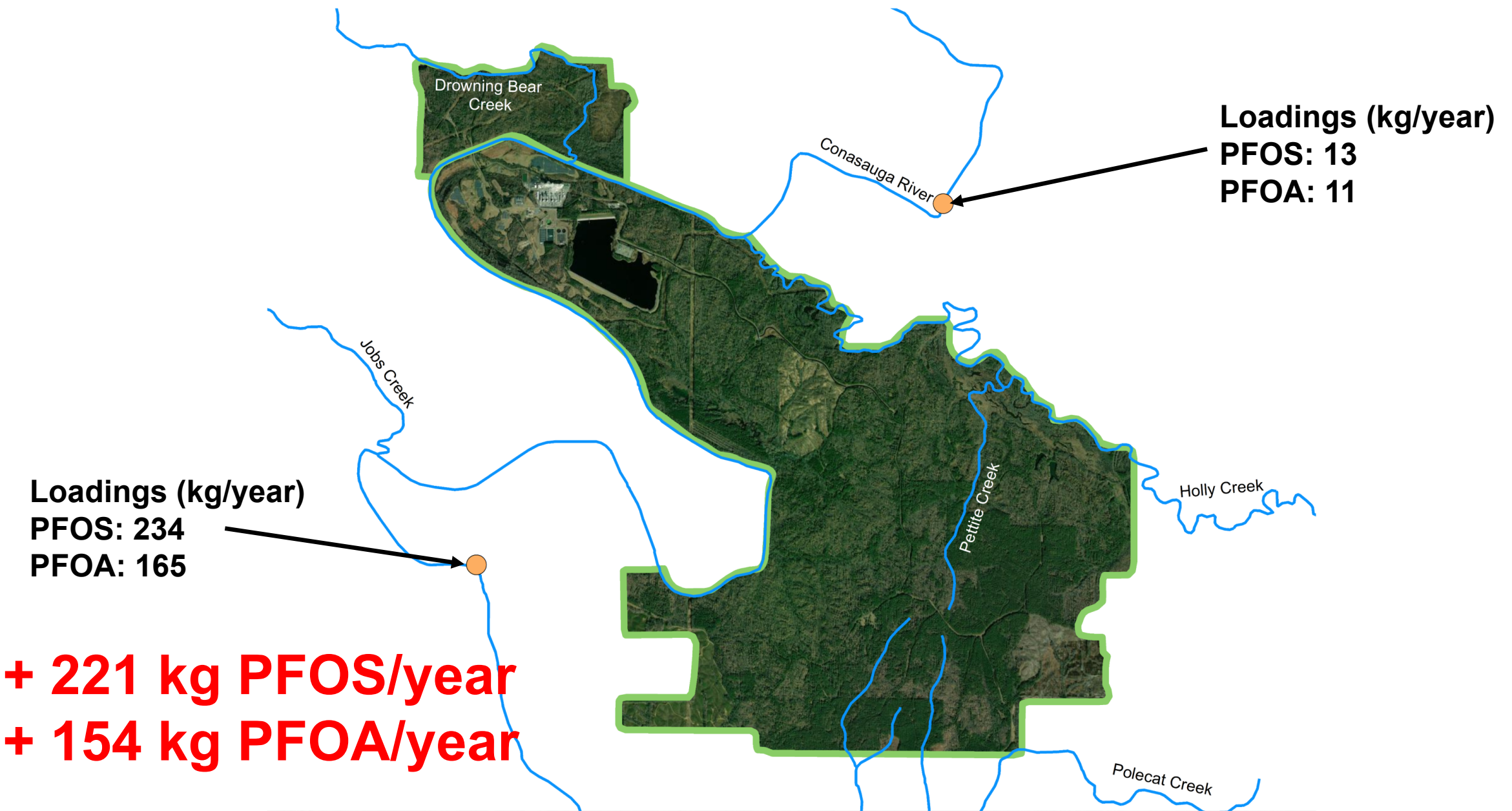
Loadings (kg/year)
PFOS: 13
PFOA: 11

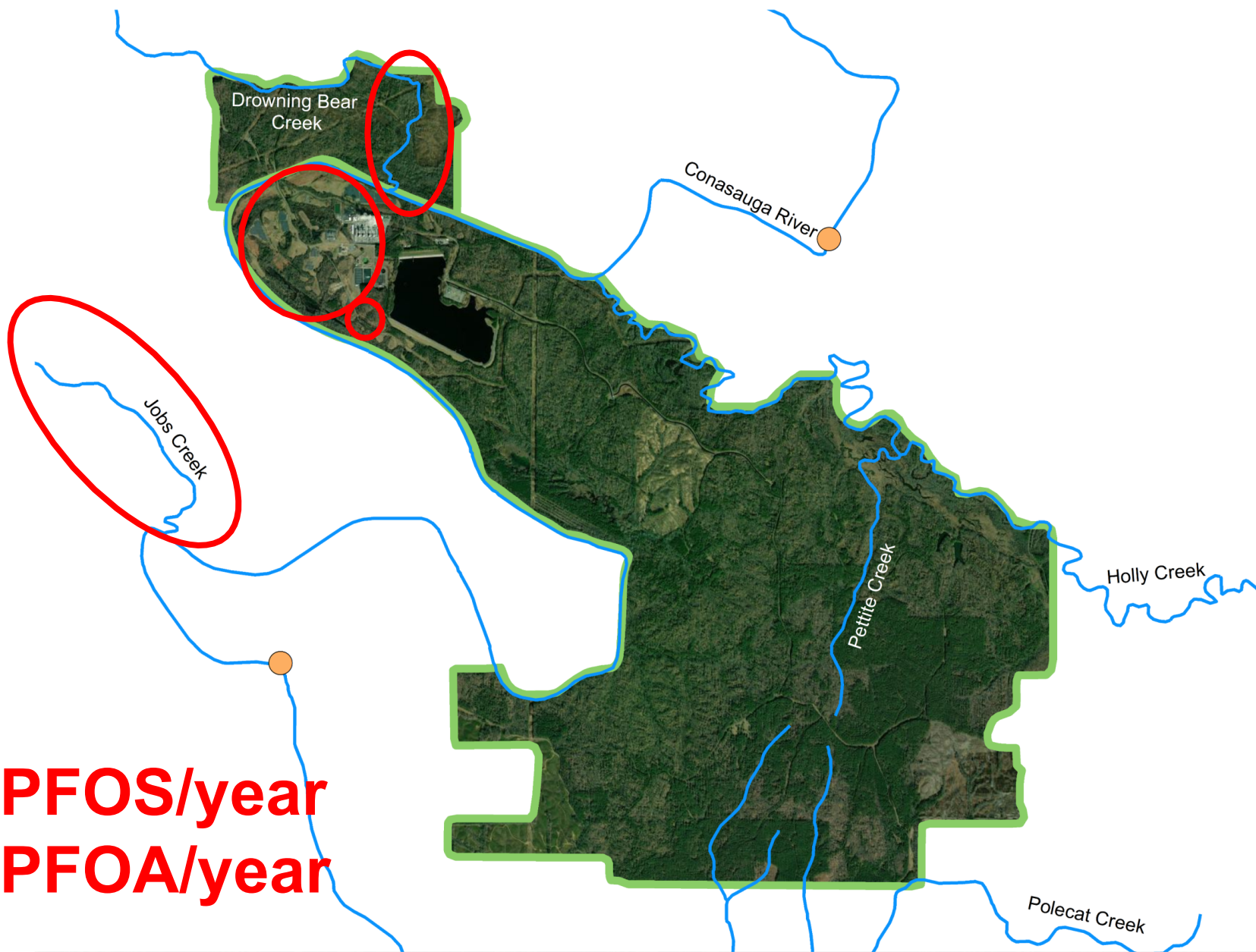




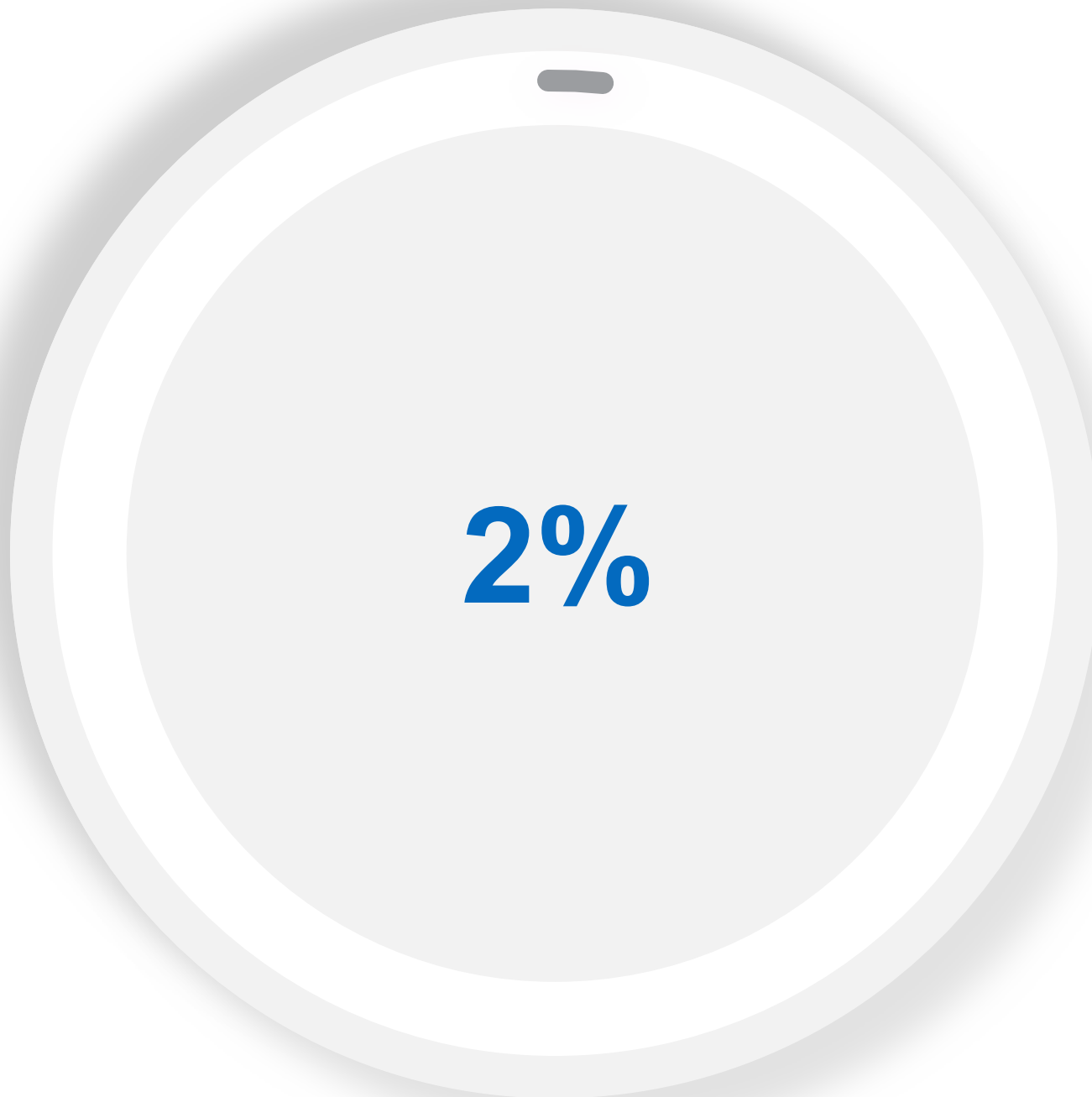
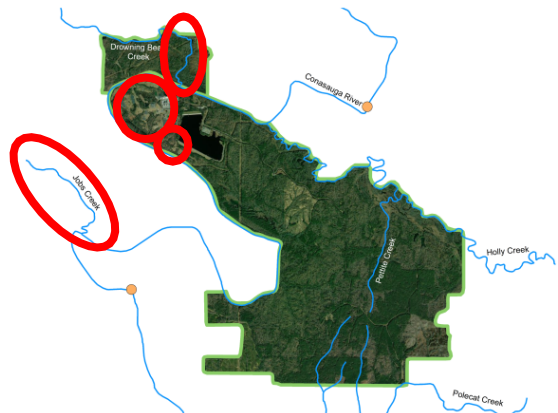
Land Application Site (LAS)



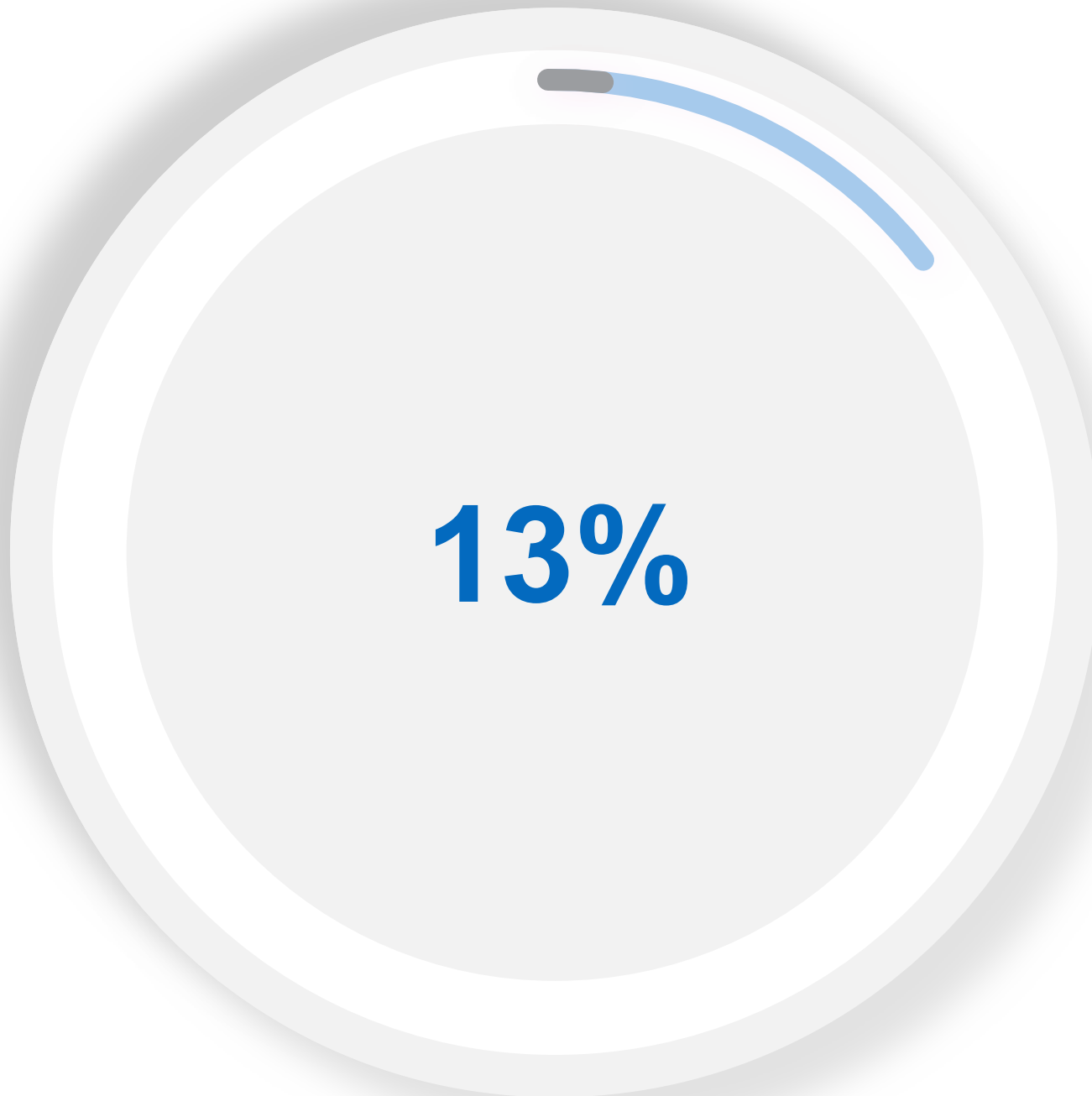
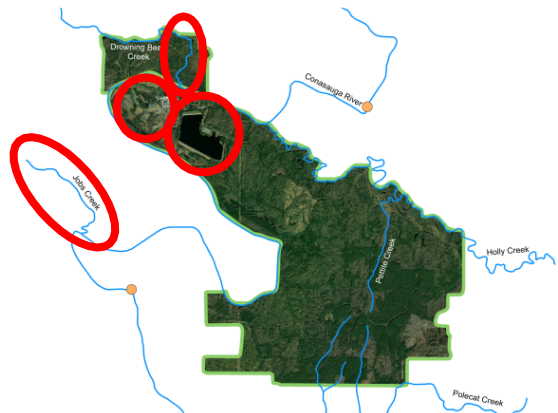




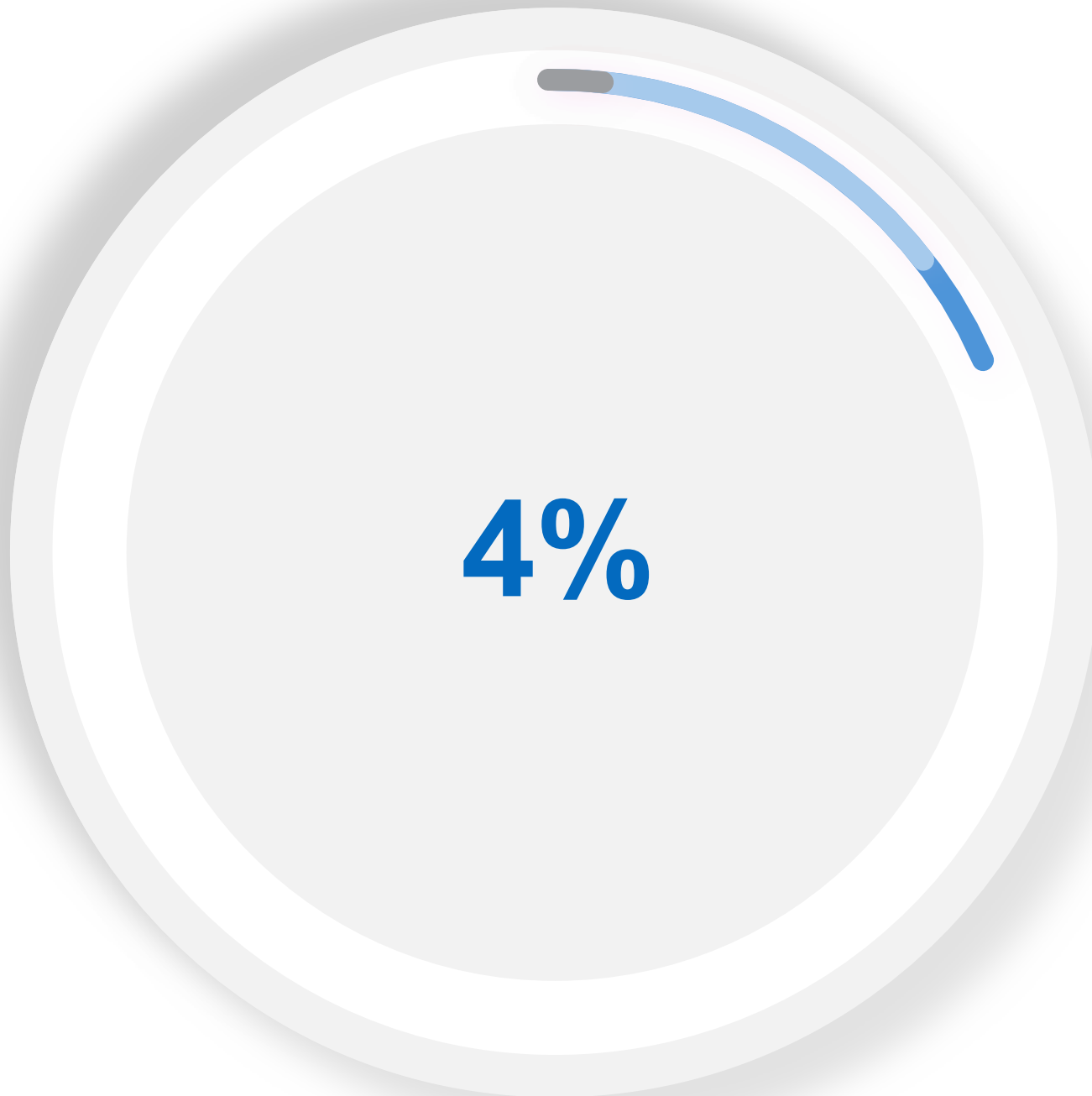
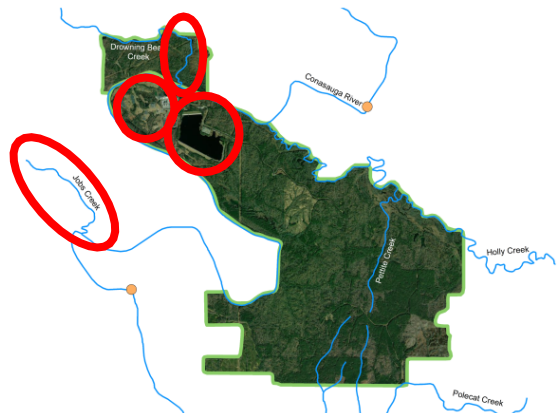
+ 221 kg PFOS/year
+ 154 kg PFOA/year



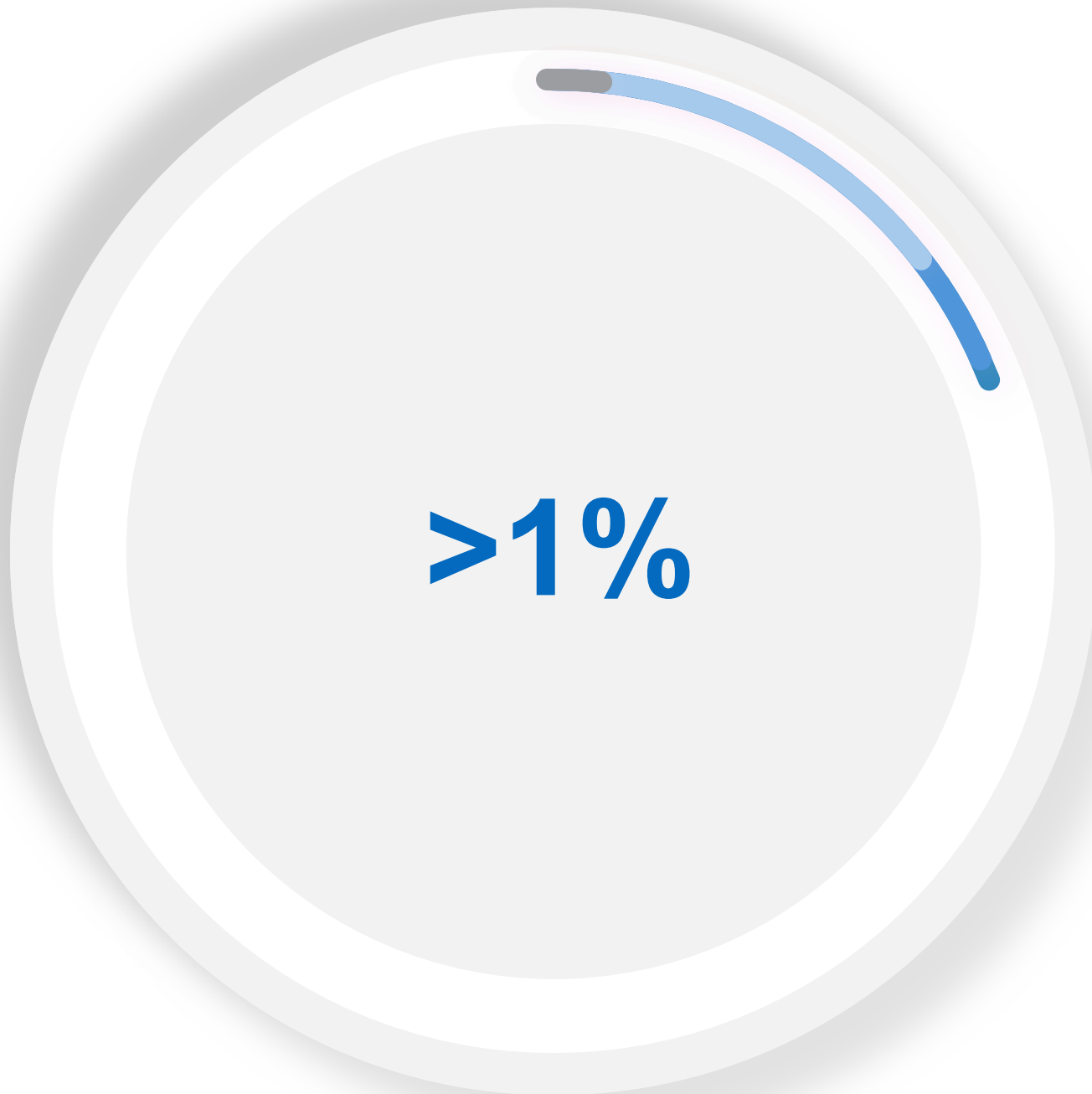
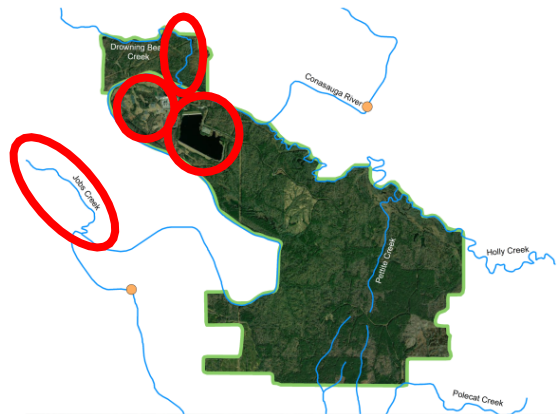
+ 221 kg PFOS/year



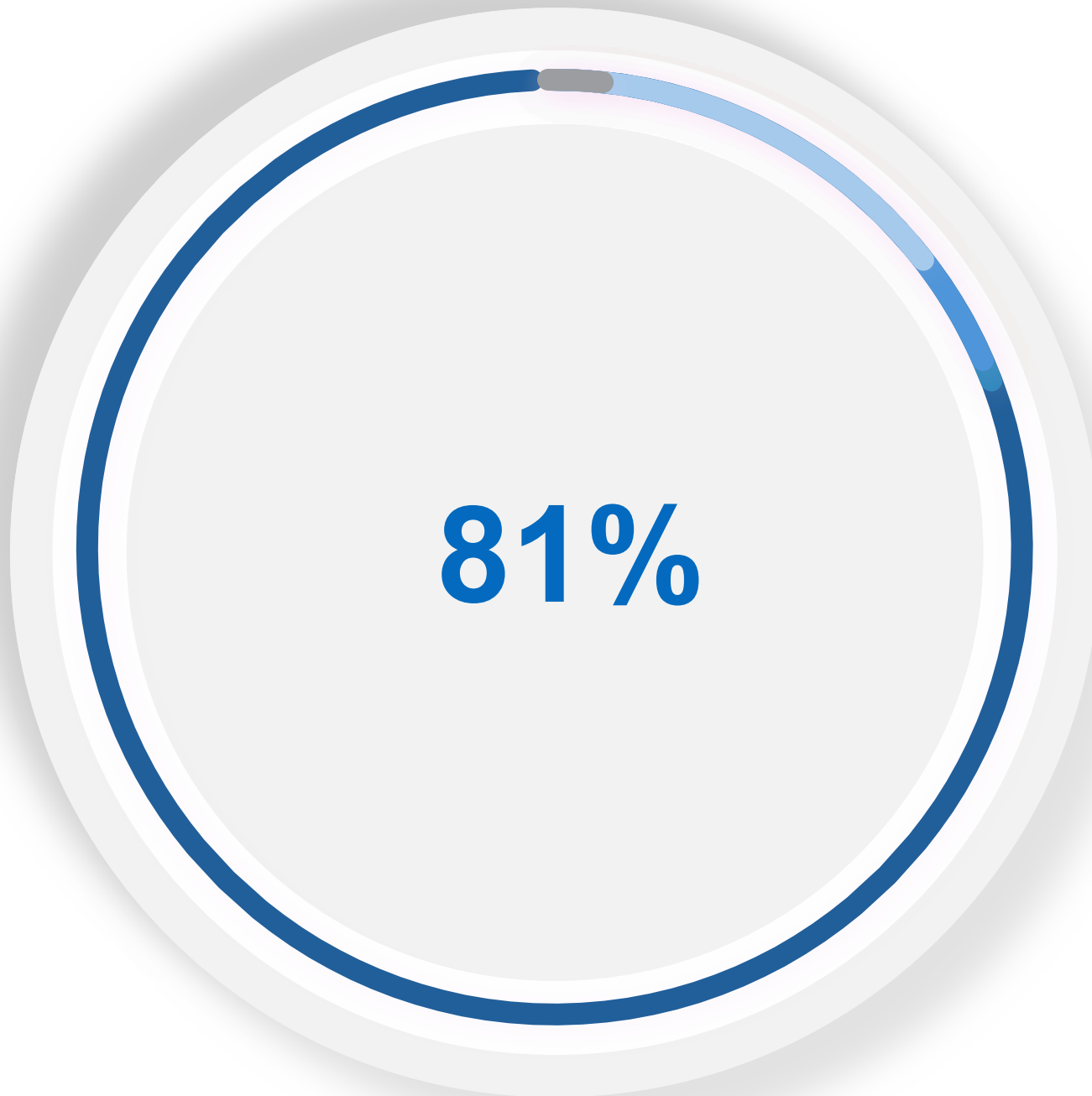
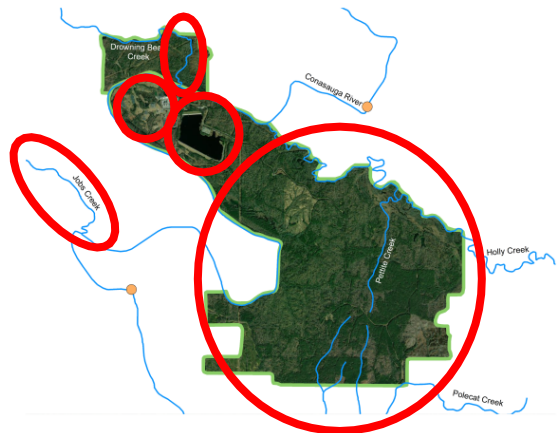
+ 221 kg PFOS/year



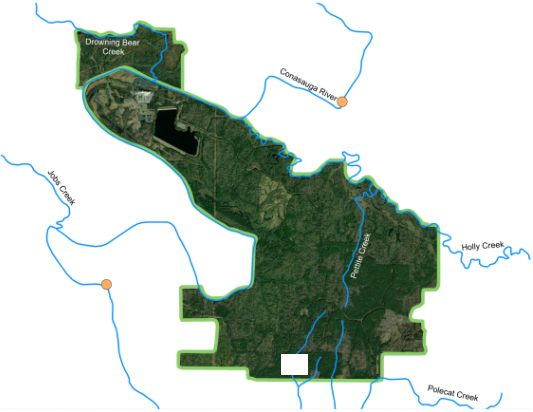
+ 221 kg PFOS/year

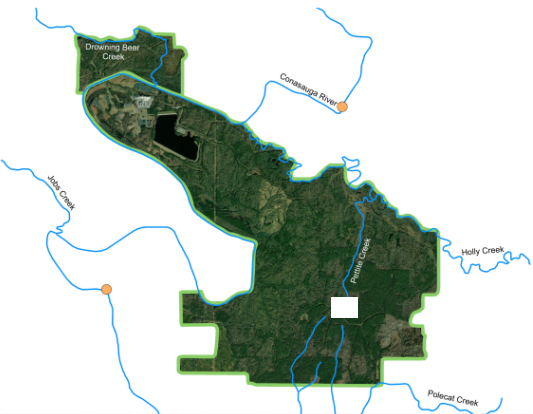


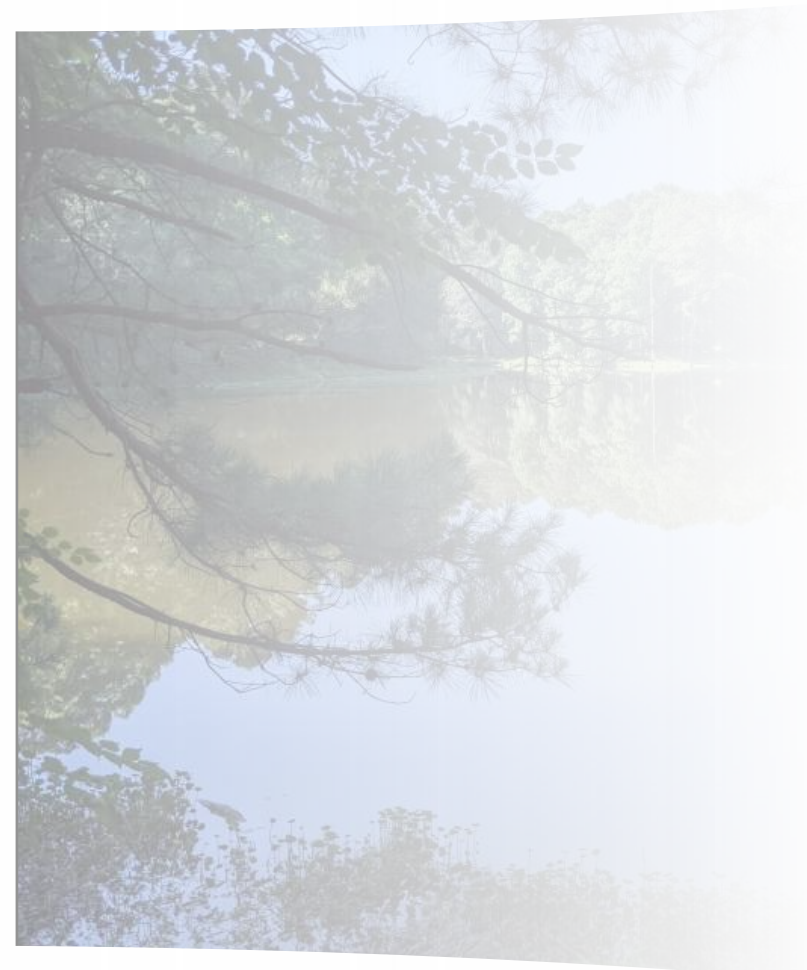
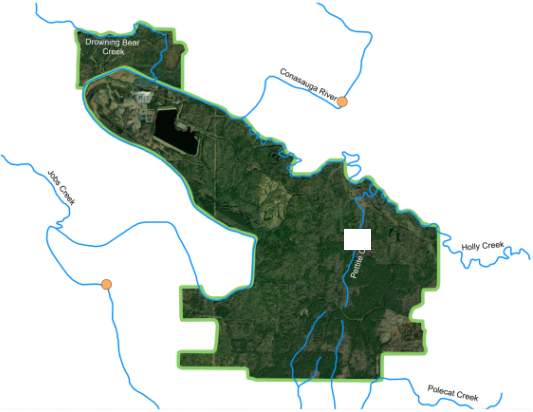
+ 221 kg PFOS/year

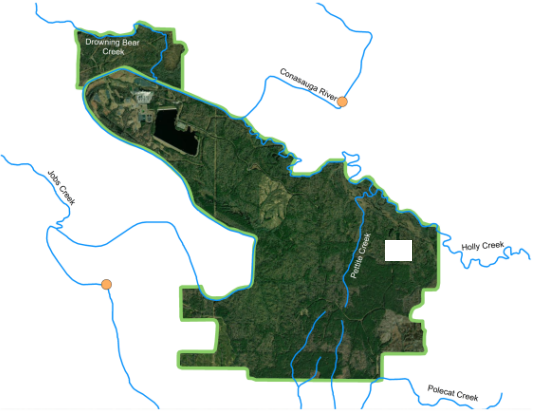


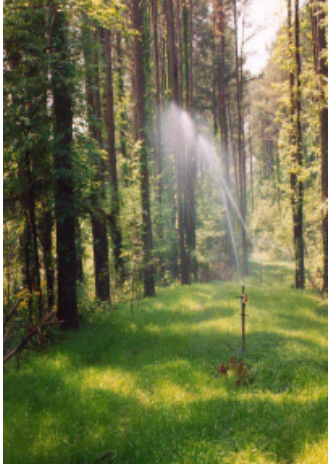
+ 221 kg PFOS/year



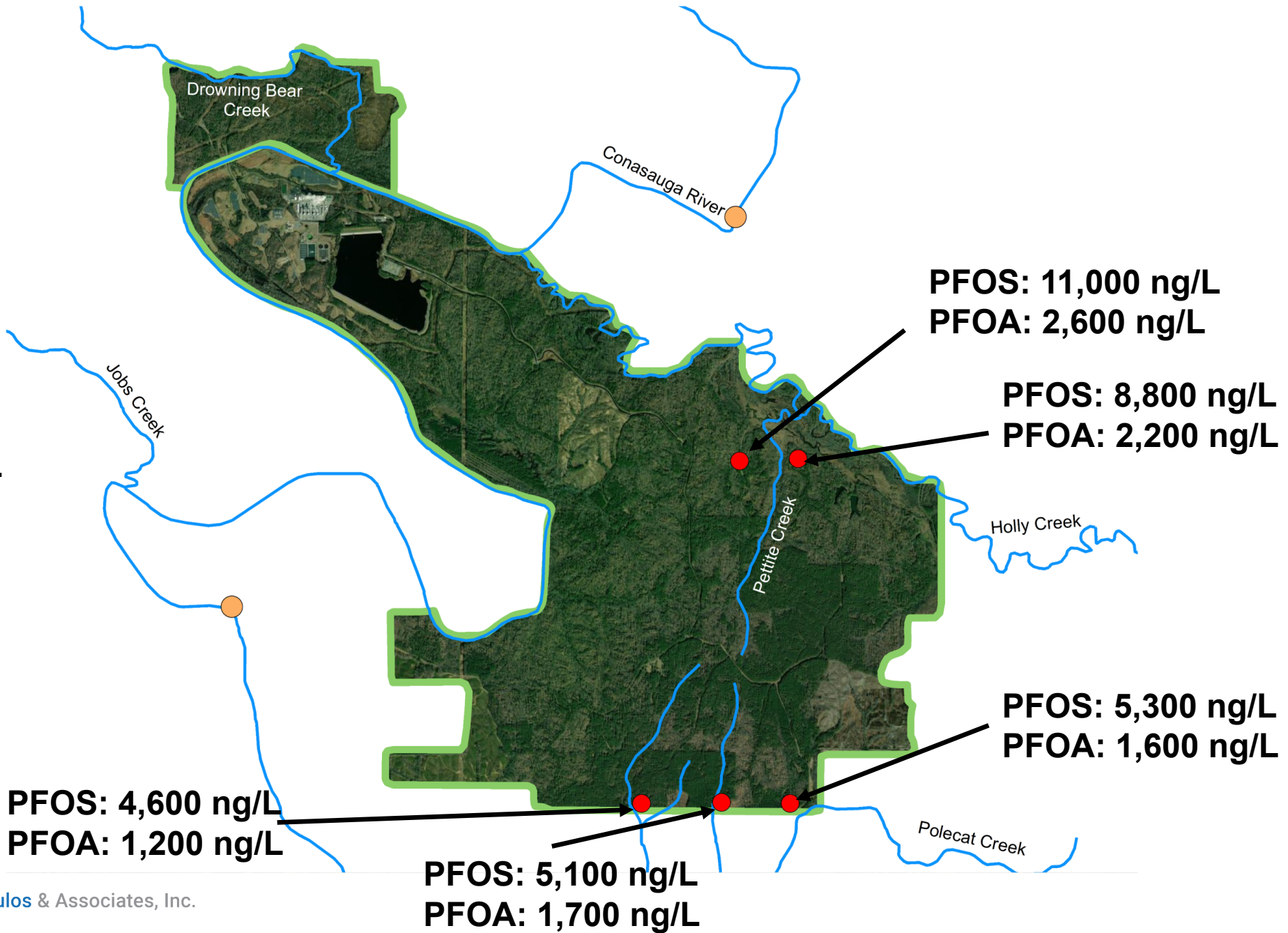


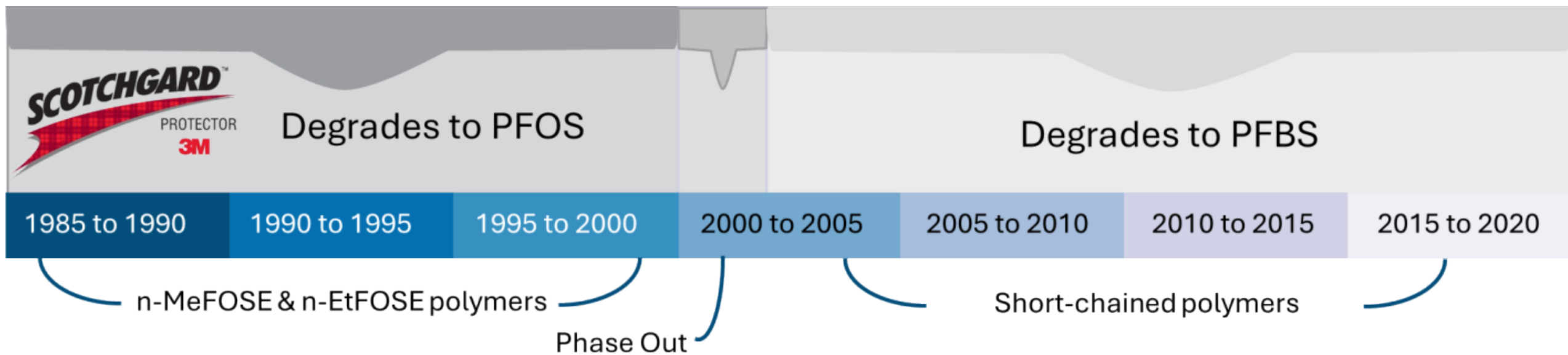






PFOS: 336 ng/L
PFOA: 237 ng/L

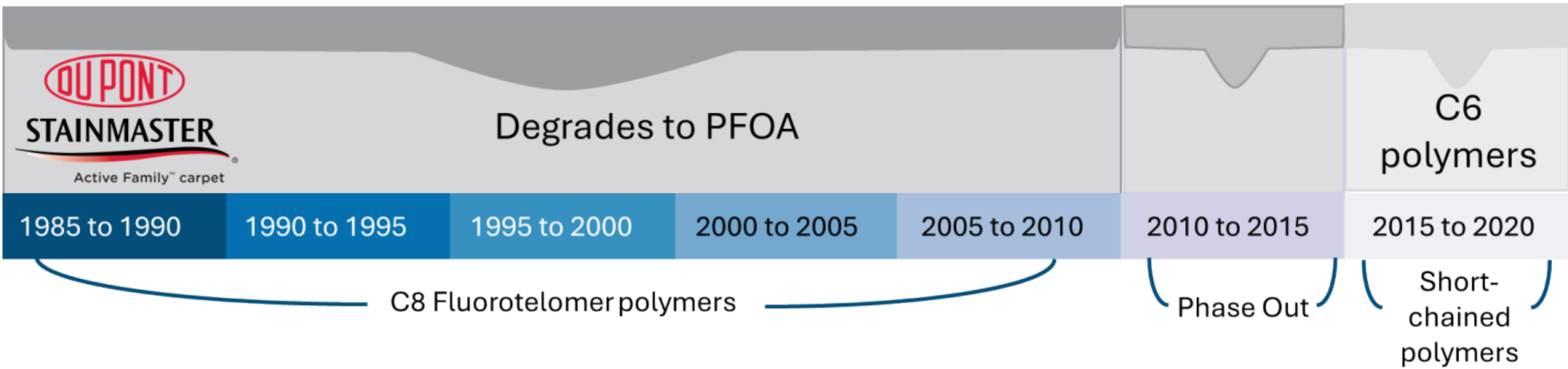


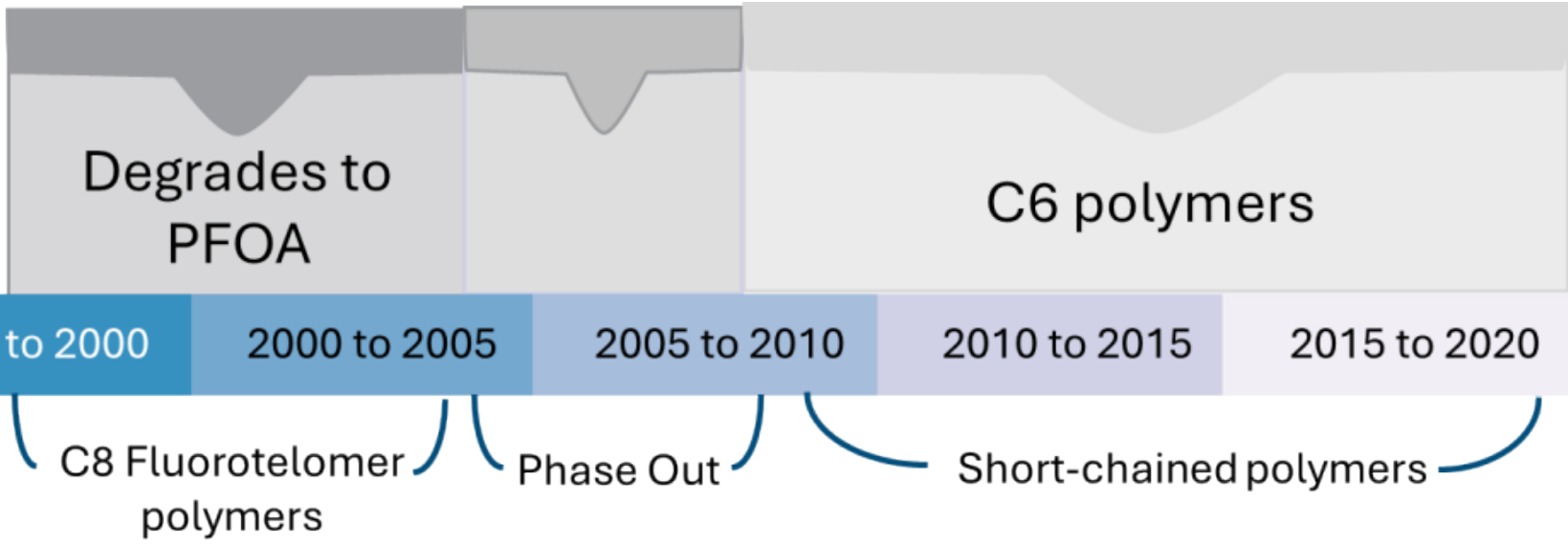
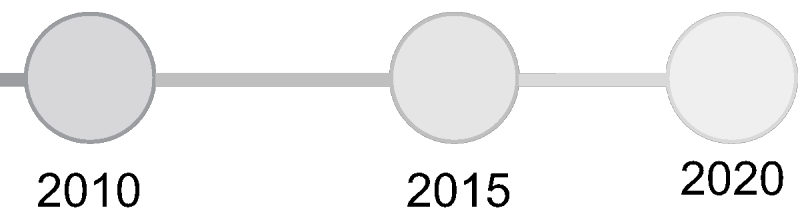
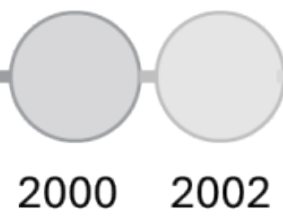


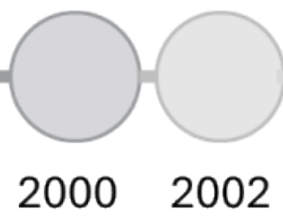


2000 2002

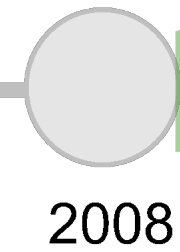
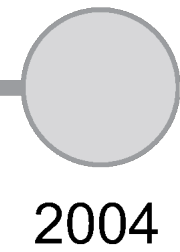
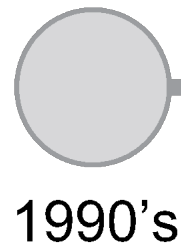
2020



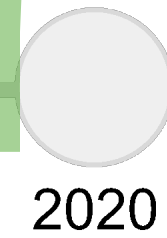


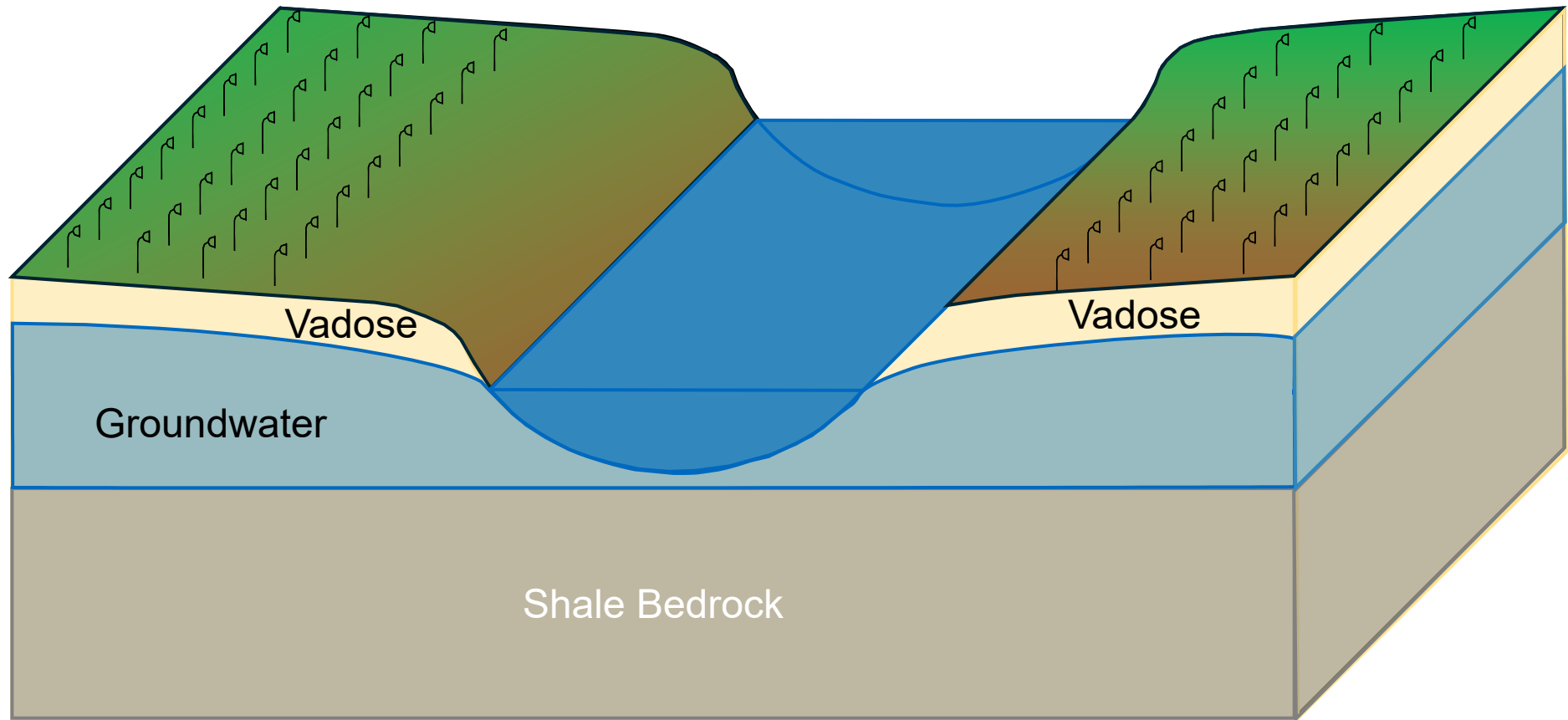


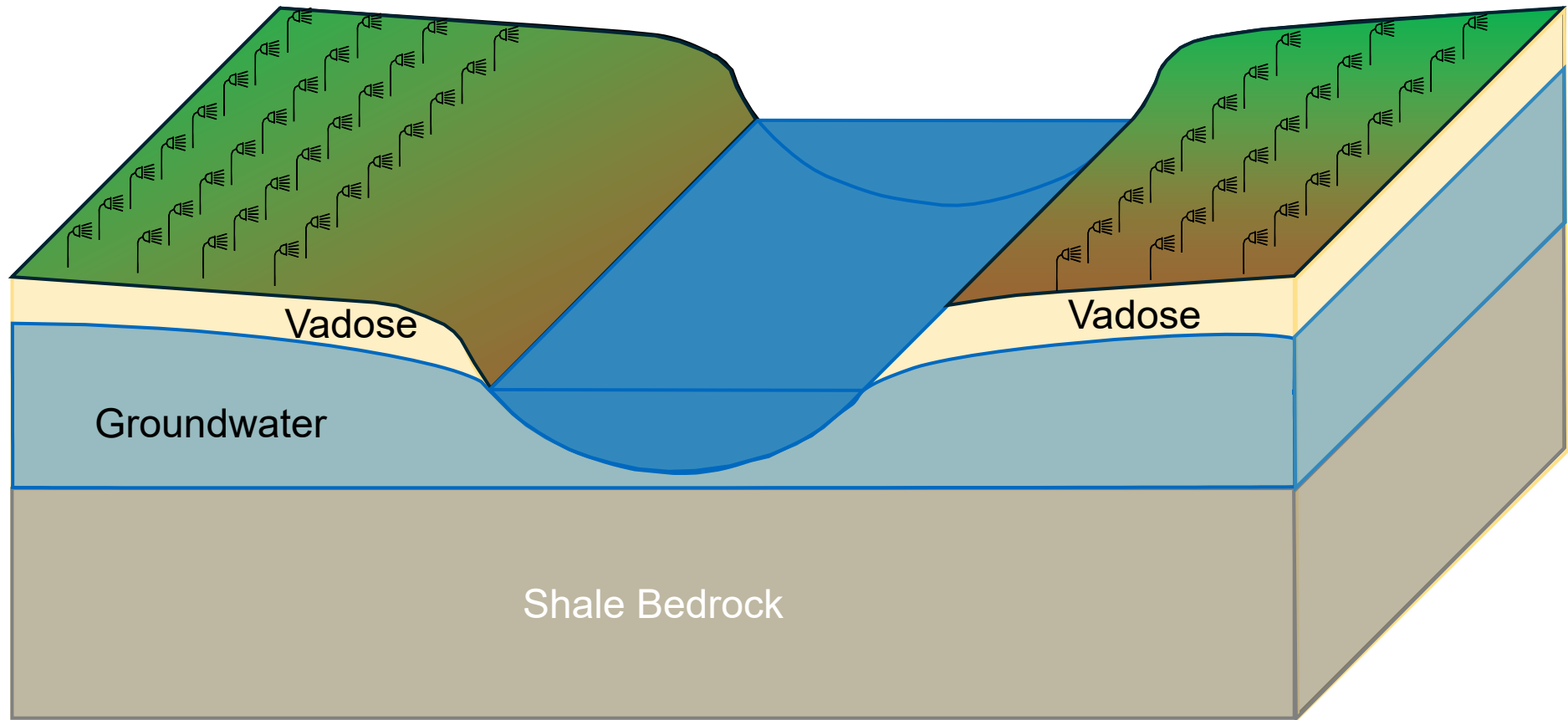
**~20
Years
PFOS**

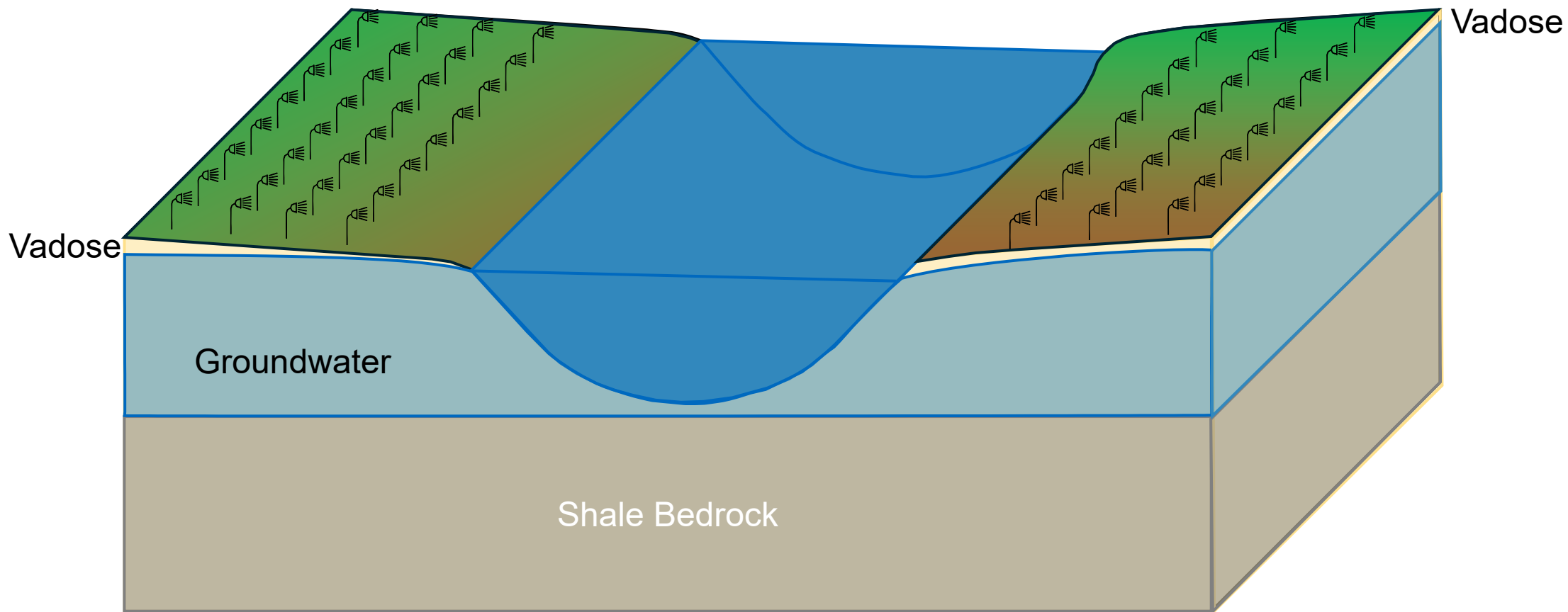


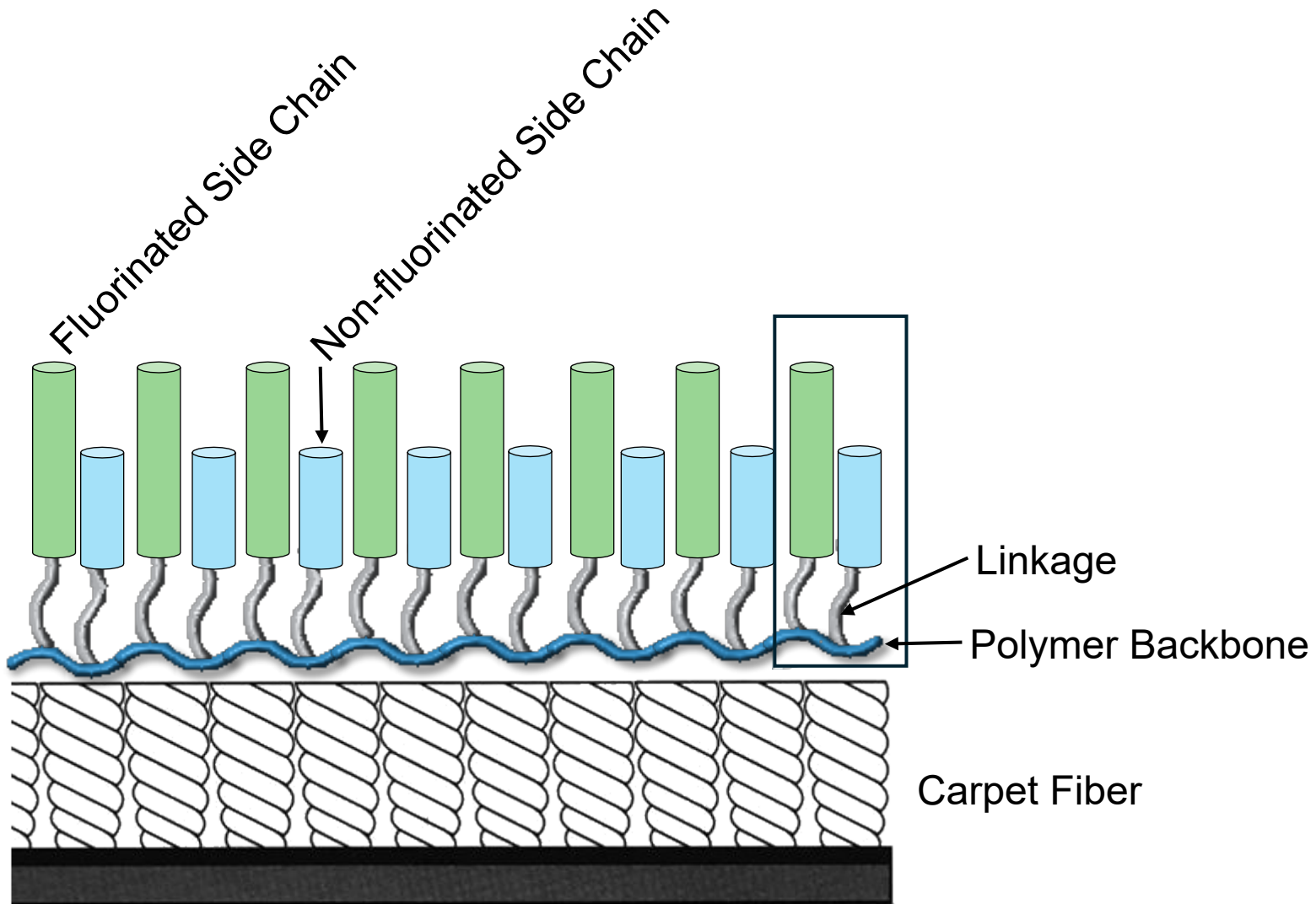
**~5 to 12
Years
PFOA**

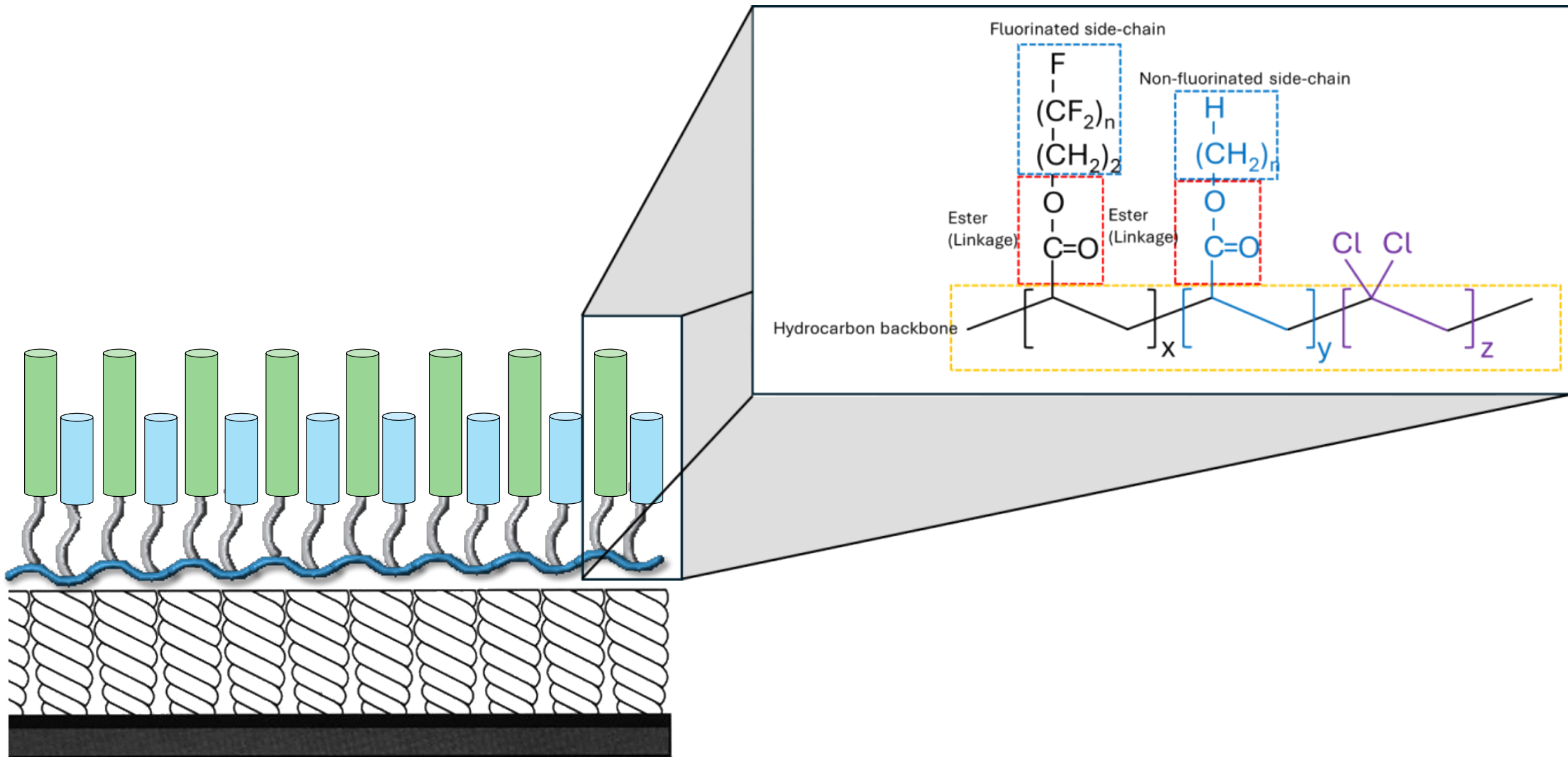


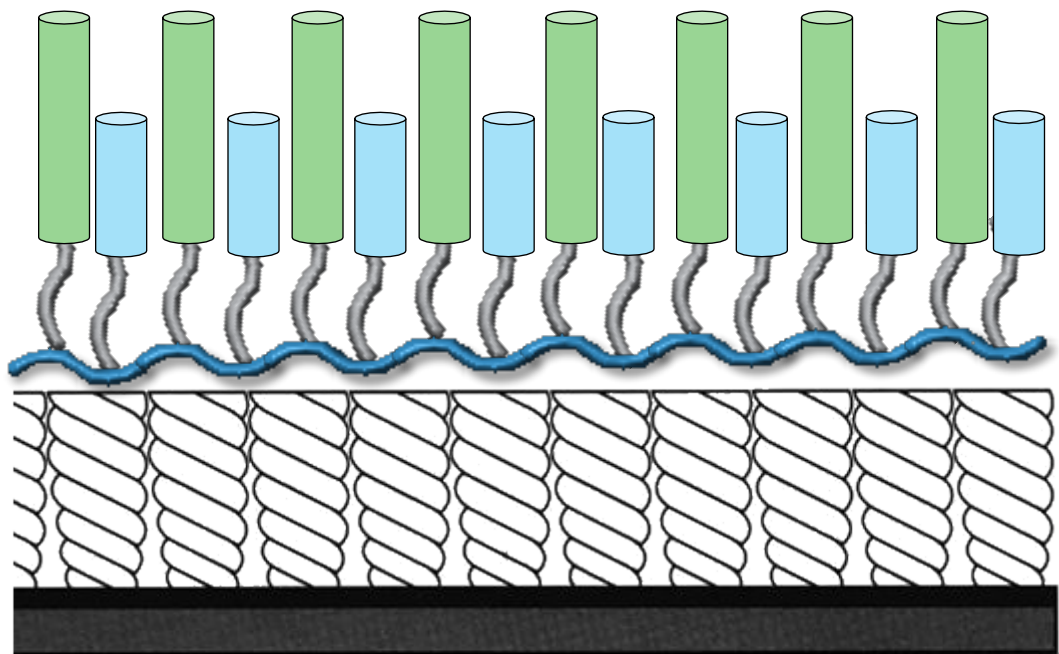


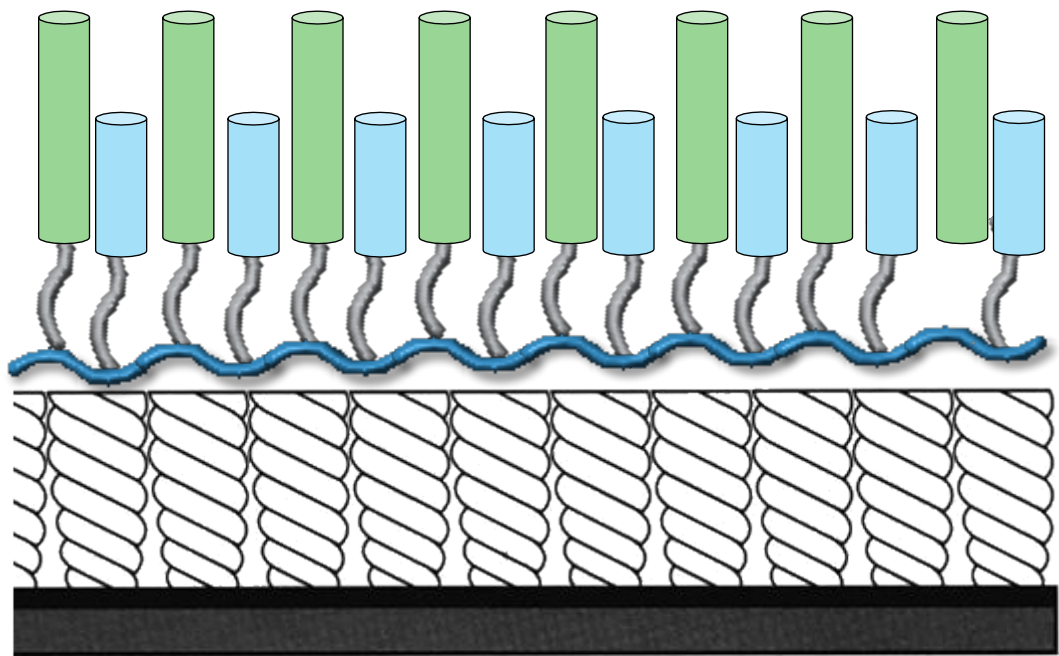


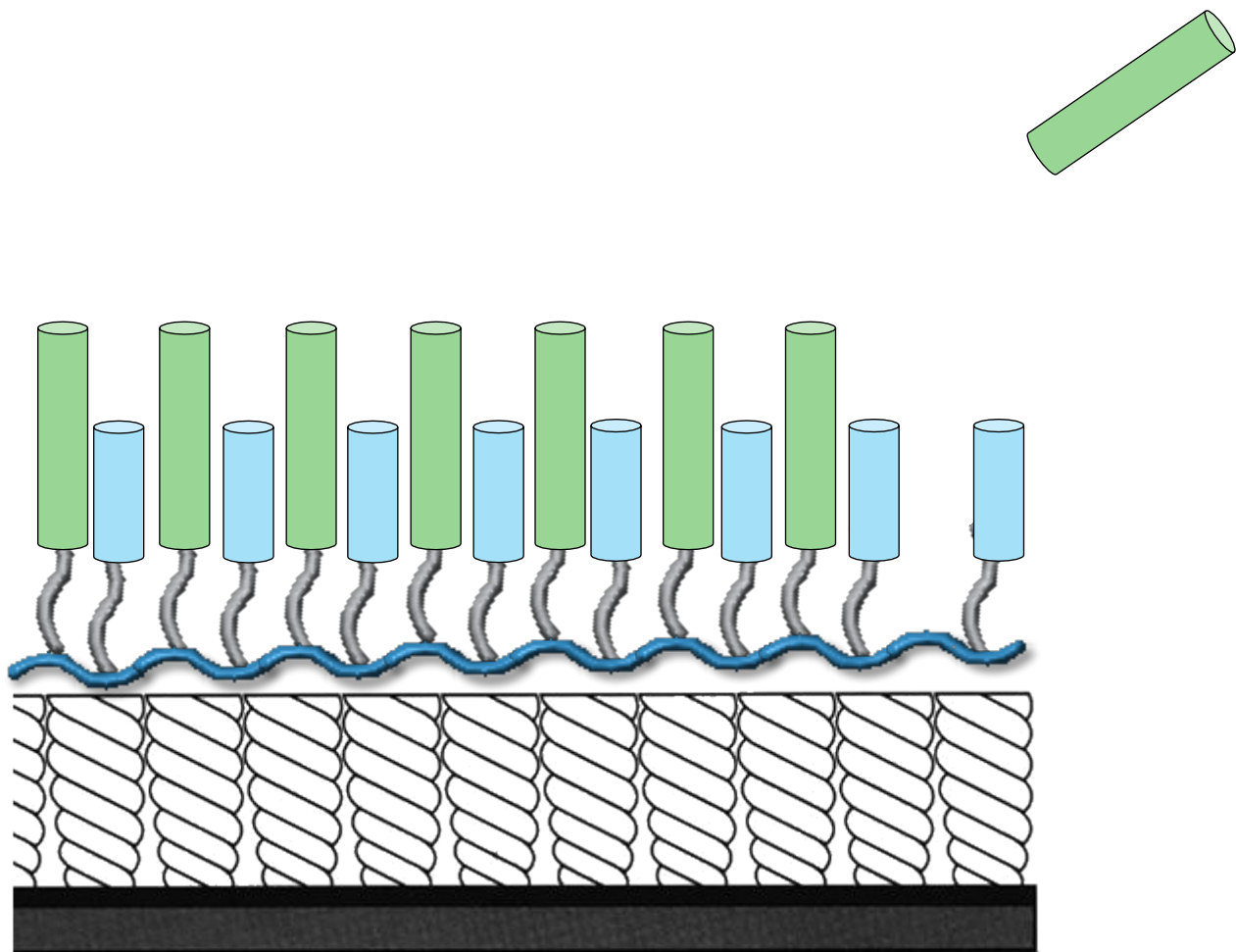




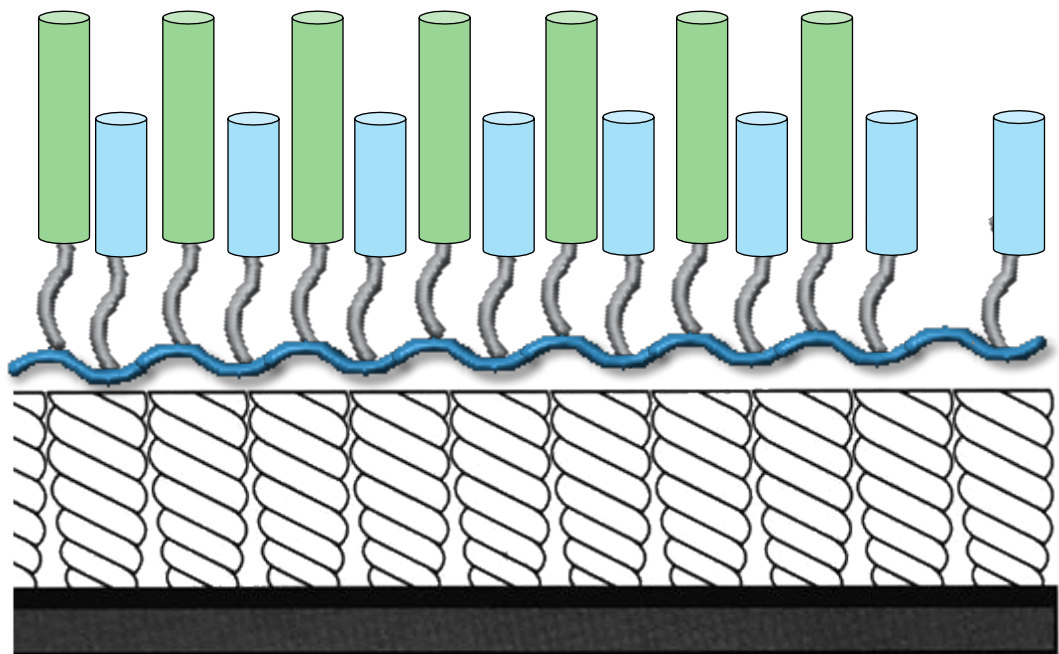






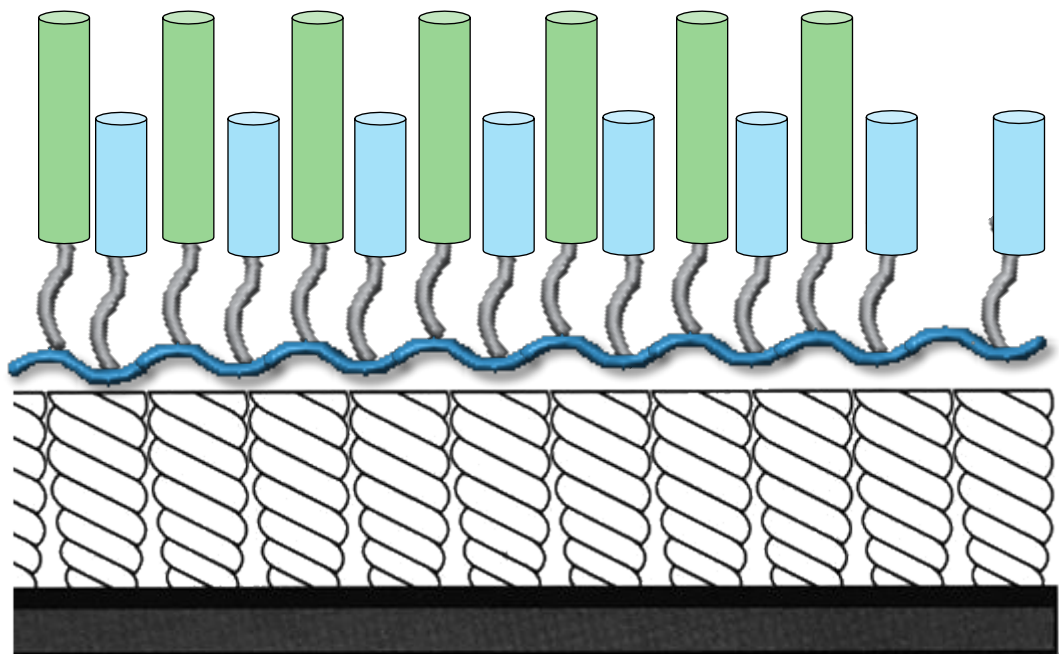


Reactive
Intermediates



Reactive
Intermediates

Terminal
PFAS



Investigation of the Biodegradation Potential of a Fluoroacrylate Polymer Product in Aerobic Soils

MARK H. RUSSELL,* WILLIAM R. BERTI, BOGDAN SZOSTEK, AND ROBERT C. BUCK
E. I. duPont de Nemours and Co., Inc., Wilmington, Delaware



Evaluation of PFO formation from the biodegradation of a fluorotelomer-based urethane polymer product in aerobic soils

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ENVIRONMENTAL
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Article

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Decades-Scale Degradation of Commercial, Side-Chain, Fluorotelomer-Based Polymers in Soils and Water

John W. Washington,*† Thomas M. Jenkins,‡ Keegan Rankin,§ and Jonathan E. Naile†



Degradability of an Acrylate-Linked, Fluorotelomer Polymer in Soil

JOHN W. WASHINGTON,*† J. JACKSON ELLINGTON,† THOMAS M. JENKINS,†‡ JOHN J. EVANS,†,§ HOON YOO,†,§ AND SARAH C. HAFNER†,||

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Keegan Rankin, Holly Lee, Pablo J. Tseng, and Scott A. Mabury*

Environ. Sci. Technol. 2008, 42, 800–807

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Polymer Degradation and Stability 95 (2010) 79–85

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journal homepage: www.elsevier.com/locate/polydegstab



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Half-Life: ~10 to >100 years

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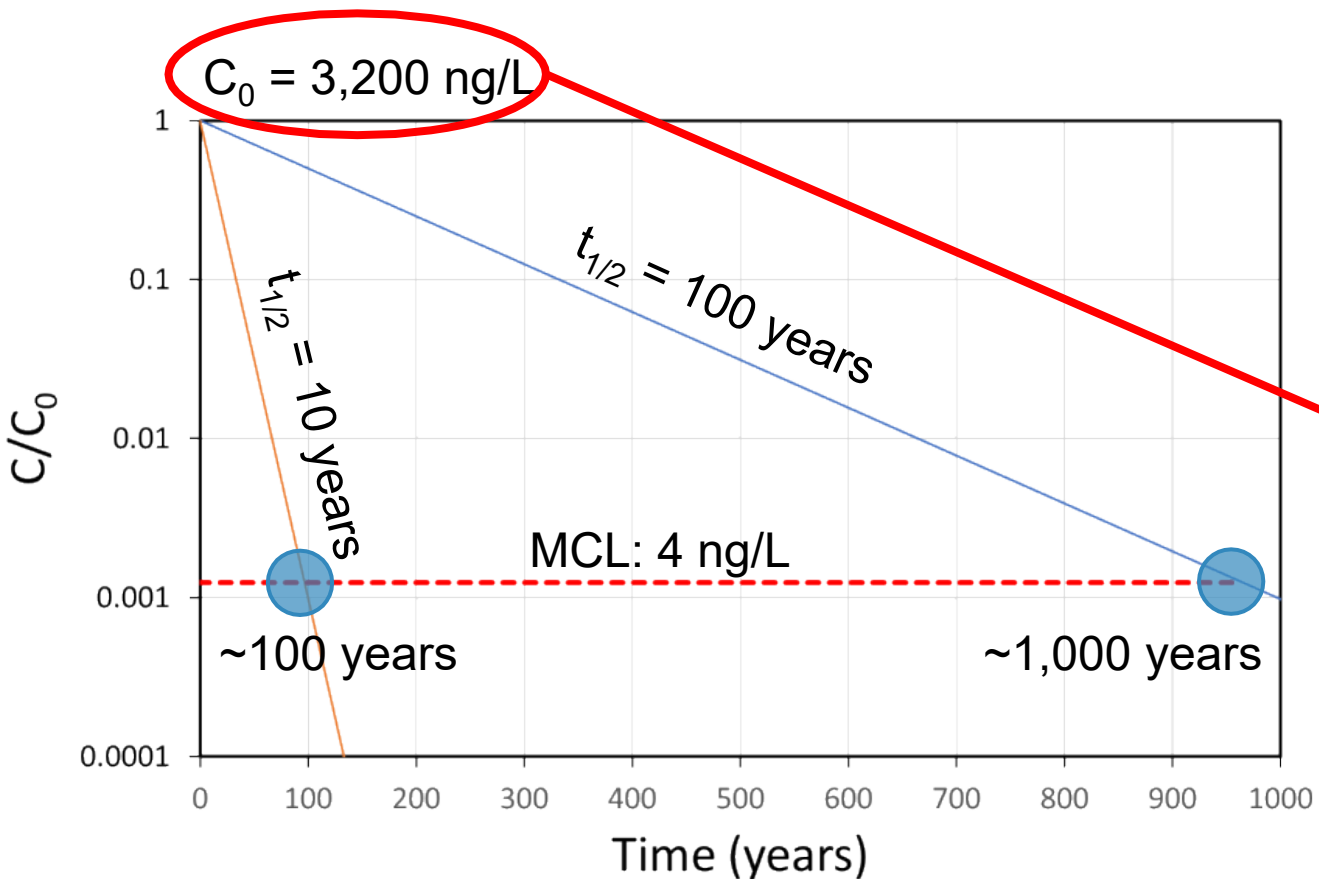


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Occurrence of quantifiable and semi-quantifiable poly- and perfluoroalkyl substances in united states wastewater treatment plants

Charles E. Schaefer^{a,*}, Jennifer L. Hooper^b, Laurel E. Strom^b, Ibrahim Abusallout^b, Eric R.V. Dickenson^c, Kyle A. Thompson^{c,d}, Gayathri Ram Mohan^e, Dina Drennan^b, Ke Wu^f, Jennifer L. Guelfo^f

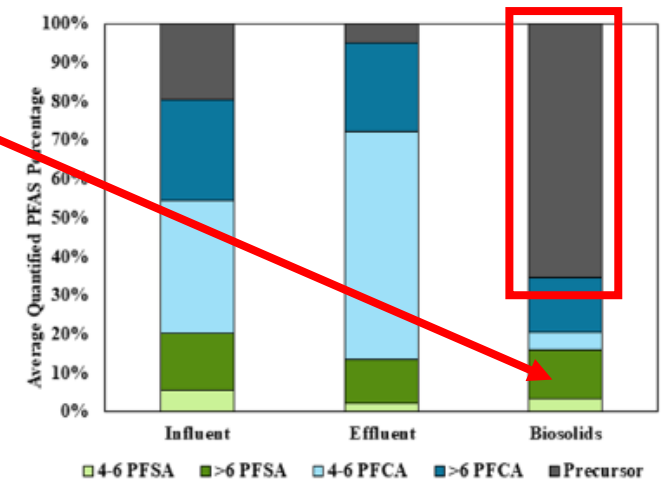


Fig. 3. Average percentage of quantified PFAS concentration (ng/L) detected by class in influent, effluent, and biosolids. PFASs and PFCAs are classified by carbon chain length (4–6 or >6).