

Impacts on PFAS and Fires on Water Reuse

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Per- and polyfluorinated alkyl substances (PFAS)

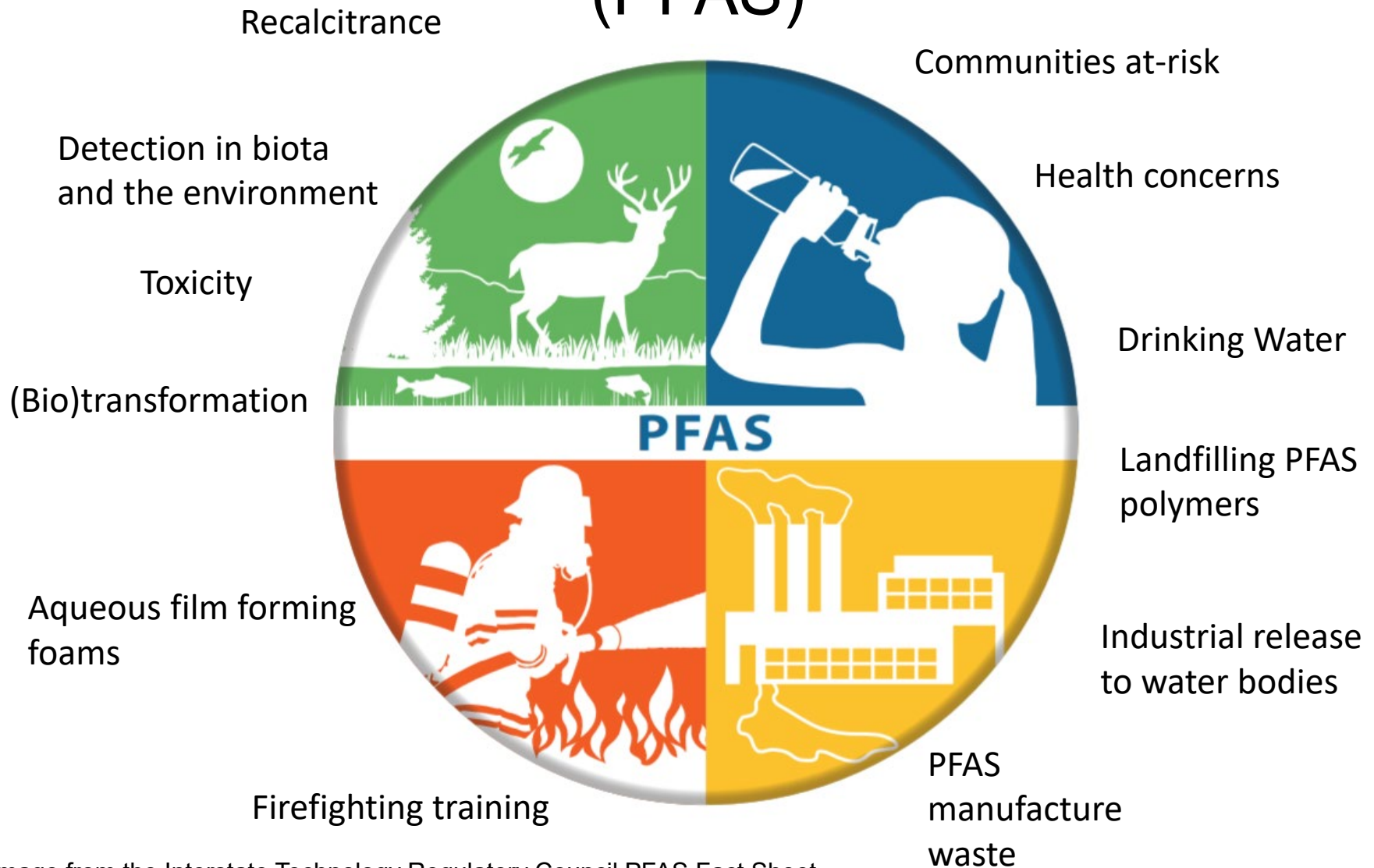
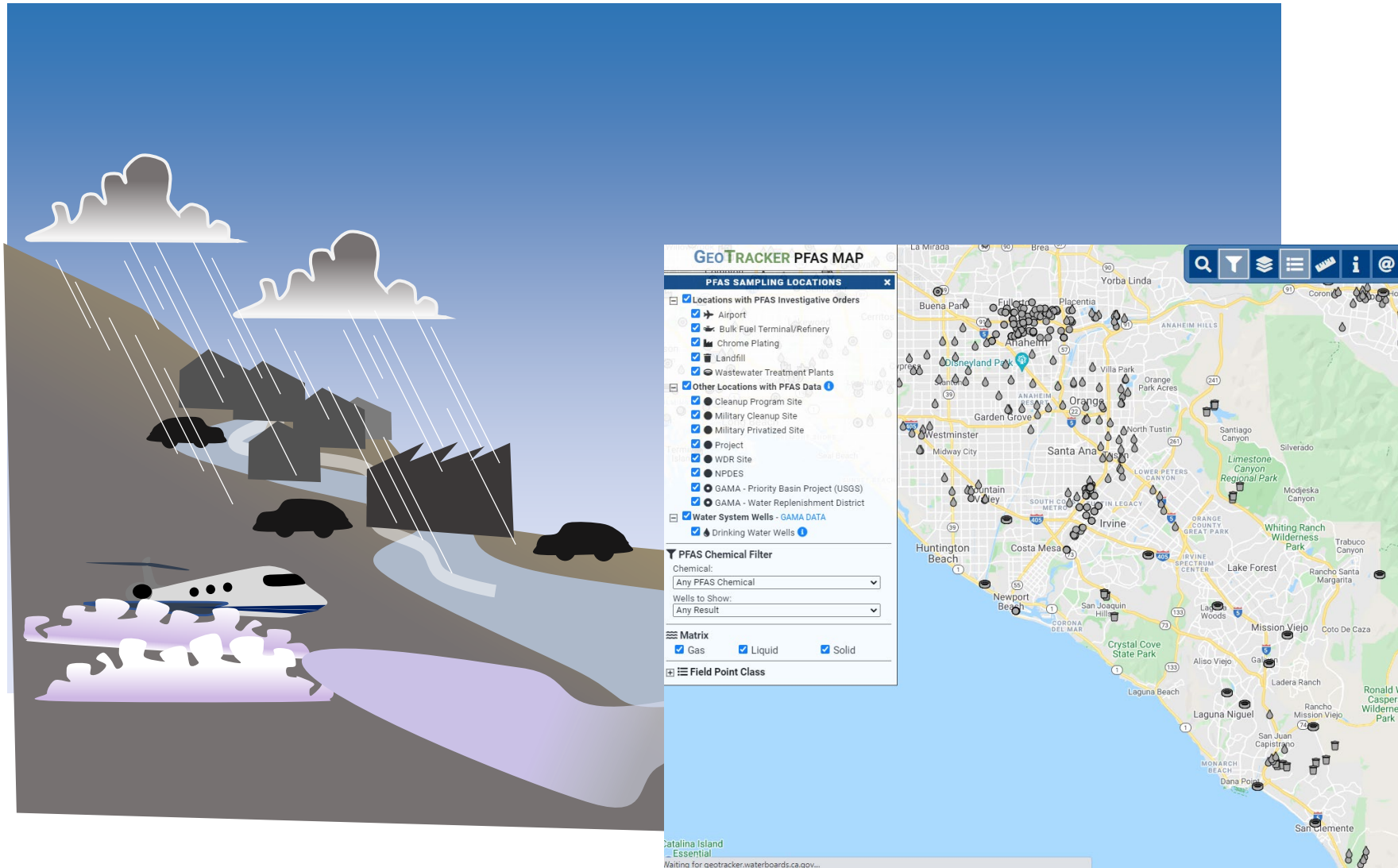


Image from the Interstate Technology Regulatory Council PFAS Fact Sheet

https://pfas-1.itrcweb.org/wp-content/uploads/2017/10/pfas_fact_sheet_naming_conventions_11_13_17.pdf

PFAS from different sources combine in surface flow, stormwater, and water reuse



https://geotracker.waterboards.ca.gov/map/pfas_map

Precursors transform to PFCAs, PFSA's but not further

PFAS

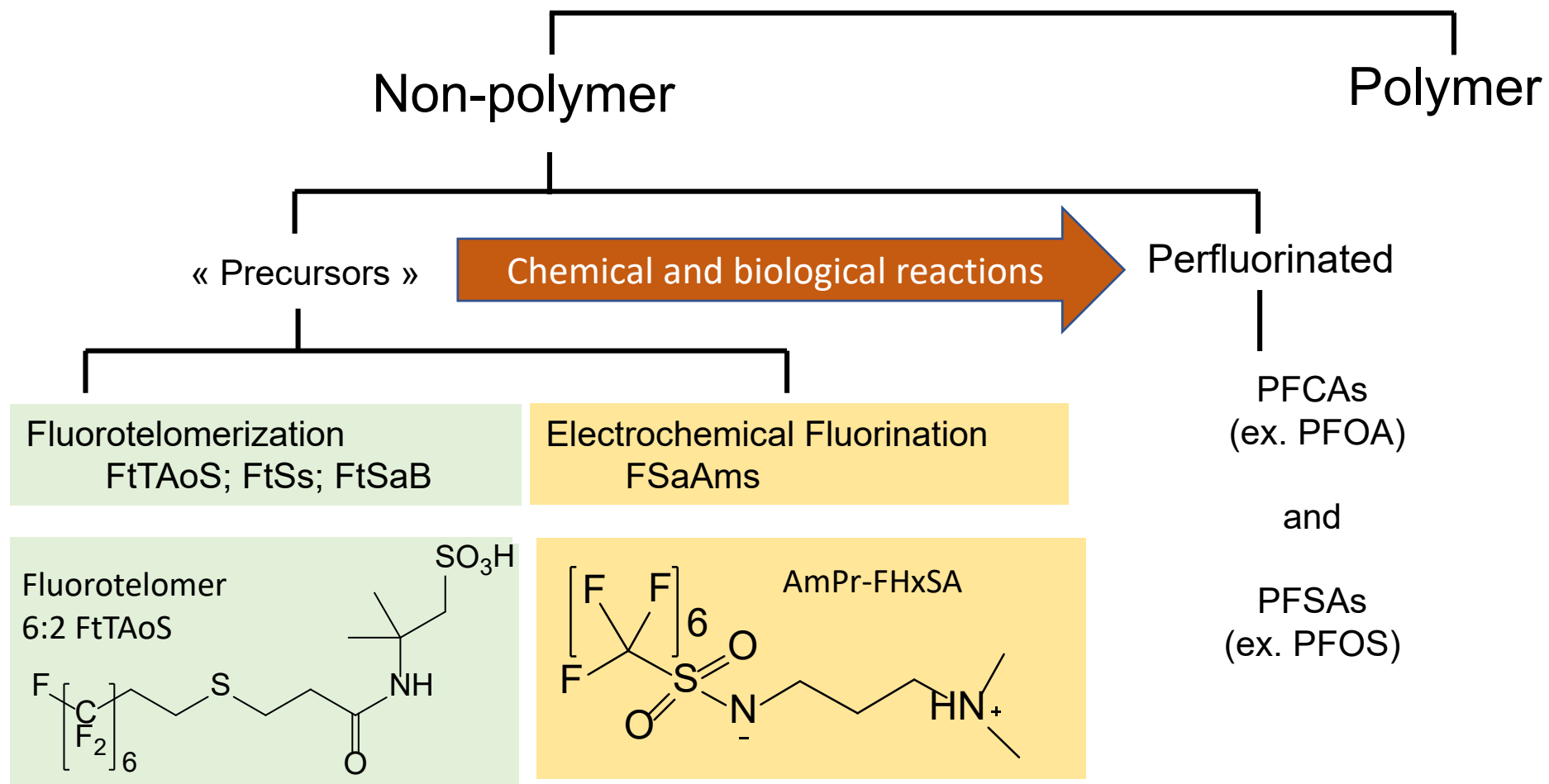
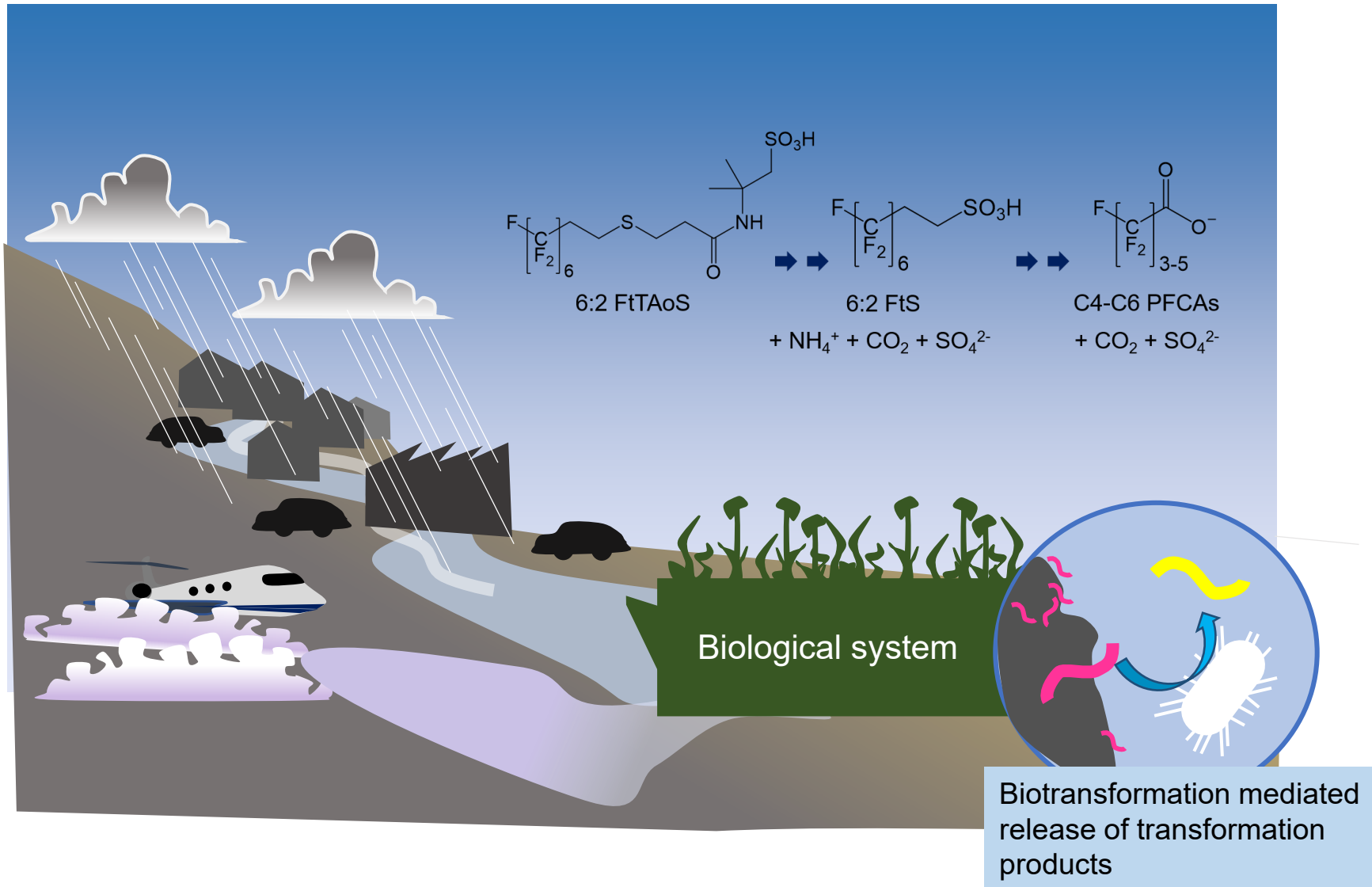


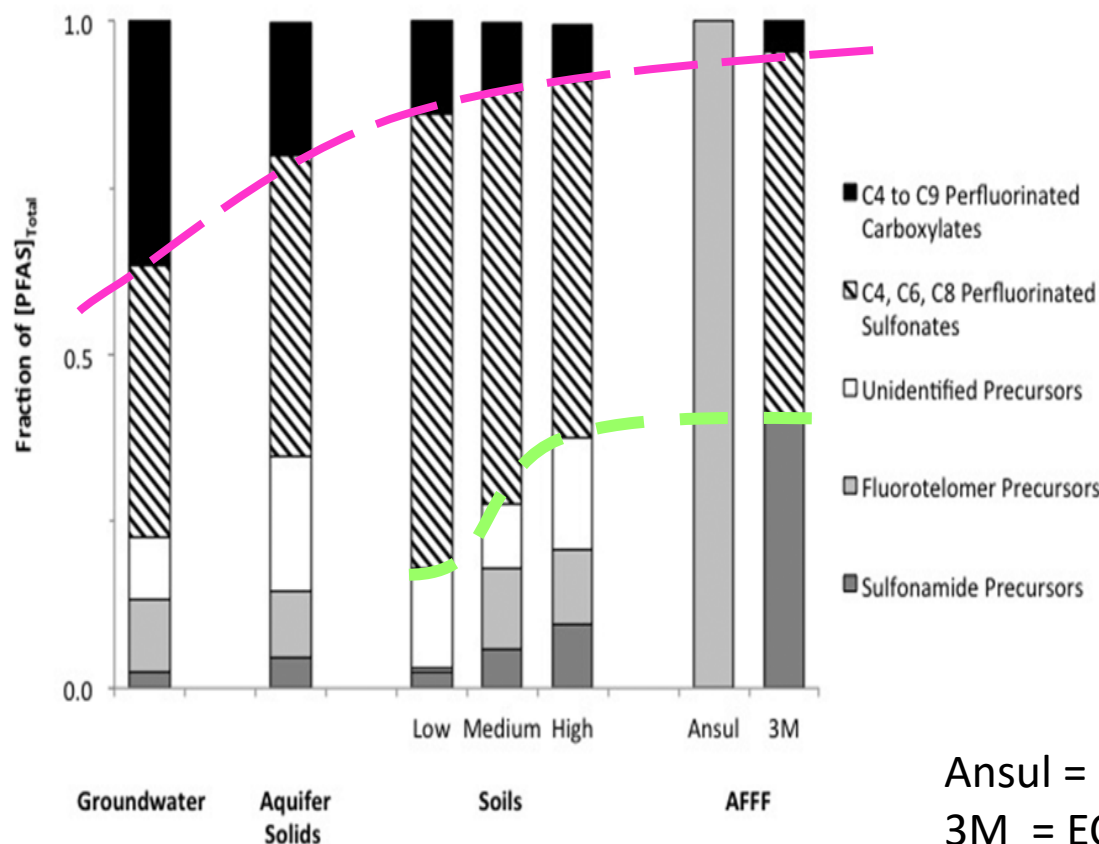
Figure adapted from the Interstate Technology Regulatory Council PFAS Fact Sheet

https://pfas-1.itrcweb.org/wp-content/uploads/2017/10/pfas_fact_sheet_naming_conventions_11_13_17.pdf

PFAS can impact water reuse strategies



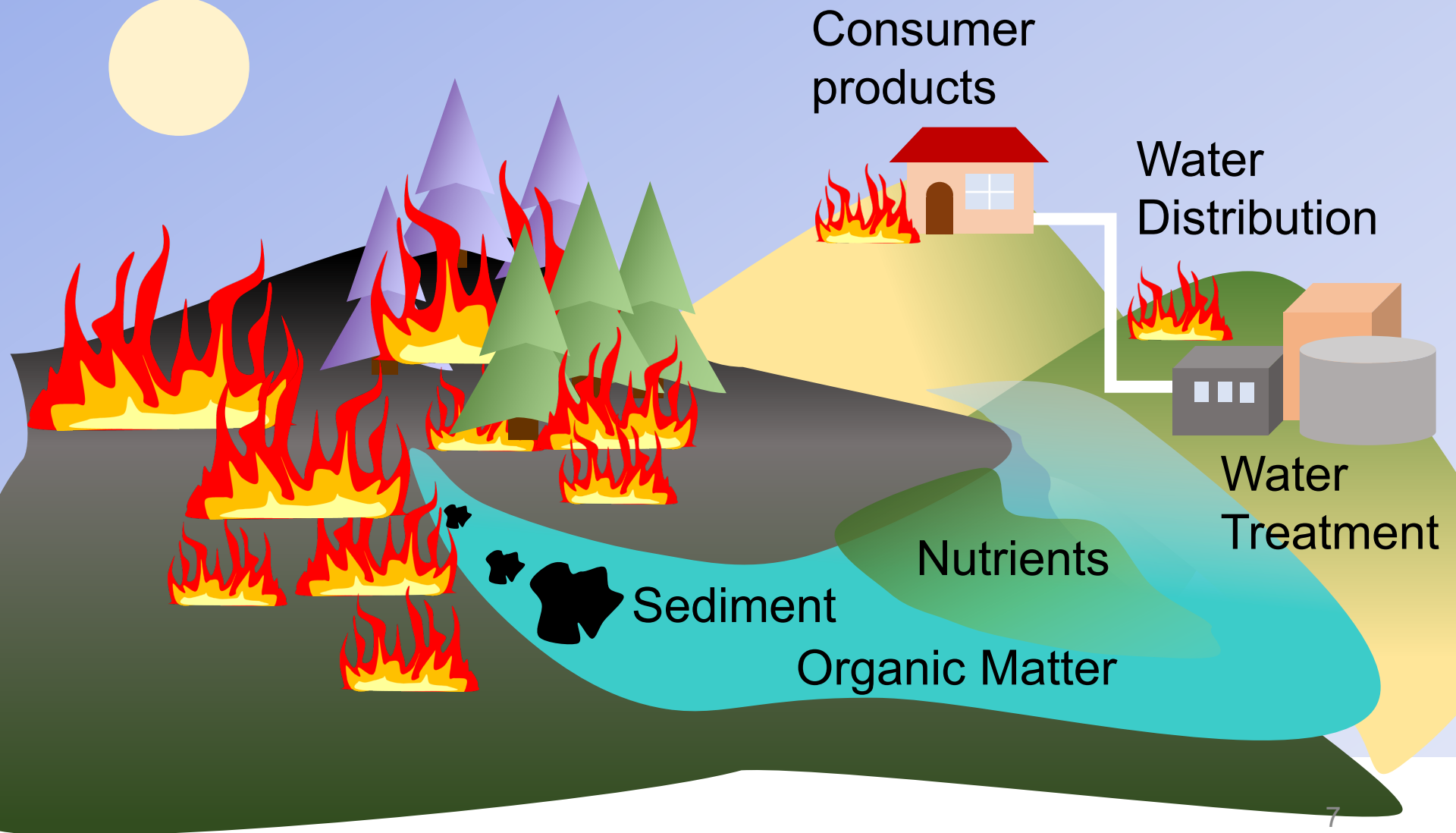
Increased PFCAs in the environment compared to AFFF suggest precursor biotransformation



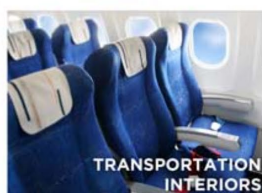
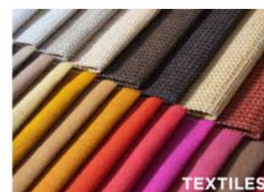
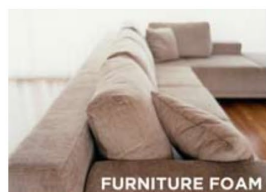
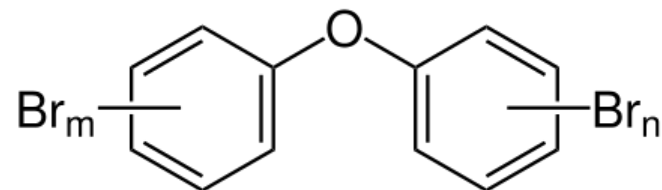
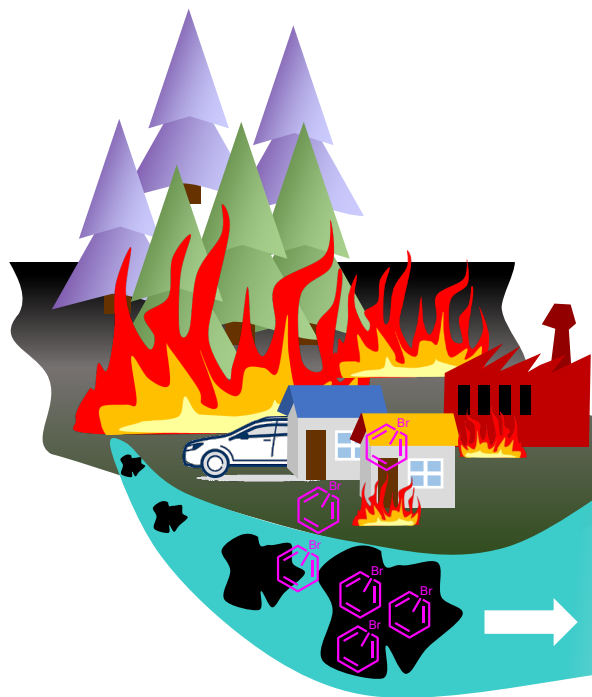
Ansil = Fluorotelomer
3M = ECF

Houtz et al. Environ. Sci. Technol. 2013, 47, 8187-8195

Water quality impacts of wildfires at the urban-wildland interface



Not just Superfund sites, but we use at home flame retardants, known carcinogens, that get released after an urban fire



<https://www.sixclasses.org/videos/flame-retardants>

<https://www.psr-la.org/massive-woolsey-fire-began-on-contaminated-santa-susana-field-laboratory-close-to-site-of-partial-meltdown/>

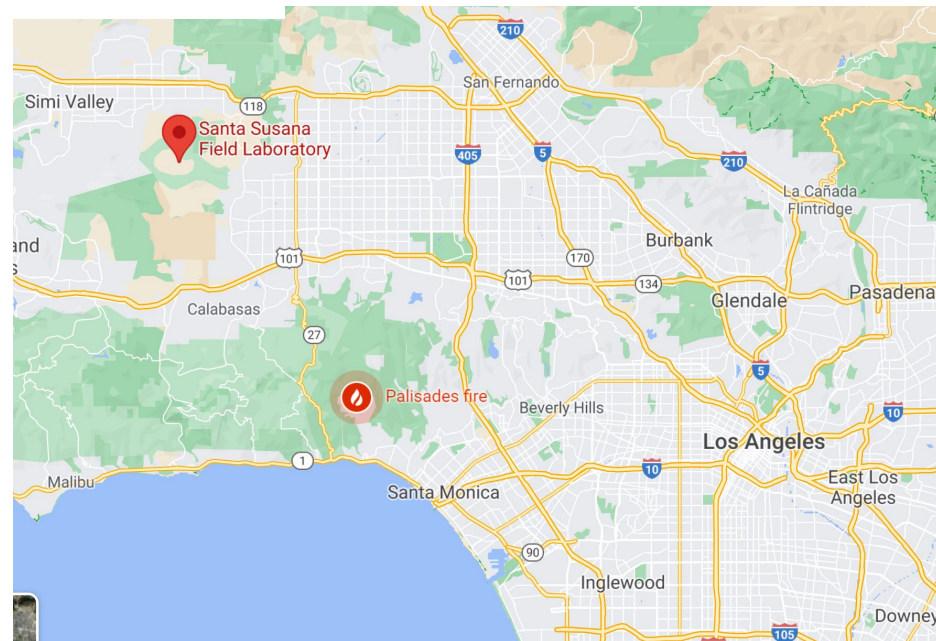
Massive Woolsey Fire Began On Contaminated Santa Susana Field Laboratory, Close to Site of Partial Meltdown

Nov 12, 2018



Santa Susana Field Laboratory is a former nuclear site
Northeast of Los Angeles

<https://www.vcstar.com/story/news/local/communities/simi-valley/2021/01/19/woolsey-fire-report-no-toxins-released-santa-susana-field-laboratory/4179543001/>



Benzene and VOCs detected in tap water after Tubbs and Camp Fires

Wildfire caused widespread drinking water distribution network contamination

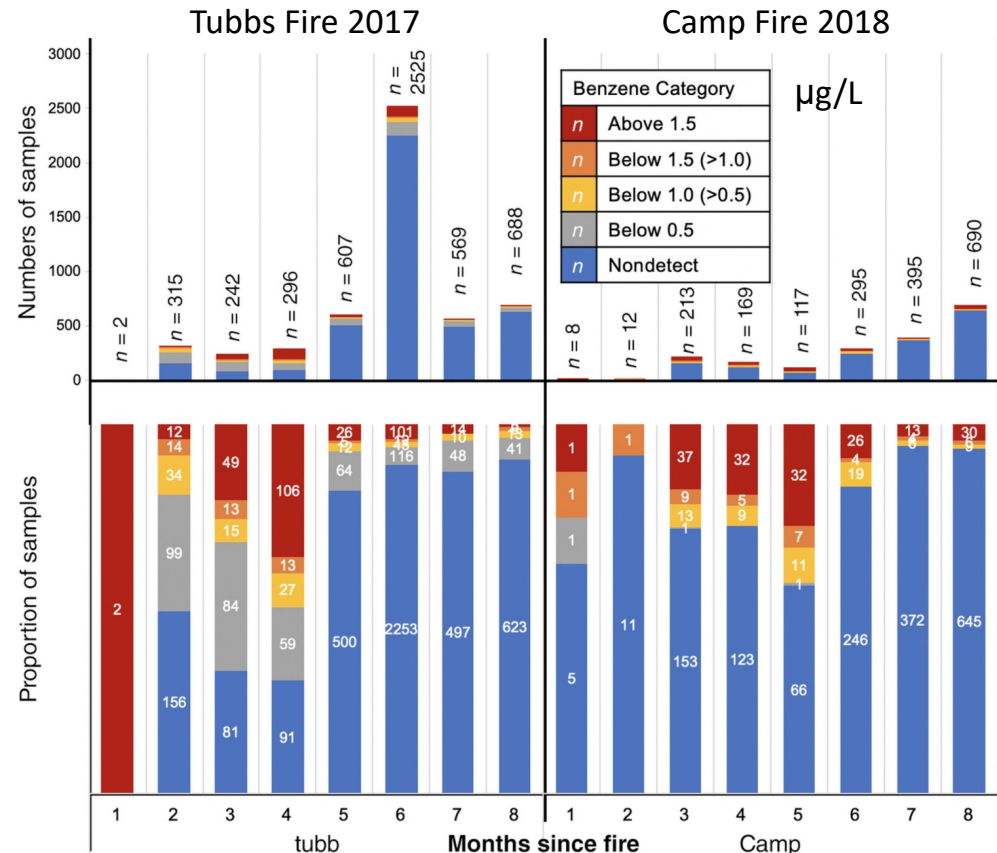


Camp Fire in Paradise, CA 2018 (NYT)



<https://www.nytimes.com/2020/10/02/science/wildfires-water-toxic.html>

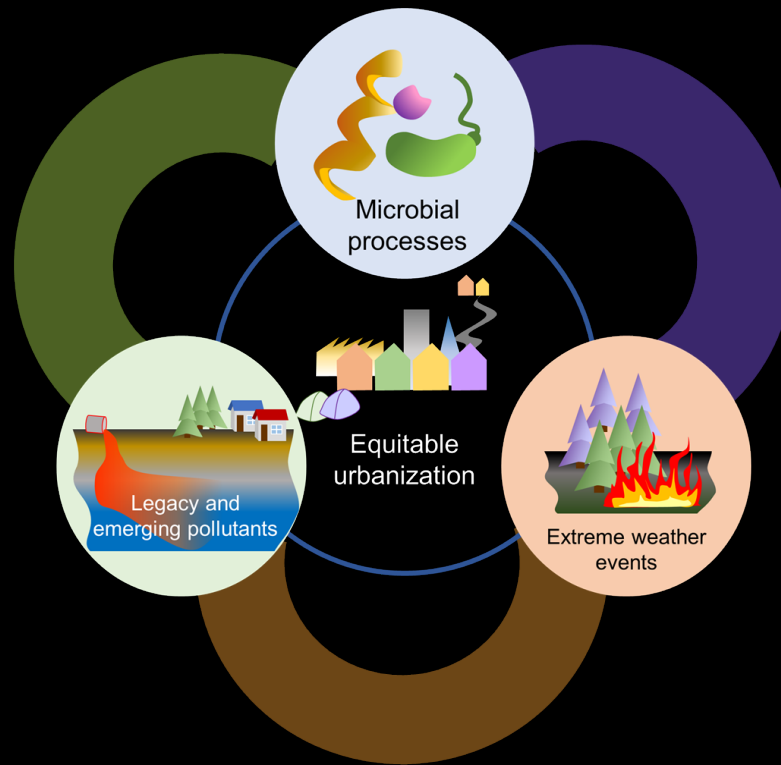
Burnt plastic pipe in San Lorenzo Valley, CA 2020 (NYT)



Benzene CA Notification level 1 $\mu\text{g/L}$

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Harnessing microbes for pollution and climate change challenges for equitable communities



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