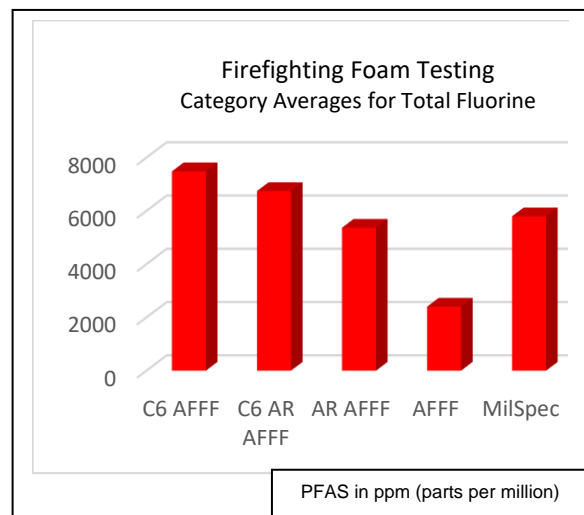




Bulletin #66, Precursors, September 28, 2022

“All fluorinated firefighting foams characterised to date contain polyfluorinated precursors to the regulated PFAS, so conventional analysis such as the use of EPA methods 533 and 537.1 cannot assess the concentrations of principle PFAS in most fluorinated foams. The ‘C6’ firefighting foams tend to contain PFAS undetectable by conventional commercial analysis, which are converted by microbial action in soil and groundwater to the regulated PFAS. ***There is evidence to show that these bioactive precursors are 10,000-fold more toxic than their perfluoroalkyl daughter products, meaning it’s likely the precursors in aqueous film-forming foam (AFFF) will drive assessment of how harmful these fluorosurfactants are.***”¹
[emphasis added]

Much larger quantities of “short chain” PFAS are used in the C6 firefighting foam products than the older legacy “long chain” products. Foam Exposure Committee testing data shows how much more fluorinated chemicals are in C6 products than Aqueous Film-Forming Foam (AFFF) or a MilSpec. [FDSA Bulletin #2, May 22, 2020]



“Long- and short-chains PFAS are very persistent in the environment, resistant to microbial degradation and subjected to bioaccumulation and biomagnification in the food chain.”² Bioaccumulation and biomagnification are key issues to PFAS toxicity build-up.

From Mick Tisbury, Melbourne firefighter: “Firefighters are one of the most exposed workers to PFAS chemicals and are deeply concerned about the connections between PFAS exposures and those cancers associated with firefighting profession.”³

1 *Envirotec*, An enduring threat to water? Dr Ian Ross, Tetra Tech, May, 2021, <https://envirotecmagazine.com/2021/05/10/an-enduring-threat-to-water/>

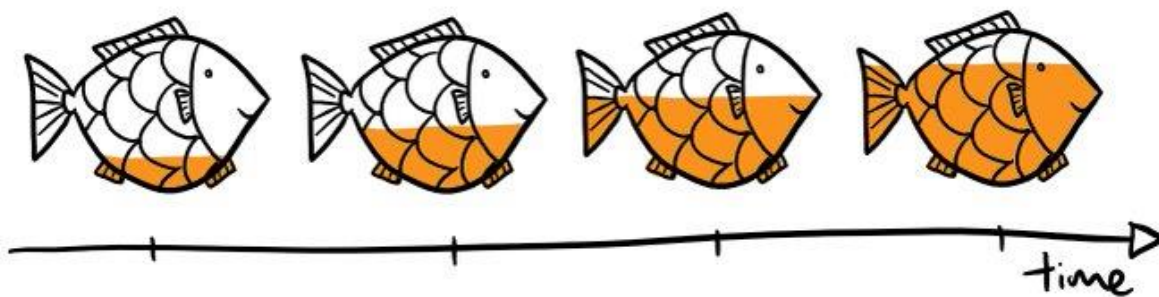
2 MDPI, Early Warnings by Liver Organoids on Short- and Long-Chain PFAS Toxicity, Stefano Palazzolo, et al., 18 February 2022, <https://www.mdpi.com/2305-6304/10/2/91>

3 IPEN, Statement of Mick Tisbury, United Firefighters Union of Australia, New Zealand Professional Firefighters Union, and the International Association of Firefighters, 29 April 2019, https://ipen.org/sites/default/files/documents/ipen_intervention_on_pfas_0.pdf



BIOACCUMULATION

■ - contaminant



BIO MAGNIFICATION

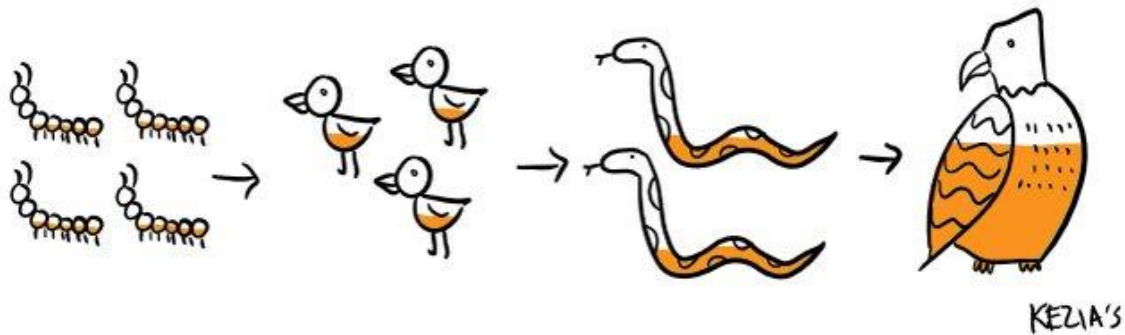


Photo credit: National Geographic Society via Trout Unlimited Canada

For more information on “precursors” check out: North America Bureau Veritas, PFAS: The Determination of Total Oxidizable Precursors (TOPS), Oc. 13, 2018 (<https://www.bvna.com/insight/pfas-determination-total-oxidizable-precursors-tops>)