Assessing PFAS Occurrence and Background Concentrations in New Hampshire Soils

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As health advisories and regulatory standards for PFAS concentration limits continue to decrease, the large knowledge gap in our understanding of anthropogenic background concentrations has become increasingly apparent. Anthropogenic background for PFAS is the concentration present in the environment resulting from human activities and can vary by location for complex reasons. This talk will delve into the sampling design and results of a shallow soil study in New Hampshire where we aimed to better understand statewide PFAS concentrations in areas without known point sources. Sites were randomly selected through an equal-area grid approach targeting undisturbed areas, and was limited to lands classified as forested, shrubland, scrubland, grassland, herbaceous, wetlands, or barren land. A variety of analyses were conducted at each site and included 36 PFAS compounds, 36 PFAS compounds post-total oxidizable precursor assay (TOPA), total organic carbon (TOC), moisture content, pH, and autoclaved-citrate extractable protein. Results and implications of the study will be discussed, along with an overview of how the state of New Hampshire is utilizing these results to pursue rulemaking for soil remediation standards. The talk will wrap up with a note about other national studies the USGS is currently undertaking to better understand anthropogenic background in groundwater and surface waters.