

The Next Frontier on PFAS Contamination, Sediment, Surface Water and Fish Tissue

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PFAS are a class of synthetic fluorinated chemicals used in many industrial and consumer products, including defense-related applications. They are persistent, found at low levels in the environment, and bio-accumulate.

The sources which can release significant quantities of PFAS to the environment vary, from industrial and municipal wastewater treatment plants (e.g., textile industry, chrome-plating industry, among others), landfill leachate treatment plants, firefighting incidents and firefighting training areas (e.g., airports, fuel production and storage facilities) and landfills. Human exposure to PFAS is mainly by ingestion of contaminated food and water. These compounds are not metabolized, bind to proteins (not to fats) and are mainly detected in the blood, liver and kidneys. Elimination of PFOS, PFHxS and PFOA from the human body takes some years, whereas elimination of shorter chain PFAS is in the range of days, which is why EPA is primarily concerned with long-chain PFAS compounds.

Studies have shown these compounds being detected more often in surface water, sediments and/or bioaccumulated into fish tissue. Because of greater affinity longer chain PFAS compounds for fish than other environmental matrices, certain compounds are often found in fish tissue, but not in the water or sediment.

More generally, PFAS is the compound that has generated the most concern in fish due to its frequent occurrence in the environment, its bioaccumulation in fish tissue, its potential human health risk, and the availability of health effects information needed to develop fish consumption advisories.

In summary, PFAS compounds are widely distributed in many bodies of waters all over US due to historic and current industrial activities, as well as the presence of military facilities. These compounds are of concern because they do not break down in the environment, bioaccumulate in humans and biota, and may pose risks to human health.