

Modeling Bioaccumulation as a Potential Route of Riverine Foodweb Exposures to PFOS

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Perfluorinated acids are compounds of interest as bioaccumulators; these persistent chemicals have been found in humans and animals throughout the world. Perfluorooctane sulfonate (PFOS) has an especially high bioconcentration factor in fish, due to the stability of PFOS in the environment and its ability to bind to proteins. Few models are available for modeling the effects of PFOS on aquatic ecosystems; one is AQUATOX, an aquatic ecosystem simulation model that simulates the fate and effects of stressors on multiple species of algae, invertebrates, and fish in diverse waterbody types. In AQUATOX, PFOS sorption to sediments and algae are modeled empirically; bioaccumulation in animals is modeled based on perfluoroalkyl chain length. To date, PFOS has been simulated with AQUATOX for an estuarine system. Future applications are using a linked-segment version for spatially explicit modeling of rivers.