



Modelling threats to water quality from fire suppression chemicals and post-fire erosion

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Misapplication of fire retardant chemicals into streams and rivers may threaten aquatic life. The possible threat depends on the contaminant concentration that, in part, is controlled by dispersion within flowing water. In the event of a misapplication, methods are needed to rapidly estimate the chemical mass entering the waterway and the dispersion and transport within the system. Here we demonstrate a new tool that calculates the chemical mass based on aircraft delivery system, fire chemical type, and stream and intersect geometry. The estimated mass is intended to be transferred into a GIS module that uses real-time stream data to map and simulate the dispersion and transport downstream. This system currently accounts only for aqueous transport. We envision that the GIS module can be modified to incorporate sediment transport, specifically to model movement of sediments from post-fire erosion. This modification could support assessment of threats of post-fire erosion to water quality and water supply systems.