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# The long journey from soils to the sea - how much of the DOM will make it all the way?

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Freshwater ecosystems receive large amounts of organic matter from the surrounding terrestrial watershed, largely as colloids and dissolved substances (DOM). Due to the apparent high recalcitrance towards biological transformations, this allochthonous DOM is traditionally viewed as an insignificant energy source for aquatic organisms, which is transported passively through the freshwater systems. However, a substantial and diverse body of evidence has developed during the last decades, which challenges this view, and demonstrates that much of the DOM that enters surface waters is degraded en route to the sea. During retention in lakes and rivers, allochthonous DOM that is transported from land to the sea is subject to microbial and photochemical transformations. Hence they provide energy to aquatic biota and turn lakes net heterotrophic, which results in evasion of carbon dioxide to the atmosphere. The CO2 evasion from lakes may be similar on a global scale to the entire riverine transport of carbon to the oceans. This presentation will synthesize current data on rates of loss of DOM in freshwaters.