Bioavailability of carbon of a Vermont river corridor is a function of landocver

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River corridors (RC) represent an integral part of river systems and can, depending on hydrology and geomorphology, act both as a source of sink for riverine carbon (C). Increased intensity or precipitation will augment river discharges and lead to erosion liberating sediment-bound, terrestrial C into the aqueous system [1]. Such aqueous organic C is more bioavailable than sediment bound C and can be readily transformed into the greenhouse gas CO_2 [2]. We hypothesized that amount and bioavailability of this RC carbon depends on land cover (agricultural vs. forested) and distance from the stream (stream bank vs. far stream) and use a 5th order stream in Vermont (USA) to test this hypothesis. Four representative land covers were sampled with depth including spatial and temporal replicates in summer 2015, analysed for total and water extractable organic C and % respired C using incubations. Preliminary results indicate that the agricultural site contained the most total C but the forested site produced more WEOC. Fluvial erosion and deposition impacted near stream areas were generally low in C. Bioavailability normalized to C content was similar for all land covers. These results indicate that C characteristics vary with land cover, a metric that can be readily derived from remote sensing data allowing for assessment at greater spatial scales.

[1] Guilbert, et al. (2015) Geophysical Research Letters, **42**, 1888-1893. [2] Aitkenhead-Peterson, et al. (2003) *Aquatic Ecosystems*. 25-70.