New Insights Into How Shoreline Vegetation Protects Soil-Bound Carbon

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Objective

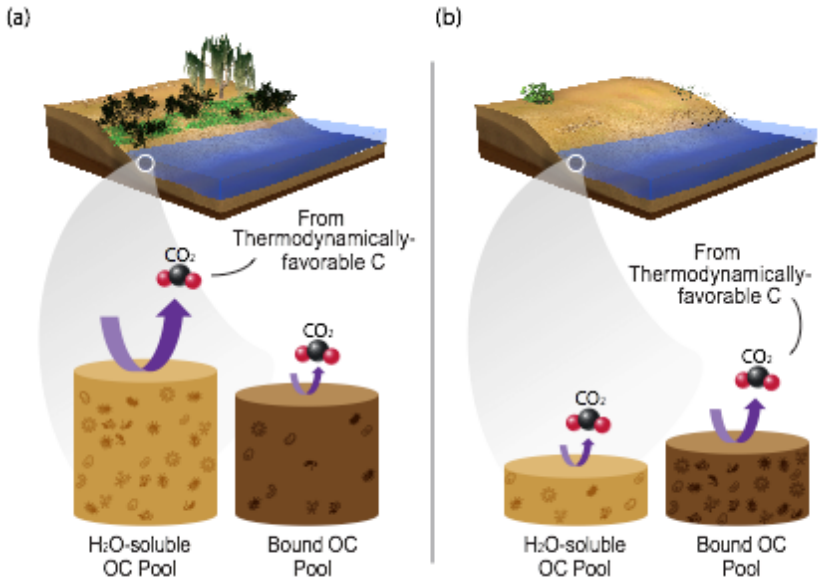
- Evaluate how carbon (C) inputs change the mechanisms and pace of C processing.
- Discover how C along shorelines can remain in place for millennia.

New Science

- The data indicates that vegetation impacts microbial processing of C bound to the soil, but not in the way researchers anticipated.
- Contrary to the prevailing 'priming' paradigm of C loss in soils, the data indicates that vegetation protects the bound C already in nearshore sediments.
- Areas with sparse vegetation were more likely to metabolize bound organic C, likely leading to the loss of C from longer-term stored C pools.

Significance

- This research provides new conceptual insights into the mechanisms influencing the processing of organic C in nearshore environments. These insights run counter to prevailing views, indicating the need to incorporate the outcomes into models capable of predicting the response of river corridors to environmental change.



Dense Vegetation

Sparse Vegetation

E. Graham, et al. "Carbon inputs from riparian vegetation limit oxidation of physically-bound organic carbon via biochemical and thermodynamic processes." *JGR Biogeosciences*. 2017 doi:10.1101/105486.