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Sources, Subsidies and Sinks: Organic Carbon in Coastal Sediments

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Coastal sedimentary environments such as estuaries, deltas and fjords are sites characterised by high sedimentation rates and effective burial of organic carbon (OC). Fjords in particular have been shown to be hotspots for OC burial and storage. Additionally, the unique geomorphology of fjords and their proximity to the terrestrial environment mean that they are important receptors of terrestrially-derived OC. Such natural 'trapping' mechanisms prevent OC from reaching the open shelf where much of it would potentially be lost to the atmosphere through remineralisation. Though it is well documented that terrestrial OC (OCterr) is buried in fjords, the long-term (interglacial timescale) interactions between the OC stored in the terrestrial environment and in coastal sediments is less well defined. In this review, we outline the current understanding of both OCterr and Blue Carbon sources, subsidies and sinks (i.e. sediment stores) in the coastal sediments of the United Kingdom, with a view to outlining a methodology to establish a national coastal carbon inventory.