

From bogs to bays: Watershed exports link Pacific Coastal Temperate rainforests to marine ecosystems

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ABSTRACT

The coastal temperate rainforests (CTR) of British Columbia are dynamic zones for the transfer of water and carbon from terrestrial to marine ecosystems. Regionally, little is known about the quantity or composition of freshwater-exported carbon, or its role in the coastal ocean. Here, we use observational and experimental approaches to further understanding of the biogeochemical and ecological processes that occur in coastal temperate rainforests and how they influence watershed export, as well as describe the importance of freshwater exports in linking terrestrial and marine ecosystems. Our results show that the CTR is a globally significant region for carbon export and may represent a global "hotspot" of carbon biogeochemistry. In addition, carbon derived from the CTR appears to play an important ecological role in the coastal ocean. Changes in watershed exports due to land management or climate change may have implications for coastal food webs and regional to global biogeochemical cycling.