

Blue carbon: a sneak peak at coastal sediments

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Anthropogenic activity is a key contributor to the increase of atmospheric greenhouse gases. In attempts to ameliorate climate change globally, the capture and sequestration of atmospheric CO₂ is being widely investigated, including exploration of the potential for natural ecosystems, such as terrestrial and marine forests, as carbon sinks. Carbon sequestered in aquatic systems, particularly in marine soils and sediments, has been referred to as “blue carbon”. It is estimated that 55% of biological carbon captured in the world is blue carbon and although coastal vegetation occupies less than 0.5% of the earth, it is estimated that up to 70% of blue carbon sequestered is in sea grasses, mangroves and salt marsh sediments. The blue carbon captured by coastal vegetation can remain stored in sediments for millennia indicating that it can play an important role in climate regulation. Yet to date, relatively little work has been done to assess the chemical nature of C-containing compounds in coastal sediments. Coastal sediments can shift to become a source of greenhouse gas emissions through climate change and anthropogenic impacts, further highlighting the need for better understanding of these ecosystems and their role in carbon storage and emission mitigation. This poster will present plans for my on going work, and early results, on blue carbon in coastal sediments, characterising the physicochemical properties of organic matter contained in the 0-10cm depth of South Australian salt marsh and mangrove sediments, to enhance our understanding of carbon cycling processes and vulnerability to emission associated with land management practices.