

**2015**, 5 - 5 July**The 52nd Australian Marine Science Association (AMSA) Annual Conference** *Conference Programme*

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**Hot spots and hot moments in seagrass 'blue carbon' science****Abstract**

When seagrass meadows are destroyed, what happens to the 'blue carbon' stored within their sediments: does it stay in the ground, or is it released into the atmosphere? Is it possible to manage seagrass ecosystems so that they sequester more blue carbon? With seagrasses now recognised as globally-significant carbon sinks, the answers to these questions have important consequences for nature-based climate change mitigation and adaptation (i.e. 'biosequestration'). We make the case that microbes fundamentally control the fate of sequestered blue carbon within seagrass, and, therefore, management efforts aimed at bolstering blue carbon opportunities within seagrass ecosystems need to target processes that influence (directly or indirectly) microbial remineralisation of blue carbon. New data will be presented showing that blue carbon occurs in hotspots and changes in the geochemistry of seagrass sediments – such as those caused by disturbance - can create hot moments, whereby organic carbon within sediments undergoes rapid and substantial microbial remineralisation. In order to better manage seagrass ecosystems for blue carbon benefits, we outline three recommendations: reducing anthropogenic nutrient inputs, reinstating top-down control of bioturbator populations, and restoring hydrology. These processes are amenable to management control, they promote microbial dormancy and limit microbial priming, and offer ecosystem benefits beyond carbon sequestration.

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**Topic Area**

3 - Estuarine and coastal Biogeochemistry

**Session**

OS-8D » [Estuarine, Coastal Biogeochemistry](#) (13:20 - Wednesday, 8th July, Lecture Theatre D2.211)

**Presentation Files**

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