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Clonal integration helps larger seagrass species survive sediment burial in a tropical multispecies ecosystem

Seagrasses are rhizomatous clonal plants that grow submerged in coastal waters where burial under sediment - induced by bioturbation and tropical storms - is common. The effect of burial may be moderated by species-specific differences in clonal integration (resource translocation) but this has never been tested for seagrasses, in particular tropical seagrasses in multispecies meadows. In this study, we seek the thresholds of response of 4 seagrasses of varying sizes to burial, and we ask whether clonal integration has an effect on moderating these responses. Our study site is a 4 m-deep meadow in Pulau Tinggi, Malaysia. Plants in mixed stands were buried under 0, 2, 4, 8 and 16 cm of sediment for 27 days, with treatments divided into those with intact rhizomes and severed rhizomes. All species tolerated burial of up to 4 cm without adverse effects but significant reductions in shoot density and biomass become evident at 8 cm of burial. Furthermore, larger species such as *Cymodocea serrulata* and *Syringodium isoetifolium* were strong integrators, i.e. they may provide support for buried shoots, whereas smaller species such as *Halophila ovalis* and *Halodule uninervis* were weak integrators. We discuss the implications of our results in the context of how tropical seagrass communities may change as a result of undergoing burial at different spatial scales.