

**An evaluation of the impact of sea grass on carbonate sedimentation in lagoons:
A case study from Grand Cayman, British West Indies**

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Sea grasses have significantly influenced sedimentation rates in coastal regions around the globe since their appearance in the late Cretaceous. The plants are integral to shallow water ecosystems and help to stabilize coastlines worldwide. Sea grasses influence carbonate sedimentation by baffling currents, binding sediment on the seafloor, and providing substrates for biota. *Thalassia testudinum*, which is the most common seagrass found in lagoons around Grand Cayman, is encrusted with a diverse biota, including at least three species of red alga, 72 species of foraminifera, 61 species of diatoms, and a broad array of other, less common skeletal organisms. Collectively known as epiphytes, these organisms are arranged in three, layered communities: a basal diatom community, overlain by a coralline alga community, which is then overlain by a community composed of a variety of taxa. The final layer is the most diverse of the three communities. The red algae community, which is the most extensive, typically covers approximately 75% of the leaf's surface. Despite the large number of organisms found living on the sea grasses in the Cayman Islands, few of these epiphytes are found in the sediment around the plants, suggesting that most were removed by current activity.