

Fig. 1 Unusual linear arrays of *Halimeda incrassata* (highlighted by *white lines*) in a *Syringodium/Thalassia* (thin “wispy” growth) seagrass bed at Bita Bay, Green Turtle Cay. Depth 1.5 m, (downward view)

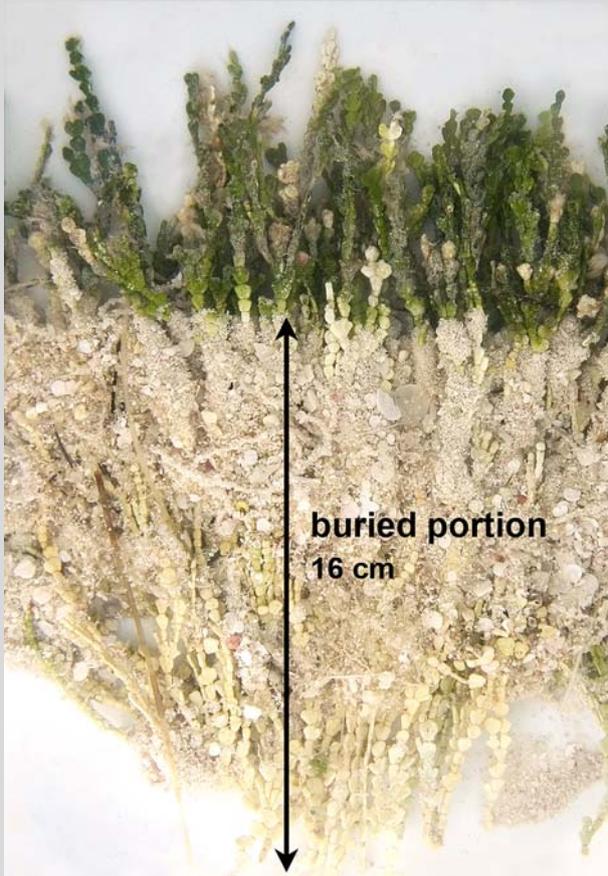


Fig. 2 Lateral view of excavated linear *H. incrassata* population showing extraordinarily deep individual thalli

Unusual linear arrays of the coral reef macrophyte *Halimeda incrassata* in the Bahamas

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Species of the genus *Halimeda* (Chlorophyta, Bryopsidales) are ecologically important components of tropical and subtropical coral reef and seagrass systems worldwide. They contribute significantly to organic carbon and carbonate production and sediment stabilization. The remarkable abundance of *Halimeda* has been shown (Walters et al. 2002) to be directly related to asexual propagation by fragmentation of thallus parts, including detached branches, segments and portions of segments.

While conducting research at Green Turtle Cay, Abacos, Bahamas we were struck by previously undescribed linear arrays of *Halimeda incrassata* in shallow wave-surge environments (Fig. 1). Linear populations are noteworthy because *Halimeda* does not form lateral runners, as is the case for many Bryopsidales (e.g., *Caulerpa*), but only reproduces individual thalli either sexually (by motile gametes) or asexually (by fragmentation).

Because the anomalous linear arrays were consistently at right angles to the direction of waves, as well as parallel to the seaward ripples in the sand, we hypothesized that “windrows” of *H. incrassata* fragments had collected in wave-induced sand grooves during storm conditions. Following subsequent burial, and as seagrasses colonized and accumulated more sediments, vertical growth led to extraordinarily deeply rooted linear arrays (Fig. 2). These buried rows of *Halimeda* segments have produced prolific patches of rhizoids over extensive vertical distances (Fig. 3), attesting to their impressive ability to outpace protracted sediment buildups.

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Reef sites

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Fig. 3 Single thallus separated from Fig. 2 population showing rhizoidal proliferations binding sand along entire length of buried segments

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Reference

Walters LJ, Smith CM, Coyer JA, Hunter CL, Beach KS, Vroom PS (2002) Asexual propagation in the coral reef macroalga *Halimeda* (Chlorophyta, Bryopsidales): production, dispersal and attachment of small fragments. *J Exp Mar Biol Ecol* 278:47–65

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