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Fidelity of rocky intertidal mollusks in subtidal death assemblages to their counterpart life assemblages: a case study in San Salvador Island, Bahamas.

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Rocky shores preserved in the geological record were rarely reported until a couple of decades ago. Even today, most of the literature focuses on bioerosional features in these high-energy environments due to their higher fossilization potential relative to shell material. Hard parts of taxa adapted to intertidal rocky shores may be preserved as allochthonous material in death assemblages (DAs) formed in adjacent shallow subtidal habitats due to lateral mixing. To test if life assemblages (LAs) of rocky intertidal mollusks (RIM) are faithfully recorded in shallow subtidal DAs, two ∼30 m long transects across a proximal-distal gradient were studied on San Salvador Island, Bahamas. These transects encompass a proximal ripple field which grades into a facies dominated by green algae, and a distal ripple field. A total of 22 bulk samples, representing 155 liters of sediment, were wet-sieved with a 2-mm mesh. The samples yielded 528 RIM shells representing 15 species. Unexpectedly, abundance and compositional similarity of RIM shells to counterpart LAs sharply peaks along a belt of lag deposits of coarse sands fringing proximal ripple fields, in transition to green algae communities. These results suggest that, although a substantial transport of intertidal shells takes place in shallow subtidal environments, the signal is diluted in background sediment composition even in close proximity to the shore (30 m), and significant concentrations (loosely packed) of RIM shells in subtidal DAs might be used as a proxy to pinpoint past rocky intertidal environments.