

ABSTRACT

SEDIMENT ACCUMULATION IN MONOSPECIFIC *RHIZOPHORA* PLANTATIONS

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Mangroves, along with other coastal vegetation, can trap and accumulate shoreline sediments, which would otherwise be transported through wave action and longshore drift. Sediment accumulation in these habitats is best facilitated by complex root systems such as those seen in diverse forests. However, in the Philippines, there has been widespread proliferation of problematic, monospecific plantations because well-meaning reforestation initiatives have more often involved planting convenient, easy-to-handle *Rhizophora* species. This study aimed to quantitatively measure sediment accumulation in fringing monospecific *Rhizophora* and *Rhizophora*-dominated plantations. Measurements were made in a fringe plantation with a riverine sediment supply, and in an afforested plantation in a carbonate environment where there are no adjacent streams. Sediment elevation, which was used to detect accumulation, can be as high as 0.5 to 1 m in the fringe plantation with a riverine sediment supply. Here, a young (< 15 years) *Rhizophora*-dominated plantation shows elevations that decrease with distance from a creek, demonstrating the key role of a sediment supply. On the other hand, an old (>25 years) monospecific stand shows elevation differences of at least half a meter despite being farther away from the creek, indicating that the trees themselves are the primary drivers of accumulation. Sediment accumulation is relatively lower in the carbonate plantation, with elevation values ranging from 0.3 m to 0.6 m in some areas. These findings are significant because the absence of a riverine sediment supply suggests that accumulation was facilitated primarily by the *Rhizophora* plantation. Here, the substrate is loose, organic mud that is distributed across an extensive reef flat by local tides. Monospecific *Rhizophora* plantations present several ecological and cost issues, but are nonetheless able to significantly accumulate sediment and can, ultimately, function in stabilizing the coast.