

A Comparison of Coral Transplantation Methods for Attracting Fish

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ABSTRACT

Coral reefs around the world are in decline and serve as an important habitat for reef fish species. Coral transplantation methods can restore reef habitat for fish and other marine animals. However, the coral transplantation method that will best restore reef habitat is unknown. In which the 2 methods are the tree structure nurseries and the cement block nurseries. We hypothesize that the tree structure will recruit more fish than the block method due to the greater vertical relief allowing fish to settle at different heights in the water column rather than being limited to the bottom. Both structures have similar overall surface areas. To test this hypothesis, we randomly deployed 9 PVC tree structures over sand, each anchored with a cement block at a depth of 2.5 meters and suspended with a float. Nine cement blocks were randomly placed on the sand at the same depth and the same spacing intervals as the tree structures. Three treatments (live *Acropora muricata* coral fragments, dead *A. muricata* coral fragments, and blank controls) were applied to each of the 2 coral transplantation methods. Four fragments were suspended on each tree and 4 fragments were cemented to each block. Cost and construction time were also documented for each method to examine cost effectiveness. Twice a week for 4 weeks, present fish species and their abundance were quantified within 0.5 m of each structure. The goal of this experiment is to determine the preferential coral transplantation method for increasing fish species richness and abundance.

KEY WORDS: fish recruitment, coral transplantation, *Acropora muricata*, PVC tree, cement block, species richness, abundance

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