

**Importance of Post-Settlement Mortality on Scleractinian
Population Maintenance around Moorea, French Polynesia**

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At a fundamental level, spatial variation in the abundance and community structure of scleractinian corals must be influenced by patterns of larval settlement. However, spatial variation in early post-settlement mortality has the potential to greatly distort patterns established at settlement, and the relative influence of variation in settlement rates and post-settlement processes on spatial dynamics of coral assemblages remains largely unknown.

In this study, spatial variation in mortality of recruits (< 3 months of age) and juvenile corals (< 5 cm in diameter; ~1-4 years of age) was quantified in three depth zones at each of three locations and around Moorea, French Polynesia. Mortality of coral recruits was extremely variable and particularly high (50 % in 7 days), and is associated with the abundance of parrotfishes (Fam. Scaridae). Juvenile mortality was less intense (up to 40 % in 14 months), but also shows strong spatial variability, corresponding with variation in abundance of butterflyfishes (Fam. Chaetodontidae).

Spatial variability in early post-settlement mortality partly accounts for apparent differences in the abundance of coral recruits versus juveniles corals, highlighting the potential importance of post-settlement processes as a driver of spatial variation in the dynamics of coral assemblages. Moreover, variation in early-post settlement mortality of corals appears to be influenced mainly by local densities of Scaridae and Chaetodontidae, which each affect a different stage in the life-cycle (recruits versus juvenile corals, respectively).