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Recruitment Processes and Maintenance of Scleractinian Coral Populations around Moorea (French Polynesia): the Link among Recruits, Juveniles, and Adults

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Relationships among 3 stages of the life cycle of Scleractinian corals were studied around Moorea Island, in order to improve our understanding of population maintenance and recruitment processes. Abundance and composition of recruits (< 3 months of age), juveniles (1-5 cm in diameter; ~1-4 years of age), and adults were determined at 9 stations disposed on the outer reef slope (3 sites: Vaipahu, Tiahura, and Haapiti; 3 depths: 6, 12, and 20 m).

There was a strong variation among sites and depths in the abundance and composition of recruits, juveniles, and adults. At the station scale (~100 m²), no correlation was found between the abundance of recruits and juveniles, nor between recruits and adults (all families/genera pooled). In contrast, we found a positive and significant correlation between abundance of juveniles and adults, except for *Pocillopora* and *Porites*. Moreover, juvenile and adult assemblages showed marked similarities in term of relative abundance of the different genera, whereas recruits differed strongly. Relationships among recruits, juveniles and adults varied among the 3 dominant families (Pocilloporidae, Acroporidae and Poritidae), indicating the importance of life history traits in recruitment and maintenance processes. At the site scale (~10000 m²), stronger relationships were observed between recruits, juveniles and adults.

Our results suggest that, at the station scale, early post-settlement processes are major factors influencing the variation in abundance and composition of adult assemblages, whereas at a larger spatial scale, recruitment-regulation processes may play a significant role.