

Title :  
« **Spatial variation in coral recruitment on the Great Barrier Reef of Toliara, southwest Madagascar** »

Preferred presentation : Poster

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Coral recruitment rates and composition are known to vary at multiple spatial and temporal scales. If this variability has received much attention in recent years over many reefs, few studies were carried out in Madagascar. In southwest region, climate change and marine resources overexploitation has led to the loss of 40 to 80% of coral cover in the last five decades. In this context, better understanding coral communities' dynamics and resilience is of major importance. In particular, coral recruitment is a *sine-qua-none* condition for the maintenance and recovery of reefs. In this study, we report on coral recruitment rates and composition, as well as spatial variation among areas in the Great Barrier Reef of Toliara. Ten sampling stations were chosen in order to integrate reef habitats diversity (external slope, inner reef and patch reef) and depth variation (5 and 10-12 m). Sampling was carried out using terracotta tiles. At each station, 20 tiles were emersed for a four months period (December 2017 to March 2018). All recruits were identified to the family level under a dissecting microscope. An average of 2.3 recruits per tiles was observed, corresponding to 190.2 recruits.m<sup>-2</sup>. Overall, 71.7% of the recruits belonged to the family of Pocilloporidae, whereas Acroporidae and Poritidae families were poorly represented (5.4% and 3.2%, respectively). A significant difference in recruit abundance was observed among tiles orientation. Most recruits colonized the tiles edges (54.8%), the lower faces (35.6%) and only 9.1% on the upper faces. Pocilloporidae managed to colonize all the tiles faces. More than half of Acroporidae recruits were observed on the tiles edges, whether Poritidae were mostly observed on the lower sides. Recruit abundance also significantly varied between depths, with 72% of the recruits observed at 12 m and only 28% at 5 m. Pocilloporidae was the dominant family at 12 m and was also well represented at 5 m. Acroporidae and Poritidae were roughly equally distributed between the depths. Recruit abundance in the region varied significantly among stations, depths and tiles surfaces, but not among reef habitats. Recruitment rates of coral assemblages at Toliara remain high compared to other coral reefs in the region, suggesting potential recovery capabilities from disturbances.

**Key words** : Scleractinian corals, recruitment, spatial variation, southwest Madagascar