



Primeira Sessão: Ecologia e Fisiologia – Comunicações orais

Invasive sun corals and climate change: temperature effects on pelagic dispersal potential and interspecific competition

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Currently, biological invasions and climate change are considered the most important threats to marine biodiversity. Invasive sun corals *Tubastraea tagusensis* and *T. coccinea* have successfully colonized coastal reef habitats from Florida to Southern Brazil, negatively impacting native coastal assemblages. Despite being focus of several studies, there was so far no information on how sun corals might respond to ocean warming due to climate change. To better understand mechanisms underlying the invasion dynamics in the region and also foresee its possible pathways in a future warmer scenario we investigated: (i) species-specific distribution patterns from large scales across locations to small scales within locations, and their distribution according to a key environmental filter (depth) considered a proxy of thermal preferences; (ii) the effects of temperature on the performance of adult colonies towards a native competitor; (iii) temperature effects on propagule mortality, settlement and dispersal potential. Our results show species segregation across locations, and species-specific depth distributions trends, suggesting possible thermal preferences. At small patches with considerable co-occurrence, we observed a possible case of neutral coexistence, where both species presence can be modeled as independent events. When in contact with the endemic brain coral, *T. tagusensis* has shown to be a better competitor, imposing tissue damage and reduced growth to the native coral, exhibiting no sign of reduced performance regardless temperature or season. Sun-corals propagules presented an outstanding plasticity, likely to affect their pelagic duration and dispersal potential, due to an eventual temperature-regulated secondary competence window, allowing an escape response from high temperature habitats where larval mortality rates are high. This work presented a worrying future scenario since sun-corals performance will hardly be affected by climate change. Ocean warming of temperate regions may promote range extensions to subtropical and warm-temperate areas where temperature conditions for propagule survival and settlement success are best.

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