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# Temporal patterns of reef fish communities in South Atlantic oceanic islands

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## Abstract

Worldwide marine systems have clear records of intensive human exploration causing serious habitat degradation with consequently high rates of ecosystem functional loss. In this scenario, oceanic islands via their isolation and comparative less anthropogenic influence emerge as landmarks of what we can call as the last marine pristine areas. On the other hand, studies on the terrestrial realm of oceanic islands were the baseline for the understanding of the bioinvasion science, providing iconic examples of plant and animal extinction. However, the marine science in oceanic islands is poorly developed, with few examples from the intertidal and much less from the subtidal. As islands sustain small subsets of the regional biodiversity, with high rates of endemism and expected low functional redundancy among species, the vulnerability of extinction caused by human impacts is comparatively higher. Temporal data from long-term ecological research help us better understand marine organisms in islands (i.e. community assembly over time), as well as their conservation. We will show temporal trends of reef fish abundance and richness from four Brazilian oceanic islands, which vary in isolation, area and human influence. Our methods include seven years of visual census to estimate abundance and biomass of reef fishes. Protection and human use as usual are the main variables explaining change in abundance through time of large species of groupers and parrotfishes. Modelling temporal trajectories of community descriptors showed that some trophic groups were influenced by variations in temperature and primary productivity along the years. The understanding of marine community dynamics as well as management strategies are highly dependent on long term monitoring programs.

**Keywords:** Brazilian oceanic islands, functional redundancy, long term ecological research, trophic groups

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