

Marine No-Take Reserves are Not Enough for Little Cayman

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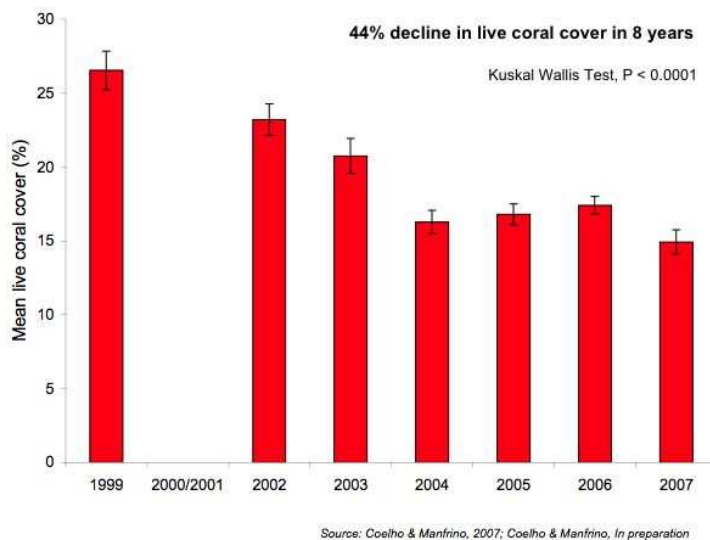
Coral reefs around the world have been deteriorating over decades owing to anthropogenic pressure. In the Caribbean recent rates of decline are alarming, particularly for coral reefs under high local human impact, many of which are severely degraded, although regions with lower direct anthropogenic influence seem less affected.

Little Cayman is a relatively undeveloped island, with less than 150 permanent residents. About 20% of its reefs have been protected by no-take marine reserves since the mid-1980s. We analysed the dynamics of coral communities around the island from 1999 to 2004 in order to test the hypothesis that a lack of major local anthropogenic disturbances is enough to prevent decline of coral populations.

Live hard coral coverage, coral diversity, abundance, mortality, size, and prevalence of disease and bleaching were measured using the Atlantic and Gulf Rapid Reef Assessment methodology (line transects) at nine sites. Despite the apparent undisturbed condition of the island, a 40% relative reduction of mean live coral coverage (from 26% to 16%, absolute change was 10%) was recorded in five years. Mean mortality varied from year to year from 23% to 27%. Overall mean diameter and height have decreased between 6% and 15% on average (from 47 to 40 cm for diameter, and from 31 to 29 cm for height).

The relative abundance of large reef builders of the genus *Montastraea* decreased, while that of smaller corals of the genera *Agaricia* and *Porites* increased. Disease prevalence has increased over time, and at least one relatively large bleaching event (affecting 10% of the corals) took place in 2003.

Mean live coral cover decline was similar inside (from 29% to 19%) and outside (from 24% to 14%) marine no-take reserves. No significant difference in disease prevalence or clear pattern in bleaching frequency was observed between protected and non-protected areas. It is concluded that more comprehensive management strategies are needed in order to effectively protect coral communities from degradation.



Coelho, V. & C. Manfrino, (2007), Coral Community Decline at Remote Caribbean Islands: Marine No-Take Reserves Are Not Enough, *Aquatic Conserv: Mar. Freshw. Ecosyst.* 16:1-20. Published online in Wiley InterScience, (www.interscience.wiley.com) DOI: 10.1002/aqc.822