



# Long-term survival of large relocated *Porites* colonies at the Cocos (Keeling) Islands

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**Fig. 1.** (a and b) Relocation of *Porites* colonies in August 2009 and (c) the same colony (as shown in b) in March 2020.

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Massive corals are considered more suited to relocation than other growth forms because they are less likely to be damaged in transit (Ammar *et al.* 2013); however, relocation of large massive coral colonies has only rarely been documented (Seguin *et al.* 2008). Here we report on the long-term survival (2009–2020) of large *Porites* corals which were relocated prior to dredging works at Cocos (Keeling) Islands in the Indian Ocean (12°12'S, 96°54'E).

The relocation of a number of coral 'bommies' was stipulated in the environmental management plan for a coastal development in the Cocos lagoon (GHD 2008). In August 2009, two *Porites lobata* and six *Porites australiensis* colonies, with diameters of 2–3 m, were relocated away from the dredge footprint to nearby similar habitat and depth (2–3 m below lowest astronomical tide). Colonies were naturally unattached to the sandy/coral rubble substratum, so no tools were required to detach colonies. Divers gently placed broad flat straps beneath the margins of each colony, which were then lifted by crane onto a barge (Fig. 1a) and transported around 50 m away from the edge of the area to be dredged. Colonies were moved one or two at a time to ensure they were emersed for less than 1 h, during which time they were shaded from the sun and kept wet using buckets of seawater.

The relocated colonies were revisited in January 2016 and again in March 2020, more than 10 years after relocation. On both occasions, survival was found to be high, as indicated by the amount of live coral on each colony being qualitatively similar to that observed prior to relocation. Colony growth was evident in many of the corals (Fig. 1b, c). This report

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demonstrates that large *Porites* colonies growing on unconsolidated substrates can be relocated successfully with no long-term effects on survival if moved swiftly to similar habitats to their source.

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