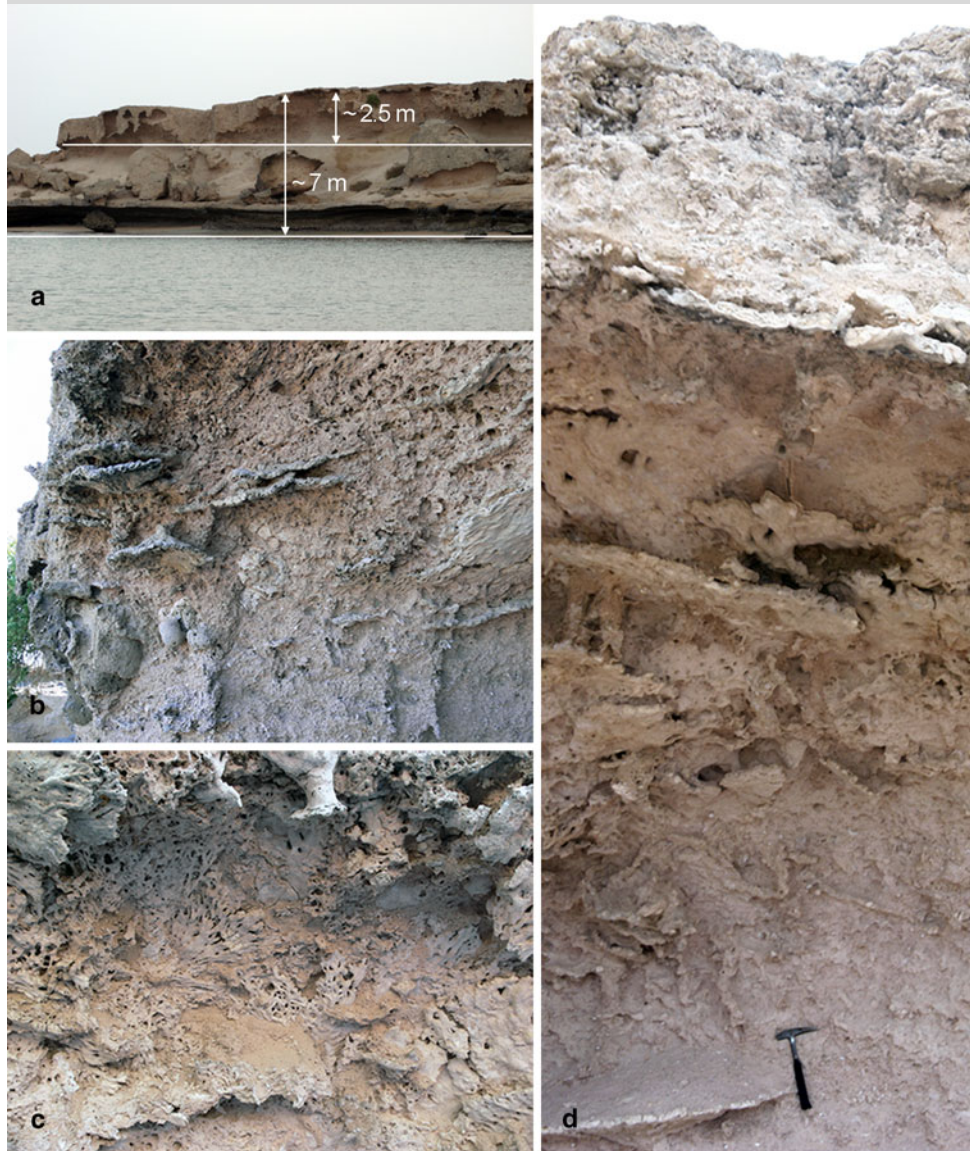


# Reef sites

## Raised reef on Larak suggests *Acropora* dominance on the Persian Gulf coral reefs since the Pleistocene



**Fig. 1** a Overview of the outcrop. b–c Details of *Acropora* tables in growth position. d *Acropora* dominance continues to the very top of the section, where it becomes obscured by heavier diagenesis

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We show hitherto undescribed raised coral frameworks exposed at the NE coast of Larak (Iran), a salt diapir island, located in the Strait of Hormuz, Persian Gulf (Fig. 1a). The entire outcropping section is ~7 m thick. At least two fossil reef sequences were recognized, separated by clastic sediment layers: one near mean sea level (MSL) and the other one >4 m above MSL, the upper 2.5 m of which consist mostly of *Acropora* plates of the *clathrata/downingi* group (Fig. 1b–d). Preliminary U/Th, <sup>14</sup>C dates are problematic but suggest an upper Pleistocene age ranging from 30 to 150 ka. This is comparable to similar outcrops at nearby Hormoz and Qeshm (Bruthans et al. 2006). Outcrops suggest several consecutive layers of *Acropora* dominance, comparable to the situation in the modern Gulf until recently, but not yet reported from other known raised deposits in the region (Pirazzoli et al. 2004; Bruthans et al. 2006).

The Larak outcrop allows us for the first time to clearly establish that *Acropora* has been a dominant member of Persian Gulf coral assemblages since the Pleistocene. While *Acropora* remain common in the northern Gulf, rapidly recurring bleaching events caused their abrupt decline in the southern Gulf (Riegl et al. 2011). Their dire situation in the southern Gulf may herald an interruption of long-term ecological persistence of *Acropora* dominance. This is eerily similar to the situation observed in the Caribbean (Pandolfi and Jackson 2006).

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