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U-series evidence for widespread reef development in Shark Bay during the last interglacial

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Field observations and U-series ages reveal that Shark Bay, Western Australia has been inundated by the sea on at least three occasions during the Late Pleistocene/Holocene, resulting in a succession of marine deposits around the Bay. The exact age of these deposits has, until now, been problematic due to a lack of reliable and accurate age data. This study reports 16 new U-series coral dates from emergent reef deposits around Shark Bay, that point to an extended period of coral reef development during the peak of the last interglacial, marine isotope stage (MIS) 5e. This is attributed to enhancement of marine circulation within the reaches and basins, a result of higher sea levels and an absence of major sill and bank structures. Stromatolites, so characteristic of the modern Shark Bay environment are absent from the geological record within Shark Bay until the late Holocene. This suggests that sea levels and marine sedimentary processes that have operated during the present sea-level highstand are unique to this period. There is little direct evidence of fossil reef development occurring during interglacials of the middle/late Pleistocene (MIS 9/11).