

Stratigraphic Architecture and Evolution of a Barrier Seagrass Bank in the Mid-Late Holocene Shark Bay, Australia

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Abstract

Seagrass has been a key feature in the Holocene evolution of the marine ecosystem of Shark Bay (Western Australia), and in particular to the development of the Faure Sill. The presence of well-developed barrier banks, associated with a semi-arid to arid climate and a restricted water exchange produced and preserves the metahaline and the hypersaline conditions in the southern embayments of Hamelin Pool and L'Haridon Bight, providing a basis for the development of a variety of biogenic and physical structures, such as microbial mats, stromatolites, coquinas and oolitic shoals.

To investigate the Holocene development of the Faure Sill, remote sensing imagery, shallow acoustic stratigraphy and sedimentological information were combined, in order to correlate internal architecture, sediment body morphologies and lithofacies. The results indicate that the development of the Faure Sill has been controlled by pre-Holocene topography, seagrass and sea level fluctuations.