

# HOLOCENE SEDIMENTOLOGY OF OLD MAN LAKE, SOUTH EASTERN SOUTH AUSTRALIA.

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## Abstract

Old Man Lake lies nestled within an inter-dunal hollow of the Robe Range, 13 km south of Robe. Three lithologically distinct Holocene sequences are observed in cored sections of the lake. A basal-dune sequence which is overlain by an estuarine sequence. Following the estuarine sequence is a lacustrine sequence. The sequence stratigraphy correlates to Holocene sea level change.

The occurrence of C<sub>25</sub> highly branched isoprenoids (HBI) are characteristic of marine diatoms. Their observation in Old Man Lake sediments coupled with their appearance in Hamelin Pool (Shark Bay-Western Australia), may imply a restricted marine, rather than a marine, environment. Assuming a restricted marine environment, C<sub>25</sub>-HBI may be used in the extrapolation of Holocene sea level changes, reflected in core sequence stratigraphy.

Fossil thrombolites characterise the eastern margin of Old Man Lake. The bryozoa, *C. aciculata* and green luminescing aragonitic gastropods are closely associated with the thrombolite. These three features may collectively imply a greater ground-water inflow operating in the past. Wetter conditions are known to have prevailed 6900 to 5000 years ago (Dodson 1974).

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