

MORPHOLOGY AND DEVELOPMENT OF THE CAPE TRIBULATION FRINGING REEFS, GREAT BARRIER REEF, AUSTRALIA

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SUMMARY

The Cape Tribulation reefs are Holocene in age and began developing approximately 7800 years before present. Coral growth on the reef crest and most of the back reef ceased approximately 5400 years before present, probably in response to increasing turbidity and water quality deterioration as fine sediments accumulated offshore and became resuspended during strong winds. Significant coral growth is now restricted to the subtidal fore reef but reef progradation has been minimal over the last 5000 years.

The height of the reef crests relative to present day sea level and the absence of low magnesian calcite cements in the fringing reefs suggest that they have not been subjected to extensive subaerial exposure, with a maximum Holocene relative sea level of only 0.6 to 1.0 m above its present position being responsible for the height of the present algal covered reef crest.

The fringing reefs can be divided into four lithologic assemblages:

- i) a fluvial gravel basement deposited as alluvial fans from the steeply sloping hinterland
- ii) a lower framestone unit
- iii) a detrital assemblage and
- iv) an upper framestone-bandstone unit.

The reefs appear to be in a delicate state of balance having grown under environmental conditions more favourable than present. Further deterioration of the environment produced by anthropogenic factors such as increased sediment yield from the Cape Tribulation road have the potential to push water quality conditions beyond the point where reef growth can be maintained.

KEYWORDS: Fringing reefs, Cape Tribulation, Great Barrier Reef, anthropogenic influences, Holocene sea levels

Technical memoranda are of a preliminary nature, and represent the views of the author/s, not necessarily those of the Great Barrier Reef Marine Park Authority.

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