

Shell Middens and Sea-Levels

Inferring Environmental Change from
Archaeological Marine Faunal Assemblages

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I certify that the substance of this thesis has not already been submitted for any degree and is not currently being submitted for any other degree or qualification.

Any help received in preparing this thesis, and all sources used, have been acknowledged in the text.

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ABSTRACT

This research project focuses on the potential of archaeological evidence to address questions about environmental change. Specifically, the aim of the project was to examine the relationship between coastal shell midden sites and proposed sea-level fluctuations in the Mid- to Late-Holocene on the east coast of northern New South Wales, using marine faunal assemblages from two sites located on the mid-north coast of New South Wales.

I examine the history of attitudes to the relation between sea-level and coastal economies in and outside Australia. This study realises the fact that there are extensive shell midden sites along the Australian coastline, they are relatively easy to radiocarbon date, and they often contain large amounts of marine fauna. Marine faunal ecological studies indicate that fish and shellfish are susceptible to a changing environment, and therefore their adaptive responses to changing conditions and habitat should be evidenced in the archaeological record.

The shell midden sites of Clybucca 3 and Stuarts Point 1, located on the Lower Macleay floodplain, and excavated in the 1970s, were chosen as the case-study sites for this research. These sites contained extensive marine faunal remains in archaeological deposits which dated to the Mid- to Late- Holocene. Hypotheses predicting the impact of changing sea-levels on marine faunal species were developed, and the results of the re-analysis of the archaeological remains, along with the re-dating of the Stuarts Point 1 site, were compared with these models.

The archaeological evidence supports the hypothesis that sea-levels had fluctuated on the coast adjacent to the Lower Macleay floodplain during the time of occupation of the sites. At Stuarts Point, a striking change in the shellfish represented in the midden over time, and also some change in the fish species represented, indicated an environmental change occurring in the Mid- to Late- Holocene. The Clybucca site, which is now located 12 kilometres from the sea, showed little variation in the shellfish and fish represented. However, the amount of marine faunal remains increased greatly in the time period proposed for a sea-level rise.

This research has shown that archaeological analysis of coastal midden sites can be greatly enhanced by the use of research from other disciplines. At the same time it shows that archaeological evidence can contribute importantly to the evaluation of hypotheses from those disciplines.

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