EVIDENCE FOR EARLY HOLOCENE CHANGE IN THE WHITSUNDAY ISLANDS: A NEW RADIOCARBON DETERMINATION FROM NARA INLET 1

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This report describes a recently obtained radiocarbon determination from the Nara Inlet 1 rockshelter site on Hook Island, off the Central Queensland coast. The new date was obtained in order to more clearly refine changes in stone artefact discard densities within the site as part of a wider technological study, centring on the South Molle Island quarry (see Lamb 1996 & in prep).

The Nara Inlet 1 site initially excavated in 1988, yielded a near basal date of 8150±80, providing evidence of continuous marine occupation throughout the Holocene (Table 1). Analysis of this site by Barker (1991,1996,1999) revealed a relatively low discard of most cultural materials until the late Holocene when discard rates increased along with a range of other quantitative and qualitative changes. The exception to this was stone artefact discard where the pattern was reversed with higher discard rates occurring in the early Holocene and a significant reduction in the late Holocene. Barker (1996) explained this pattern as relating to the greater degree of marine specialisation (apparent in the range and discard densities of marine species) that required a more specialised marine technology made from non-lithic sources.

Further analysis of material from the site indicated that there was a change in discard of stone artefacts in XU 41, Square H50. A similar pattern emerged from Square G50 (which has contiguous stratigraphic layers with H50), whereby a marked change in numbers of artefacts per excavation unit was observed at around 78-83cm in depth. Excavation Unit 41 is in SU III (H50), 12cm below the date of 3990±60 and 13cm above the near basal date of 8150±80. In order to characterise this change, a radiocarbon determination for this level was obtained (Table 1). The refined temporal sequence illuminated a pattern of decreased stone artefact discard in Nara Inlet 1, that began significantly prior to the Late Holocene (contra to Barker 1996). It is now apparent that the greatest stone artefact discard occurred between 8990BP and 7190BP and that the decline in discard begins immediately post 7190BP. Discard densities continue to decline steadily until post 5208BP when the pattern is reversed and there is a subsequent increase in discard (Figure 1).

Although it is clear that in Nara Inlet 1 there is a major decline in artefact discard in the late Holocene, what has been demonstrated here is that the decline in the discard of stone artefact material begins much earlier, that is immediately post 7190BP. One of the implications of this pattern is that the differential discard rates may relate to changed conditions of access to the South Molle Island quarry.

Over 90% of all artefactual material came from the South Molle Island Quarry (Barker and Schon 1994). Sometime after 10,000BP South Molle Island was separated from the mainland by rising sea levels, which then stabilised at approximately 6,500BP (Barker 1996). It was during this period of altering landscapes that discard of stone artefacts begins to decline.

The new radiocarbon determination of 7190BP marks the initial decline of stone artefact discard rates in Nara Inlet 1. Sea level data for the region demonstrate a strong correlation between this pattern and rising sea levels. As part of an ongoing research project (Lamb in prep.) the relationship between sea levels and differential access to the South Molle Island Quarry will be investigated.

### Table 1

<table>
<thead>
<tr>
<th>Square</th>
<th>XU</th>
<th>Depth (cm)</th>
<th>Material</th>
<th>¹⁴C Age</th>
<th>Lab No.</th>
<th>Calibrated Ages</th>
</tr>
</thead>
<tbody>
<tr>
<td>G50</td>
<td>13</td>
<td>15</td>
<td>Charcoal</td>
<td>550 ±70</td>
<td>Beta-31741</td>
<td>650(520:340)</td>
</tr>
<tr>
<td>G50</td>
<td>28</td>
<td>46-49</td>
<td>Charcoal</td>
<td>2090±50</td>
<td>Beta-28186</td>
<td>2130(1990:1880)</td>
</tr>
<tr>
<td>H50</td>
<td>35</td>
<td>63-66</td>
<td>Charcoal</td>
<td>3990±50</td>
<td>Beta-31742</td>
<td>4530(4410:4150)</td>
</tr>
<tr>
<td>H50</td>
<td>41</td>
<td>78-83</td>
<td>Shell</td>
<td>6700±60</td>
<td>ANU 11361</td>
<td>7320(7190:7040)</td>
</tr>
<tr>
<td>G50</td>
<td>45</td>
<td>96</td>
<td>Charcoal</td>
<td>8150±80</td>
<td>Beta-27835</td>
<td>9250(8990)</td>
</tr>
</tbody>
</table>

Radiocarbon dates from Nara Inlet 1. Conventional radiocarbon ages were calibrated using CALIB (3.03c) computer program (Stuiver and Reimer 1993). Dates on charcoal samples were calibrated using the bi-decadal atmospheric calibration curve with no laboratory error multiplier.

40 years was subtracted to correct for 14C variations between northern and southern hemispheres. Dates on shell were calibrated using the marine calibration model with a R value of -5 ±35 (Stuiver and Braziunas 1993). The calibrated ages reported are rounded to the nearest 10 years.
explored. While Barker's (1996) model of greater marine specialisation in the late Holocene remains relevant, the correlation between declining discard rates of stone artefacts and sea level change could also be significant to modelling changing technologies and stone artefact distribution over space and time in the Whitsunday region.

Acknowledgments
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References
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A WEB SITE FOR THE BOWEN BASIN ABORIGINAL CULTURAL HERITAGE PROJECT: TOWARDS A STRATEGIC REGIONAL APPROACH TO RESEARCH AND MANAGEMENT

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The Bowen Basin Aboriginal Cultural Heritage Project is a multi-disciplinary and integrated approach to regional cultural heritage management in the Bowen Basin, Central Queensland. Although initiated in 1995 (as Stage 1, see L'Oste-Brown et al. 1998a), the current stage (Stage 2, see Godwin et al. 1999) commenced in mid-1998 and was funded for three years under the Australian Research Council and Department of Employment, Education, Training and Youth Affair's SPIRIT collaborative grants scheme. The project is being undertaken by the School of Human and Environmental Studies at the University of New England and is a joint initiative of industry, Aboriginal groups, educational institutions and Government.

One component of the Project has been the development of a web site. It is important to note that this site is not a simple narrative of the stages and outcomes of the project in an alternative publishing format. Instead, what we have sought to do is provide a facility that offers a range of resources and tools that can be rapidly refined, enhanced or removed as circumstances dictate. As it currently stands (and it should be noted that the site is constantly being revised and enhanced), the web site has four broad areas posted. By way of introduction to the resulting web site these areas are briefly outlined in the following sections.

Cultural Heritage and Native Title Mapping Tools
The Bowen Basin Project has developed a comprehensive Geographic Information System (GIS) containing information on several thousand places that contain Aboriginal cultural heritage values (L'Oste-Brown et al. 1998a, 1998b). This was originally designed with three main objectives in mind: to be a powerful proactive analytical and educational tool that could facilitate informed and responsible management of the Aboriginal cultural heritage of the Basin; to facilitate the effective integration of Aboriginal cultural heritage within broader land management planning at the regional level; and to be provided to Aboriginal groups to use in their own land management planning for country. At face value at least the establishment and initial use of the system was successful in making the achievement of these objectives a viable proposition.

The existence of such a powerful tool containing such a diverse and extensive range of information about Aboriginal cultural heritage places and values from across a vast region has however, also seen the emergence of a complex range of issues. It was clear that these needed to be addressed and resolutions found before the system could be used for the purposes for which it was created. In the early days these issues primarily revolved around security and confidentiality of the information within the system and flowing from that, control, maintenance, dissemination, access and format of both the cultural information housed within the system and of the system itself.

As time went on however, a range of more subtle and complex issues arose which derived from but were linked to these initial concerns and were also directly related to the rising appreciation and understanding of the implications of Native Title and Native Title processes for Aboriginal cultural heritage information. These included: concerns of possible disempowerment through the existence of such regional planning tools; legal implications deriving from the existence of databases containing Aboriginal cultural heritage information; and the very nature of information itself (L'Oste-Brown et al. 2001 for further discussion of these issues).

After extensive discussions examining a range of possible solutions extending over a period of almost two years...