Acknowledgements
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References

THE ARRAWARRA BEACH STONE STRUCTURE: ANOTHER PERSPECTIVE
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The Arrawarra Beach stone arrangement is located on a rocky platform at the southern end of Arrawarra Beach, approximately 30kms north of Coffs Harbour on the mid-north coast of New South Wales. The identification of the structure as an Aboriginal fishtrap has been controversial over the last twenty years, its status as an Aboriginal site having changed over time, and numerous lines of evidence have been proposed to settle the issue (Campbell 1978; Coleman 1980; Godwin 1988). Godwin (1988) suggested the analysis of material from an associated midden might provide evidence of the structure's origin and use. Recently, two historical accounts of the use of the structure as a fishtrap by Aboriginal people have been reported (Heron 1994) and further oral evidence has been collected from the Garby Elders (Somerville et al. 1999). In this report I will focus on the analysis of an archaeological fishbone assemblage from the Arrawarra 1 shell midden (Vale 1998) which has now also provided substantive evidence with which to reassess the structure's status.

The assemblage of fragmented, though well-preserved fishbone was recovered from the Arrawarra 1 midden, dated to approximately 1,000 BP, and located approximately 800 m north of the stone arrangement (Smith 1998). This assemblage consisting of over 60,000 specimens recovered from 6, 3 and 1-mm sieve fractions, was analysed as a single unit (Vale 1998). Eleven taxa were identified in the Arrawarra assemblage (Table 1). Researching the behaviour and habitats of the identified taxa has made it possible to ascertain feasible environments used in obtaining this resource and shed light on procurement strategies.

The use of various fishing technologies can be expected to yield different catches and preservation permitting, different archaeological fishbone assemblages. There is some disagreement about the composition of catches resulting from fish traps (Avery 1975; Campbell 1978; Coleman 1978; Colley 1987; Attenbrow and Steele 1995) and the type of trap proposed as the basis for the models of catch composition is not always made clear. However some specific characteristics could be expected from a trap located in a littoral situation on a rocky platform such as the stone arrangement at Arrawarra. The rocky platform provides food for both herbivorous and carnivorous species and the shallow-water environment would accommodate smaller fish (Lagler 1962) along with small numbers of larger carnivores.

The fishbone assemblage analysed is comprised predominantly of small to medium sized fish with small numbers of larger specimens. Sparidae are represented by the species bream (*Acanthopagrus australis*) and tarwhine (*Rhabdosargus sarba*) but not snapper (*Chrysophrys auratus*), a significant result for identifying fishing environments, as snapper usually occupy reef habitats rather than the estuarine and surf zone habitats of bream and tarwhine. Flathead (*Platycephalidae*) identified in small numbers should not inhabit a rocky platform as they bury themselves in sand and mud while awaiting prey. However
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<table>
<thead>
<tr>
<th>Taxon</th>
<th>NISP</th>
<th>Diet</th>
<th>Habitat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acanthopagrus australis</td>
<td>120</td>
<td>Carnivore</td>
<td>Estuary, beach, rocky coast</td>
</tr>
<tr>
<td>Rhabdosargus sarba</td>
<td>30</td>
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</tr>
<tr>
<td>Girella tricuspidata</td>
<td>81</td>
<td>Herbivore</td>
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<td>Sillago sp</td>
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<td>Epinephelidae</td>
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</tr>
<tr>
<td>Platycephalidae</td>
<td>19</td>
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</tr>
<tr>
<td>Labridae</td>
<td>1</td>
<td>Carnivore</td>
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</tr>
<tr>
<td>Pomatomas saltatrix</td>
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<td>Mugilidae</td>
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<tr>
<td>Scorpa lineolatus</td>
<td>18</td>
<td>Carnivore</td>
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</tr>
<tr>
<td>Pseudocaranx dentex</td>
<td>2</td>
<td>Carnivore</td>
<td>Estuary, beach</td>
</tr>
</tbody>
</table>

Table 1 Fish taxa identified from the Arrawarra I Midden.

the amount of sand covering the rock platform changes seasonally and there may be times when this environment would suit flathead especially if it was attracting a lot of smaller fish. The cod (Epinephelidae) and parrotfish (Labridae), identified by only one or two pieces of dentition will also enter shallow waters for food. Tailor (Pomatomas saltatrix) is the only pelagic fish represented, however their voracious appetites lead them to pursue schools of smaller fish into shallow water.

The analysis of the Arrawarra I fishbone assemblage alone cannot prove the structure's origin and use as an Aboriginal fishtrap. This will require further research into historical and ethnographic records, oral histories, and physical characteristics of the stone arrangement. Nonetheless, all of the fish identified could have inhabited the rocky platform at certain times. The use of fish trapping technology offers a parsimonious explanation for the fishbone assemblage. This, together with the additional oral and historical evidence argues for a reassessment of the status of the Arrawarra Beach stone structure.

Acknowledgements

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