

## **Chapter 5: Re-Examination of Clybucca 3 – Results**

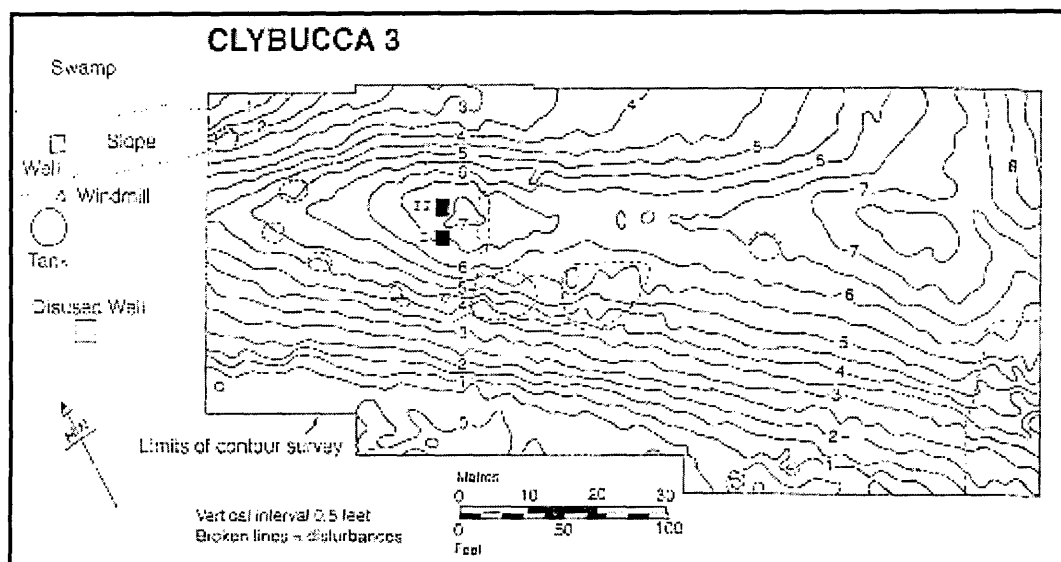
### **5.1 Introduction**

In this chapter I examine all of the evidence available from the Clybucca 3 shell midden site. One of the aims of this research is to identify any change over time in marine fauna resource use in the Macleay middens – change which could be seen to be indicative of a Late Holocene sea-level change in eastern Australia. Gaining a full understanding of the site formation processes and the archaeological evidence in the Clybucca and Stuarts Point sites is integral to identifying temporal change which may be apparent in these sites. Consequently, I provide a detailed description of all of the data from the 1972 Clybucca 3 excavation that were available for this re-analysis. I then present the results of my re-examination of the shellfish remains and of my re-identification of the vertebrate fauna.

### **5.2 Site Description**

Located some twelve kilometres inland at the point where the floodplain rises into the foothills of the Great dividing Range, the Clybucca 3 site is situated below an extended spur of land reaching into Clybucca swamp and adjacent to Clybucca Creek. The shell midden itself extends for approximately 130 metres in an east-west direction. The aerial photograph taken at the time of excavation appears in Chapter 1 (Figure 2.1)

A contour map drawn at the time of the 1972 excavation (Figure 5.1) shows a rise in the land to the top of the midden of seven feet (approximately 213 cms). Figure 5.1 also shows the position of the excavation pits, with Cutting I being to the south-west of Cutting II. Figure 5.2 shows Cutting II after excavation.



**Figure 5.1** Contour map of the Clybucca 3 site (Knuckey 1999)



Figure 5.2 Cutting II, Clybucca 3

### 5.3 Radiocarbon Dates Obtained on Clybucca 3, Cutting I

The radiocarbon dates which Connah (1975) obtained on the Clybucca 3 excavation are re-used in this study. Although it would have been preferable to have re-dated the Clybucca site, funds were not available for this. The original dating of Clybucca 3 did not generate the same controversy as the Stuarts Point dates when first published, and it was deemed preferable to use the funds available for radiocarbon re-dating on the Stuarts Point material.

The original radiocarbon dates on Cutting I, Clybucca 3 were obtained on charcoal collected during the excavation and are presented in Table 5.1.

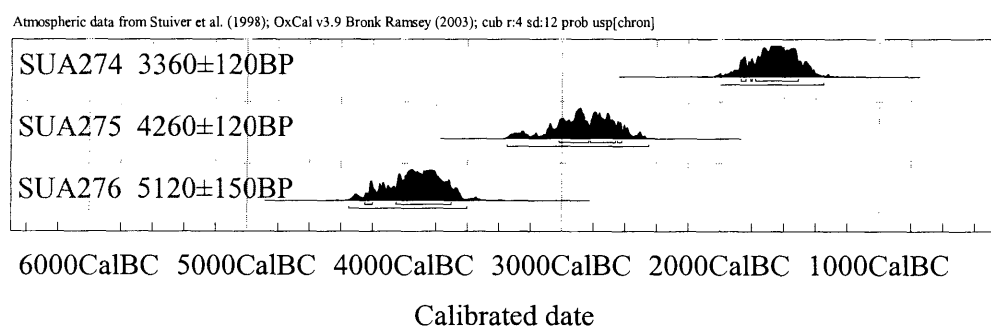
**Table 5.1 Radiocarbon dates Clybucca 3, Cutting 1 (Connah 1975)**

Reference	Date	Provenance	Sample
SUA274	3360 $\pm$ 120	30-40 cm	charcoal
SUA275	4260 $\pm$ 120	60-70 cm	charcoal
SUA276	5120 $\pm$ 150	90-110 cm	charcoal

The first sample, SUA274 was taken from the spit (spit 4) containing the human remains and returned a date of 3360 $\pm$ 120 BP. The second sample, SUA 275 was taken from spit 7. Even though this spit appears to show a concentration of charcoal, perhaps a hearth, in the south-eastern section of the cutting (Figure 5.2), charcoal was scattered throughout the spit (Connah 1973), and it was from this scatter that the charcoal sample for dating was collected. The date returned from this sample was 4260 $\pm$ 120 BP. The final sample, SUA276, was taken from the combined spits 10 and 11. The excavation notes show that charcoal was also scattered throughout these spits, especially in spit 10. Spit 9 had contained a scatter of flaked stone artefacts, even though there is no mention of shellfish remains or bone in spits 9, 10, 11. It would appear that the aim of dating spits 10 and 11

was to obtain a basal date for the cultural deposit. The radiocarbon date returned on this sample was  $5120 \pm 150$  BP. It may have been more prudent to have dated spit 9 containing the cultural material, but as the  $5120 \pm 150$  BP does not appear to be an unreasonable estimate of a basal date for this site, it will be used in later analysis of the Clybucca site. The Clybucca 3 radiocarbon dates were entered into the OxCal computer program for calibration, the results of which appear in Figure 5.3.

**Figure 5.3** Calibrated Dates for Cutting I, Clybucca 3



#### **5.4 Cutting 1 (IV-VI), Clybucca 3 – 1972 Excavation**

The cutting was excavated in arbitrary spits of 10 cm, commencing with 2 x 2 metre squares, but dropping to 2 x 1 metre at spit 2. Eleven of these 10 cm spits were excavated, to a depth of approximately 110cm below the ground surface. The details of the excavation which follows are taken from photocopies of Connah's 'trench book'. These descriptions are relatively brief, describing soil type and the presence of stone and bone, but the shell is not fully described. Each spit was described in the 'trench book' along with a plan drawing of the base of the spit. I have used the plan drawings of each spit to fill out the brief observations made by the excavators in the 'trench book'. The section drawings of both of the Cuttings excavated at the Clybucca 3 site appeared in Chapter 4 (Figure 4.1).

##### **Spit 1 – 0-10cm BS**

2 x 2 m. "Turf, black humus with shell frags. Turf cut off and removed and contained material ignored, but following from residue of material to deeper spit to 10 cms (black humus). Flaked pebble tool. Stone, bone and charcoal frags."

##### **Spit 2 – 10-20cm BS**

Spit 2 was reduced to a 2 x 1 m excavation area. "Black humus with shell frags. Pebble tool; human bone frags; bone, stone and charcoal frags. Only half cutting nearest datum line excavated for this spit." The n-e wall showed bone in the wall covered with stones, which was suspected by the excavator to be human. A circular area of red/brown clayey loam in the northern corner contained "very abraded human teeth and fragments of other bone – suspect human". The plan drawing shows an area of "heavy shell concentration intermixed with charcoal" in the s-w section of the excavation.

##### **Spit 3 – 20-30cm BS**

2 x 1 m. "Black humus with shell frags. Bone, stone and charcoal frags; shell attached to stone. Only half cutting nearest datum line excavated for this spit. Shells with charcoal

frags within also.” The excavator described this spit as having a heavy shell concentration throughout the spit. Areas of bone fragments were noted on the n-e wall and the southern section of the s-e wall.

**Spit 4 – 30-40cm BS**

2 x 1 m. “Black humus with shell frags. Human burial. Bone, stone and charcoal frags. Shells with charcoal within valves.” A heavy concentration of shell in the eastern corner. This spit was radiocarbon dated using charcoal to  $3360 \pm 120$  BP (SUA 274).

**Spit 5 – 40-50cm BS**

2 x 1 m. “Black humus with shell frags. Stone, bone and charcoal frags. Shells seen with charcoal inside valve.” The heavy concentration of shell in the eastern corner continues, but the excavator also notes an overall layer of black humus and shell fragments.

**Spit 6 – 50-60cm BS**

2 x 1 m. “Black humus with shell frags. Stone and bone frags. Shells on stone. Shells seen with charcoal within valves.” This spit had two sections of large stones, one along the n-e wall and the other intruding the cutting from the western end of the n-w wall. The remainder of the spit was black humus with shell fragments and charcoal.

**Spit 7 – 60-70cm BS**

2 x 1 m. “Black humus with shell. Stone and bone frags. Shells on stone. ‘Other’ species of shell.” A small concentration of shell fragments was located in the northern corner, along with a charcoal concentration in the eastern corner.

This spit was radiocarbon dated using charcoal to  $4260 \pm 120$  (SUA 275).

**Spit 8 and 9 – 70-90cm BS**

2 x 1 m. “Spits 8 and 9 combined. Spit 8 shell frags giving way to black humus alone.”  
“Spit 9 black humus – stained sand.”

A band of large stones runs through the centre of the spit from s-e to n-w, with a concentration of stone flakes to the s-w of the stones. A second concentration of stone flakes is located near the s-w wall, and an area of white ash fills the western corner.

**Spit 10 and 11 – 90-110cm BS**

“Spits 10 and 11 combined.

Spit 10 – “black humus stained sand to yellow sand.” Charcoal was located throughout Spit 10. Spit 11 - “Yellow sand with orange stains.” The excavator notes that natural sand was located at the base of Spit 11.

Samples of charcoal from spits 10 and 11 were radiocarbon dated to 5120±150 (SUA 276).

**5.5 Cutting 1I (VIII-X), Clybucca 3 – 1972 Excavation**

Again, this cutting was excavated in arbitrary spits of 10 cm, commencing with 2 x 2 metre squares, but, unlike Cutting I which was reduced to 1 x 2 metres at Spit 2, this cutting continued to be excavated in 2 x 2 metre squares until Spit 4, where the area of excavation was decreased to 2 x 1 metres. Thirteen 10 cm spits were excavated, to a depth of approximately 130cm below the ground surface. The details of the excavation which follows are taken from photocopies of Connah’s ‘trench book’. As with Cutting I these descriptions are brief, describing soil type and the presence of stone and bone, but not fully describing the shellfish remains. Each spit was described in the ‘trench book’ along with a plan drawing of the base of the spit. I will again use the plan drawings to flesh out the excavation notes.



**Spit 1 – 0-10 cm Below Surface**

This spit was 2 x 2 m, the only object on the plan drawing was described as a pebble tool located near the southern corner.

“Turf, black humus with shell frags below. Cut off and removed, contained material ignored, but following from residue of material to deepen spit to 10cm (black humus).

**Spit 2 – 10-20 cm B.S.**

2 x 2 m. “Black humus with shell frags”. The plan drawing describes an area of shell concentration sweeping from the eastern corner diagonally to the west, dividing near the mid point of the excavation around an “area of beach-worn non-worked stones”. Two concentrations of bone are located on the n-w wall extending for approximately half a metre towards the centre of the excavation. Two pebble tools were recovered, one from the northern corner and the other from the shell concentration near the mid-point of the excavation. A concentration of stone artefactual material was also located between the shell concentration and the s-e wall.

**Spit 3 – 20-30 cm B.S.**

2 x 2 m. ‘Black humus and shell frags’. This spit contained a “band of large stones (fire shattered) with shells packed in with the stones” running from the s-e wall across the centre of the excavation to the n-w wall. A “heavy concentration of shell” is located in the western corner and a concentration of bone and charcoal in the northern corner. Human remains were located adjacent to the n-e wall.

**Spit 4 – 30-40 cm B.S.**

The excavation area was cut back to 2 x 1 m at this spit, from the middle of the north-east wall to the south-west wall. “Black humus and shell frags”. The band of large stones continues through the centre of the cutting with a heavy concentration of shell to the south-west, adjacent to the new north-west wall. Stone Artefactual material is described for the area in the north-east and to the south of the band of large stones. A “scattering of charcoal and animal bone” is located along the length of the s-e wall.

**Spit 5 – 40-50 cm B.S.**

2 x 1 m. “Black humus and shell frags”. A heavy concentration of shell is located in the centre of the n-w wall extending in a semi-circle for a little less than half a metre. This concentration is described as ‘loose’. Bone fragments and charcoal extend from within the shell concentration towards the s-e wall. “Brown sand” is described in the section of the n-w wall to the east of the shell concentration. Additional bone fragments and charcoal are described in the eastern corner, adjacent to stone artefactual material near the n-e wall.

**Spit 6 – 50-60 cm B.S.**

2 x 1 m. “Black humus and shell frags”. This spit contained a shell concentration in the s-w half of the excavation area which had been intruded on the n-w by an area of brown sand which contained a lower concentration of shell. Stone, bone and artefactual material was spread over the entire spit.

**Spit 7 – 60-70 cm B.S.**

2 x 1 m. “Black humus and shell frags”. The plan drawing of this spit shows a concentration of shell spreading from the s-e wall to the n-w wall, approximately a half metre in width, bordered on the n-e by a half metre wide section where the black humic soil content was higher than in the shell concentrated area. To the s-w of the shell concentration the matrix was brown and sandy, also with less shell. Human skeletal material was recovered from the n-e edge of the shell concentration. A backed microlith was also located on the n-e edge of the shell concentration.

**Spits 8 and 9 – 70-90 cm B.S.**

2 x 1 m. “Black humus and shell frags with brown sand and shell frags below”. The plan drawing shows an area of black humus with shell fragments in the eastern corner, and an area of black humus and sand mixed with shell fragments in the southern corner. Artefactual material was recovered from an area of approximately 30 cm in width covering the excavation from s-e to n-w. Charcoal and large stones were removed from

this area in Spit 8. Human skeletal material and teeth were also recovered from the artefact concentration.

#### **Spits 10 and 11 – 90-110 cm B.S.**

2 x 1 m. “Brown, sandy humus with shell (Spit 10). Orange/yellow sand with very little shell (Spit 11)”. These spits contained the remains of an auger hole taken by Campbell (1968) in the southern corner. The excavator noted that Spit 10 was similar to Spit 9, but that Spit 11 was probably natural sand.

#### **Spits 12 and 13 – 110-130 cm B.S.**

2 x 1 m. The excavator noted that these spits were “definitely” natural sand. Campbell’s auger hole finished in the top few centimetres of Spit 12.

## **5.6 Summary of Available Data for This Research**

Table 5.2 summarises all of the archaeological resources available for analysis or re-examination from Cuttings I and II of the Clybucca 3 site.

**Table 5.2 A Summary of Archaeological Resources from Cuttings I and II, Clybucca 3.**

Spit No	Cutting II					Cutting I				
	Spit Area (m)	Shell kg	Fish g	Terrestrial g	R'carbon Dating	Spit Area (m)	Shell kg	Fish g	Terrestrial g	R'carbon Dating
1	2x2	3.5	0	0	Nil	2x2	unknown	0.42	0	
2	2x2	91	6.8	23.21		2x1	unknown	19.61	30.56	
3	2x2	179	39.46	75.54		2x1	unknown	66.91	28.22	
4	2x1	71	11	72.81		2x1	unknown	65.82	48.06	3360±120
5	2x1	70	10.61	58.75		2x1	unknown	22.9	6.07	
6	2x1	71.5	7.02	45.15		2x1	unknown	2.07	3.23	
7	2x1	95	6.58	47.28		2x1	unknown	1.33	11.08	4260±120
8and9	2x1	122.5	4.77	24.31		2x1	unknown	1.39	1.75	
10and11	2x1	28	0	5.7		2x1	unknown	0	0	5120±150
12and13	2x1	<1.5	0	0						

I now present the results of the re-examination of the shellfish from Cutting II, and the re-analysis of the vertebrate fauna from Cuttings I and II.

## 5.7 Re-Examination of Shellfish Remains Recovered from the 1972 Clybucca Excavation

As can be seen in Table 5.3 above, the weight of shellfish remains recovered from Cutting I at Clybucca during the 1973 excavation of the site was not recorded (Connah 1972, Knuckey 1999). Consequently, to enable comparison with the Stuarts Point shellfish data – in terms of the amount and number of shellfish species recovered and any evidence of change over time – this re-analysis uses only the shellfish data from Cutting II. I have taken the weights of shellfish remains excavated from the ‘trench book’ kept during the excavation, and cross checked the totals with Callaghan (1980) (Table 5.3).

**Table 5.3 Shellfish Remains Recovered from Clybucca 3, Cutting II**

Taxa	1 kg	2 kg	3 kg	4 kg	5 kg	6 kg	7 kg	8&9 kg	10&11 kg	12&13 kg
<i>Anadara trapezia</i>	<.5	2	3	2	2	2.5	2.5	6	1	<.5
<i>Saccostrea glomerata</i>	1.5	41.5	78.5	31.5	30	28	43.5	51	12	<.5
Other	0	0.5	1	0.5	0.5	1	0.5	0.5	0.5	0
Fragments	1.5	47	96.5	37	37.5	40	48.5	65	14.5	<.5
	3	91	179	71	70	71.5	95	122.5	28	1

### Spit 1

A total of 3.5 kg of shellfish remains was excavated from this spit (Table 5.3). Oyster (*Saccostrea glomerata*) accounted for 1.5 kg and cockle (*Anadara trapezia*) less than 0.5 kg. The weight of fragmented shell was 1.5 kg.

**Spit 2**

A total of 91 kg of shellfish remains was excavated from this spit (Table 5.3). Oyster (*Saccostrea glomerata*) accounted for 41.5 kg and cockle (*Anadara trapezia*) 2 kg. 0.5 kg of shellfish remains unidentified to taxon at the time of excavation was recovered. The weight of fragmented shells was 47 kg.

**Spit 3**

A total of 179 kg of shellfish remains was excavated from this spit (Table 5.3). Oyster (*Saccostrea glomerata*) accounted for 78.5 kg and cockle (*Anadara trapezia*) 3 kg. 1 kg of shellfish remains unidentified to taxon at the time of excavation was recovered. The weight of fragmented shells was 96.5 kg.

**Spit 4**

A total of 71 kg of shellfish remains was excavated from this spit (Table 5.3). Oyster (*Saccostrea glomerata*) accounted for 31.5 kg and cockle (*Anadara trapezia*) 2 kg. 0.5 kg of shellfish remains unidentified to taxon at the time of excavation was recovered. The weight of fragmented shells was 37 kg. This spit was the point where the area of excavation was halved.

**Spit 5**

A total of 70 kg of shellfish remains was excavated from this spit (Table 5.3). Oyster (*Saccostrea glomerata*) accounted for 28 kg and cockle (*Anadara trapezia*) 2 kg. 0.5 kg of shellfish remains unidentified to taxon at the time of excavation was recovered. The weight of fragmented shells was 37.5 kg.

**Spit 6**

A total of 71.5 kg of shellfish remains was excavated from this spit (Table 5.3). Oyster (*Saccostrea glomerata*) accounted for 28 kg and cockle (*Anadara trapezia*) 2.5 kg. 1 kg

of shellfish remains unidentified to taxon at the time of excavation was recovered. The weight of fragmented shells was 40 kg.

### **Spit 7**

A total of 95 kg of shellfish remains was excavated from this spit (Table 5.3). Oyster (*Saccostrea glomerata*) accounted for 43.5 kg and cockle (*Anadara trapezia*) 2.5 kg. 0.5 kg of shellfish remains unidentified to taxon at the time of excavation was recovered. The weight of fragmented shells was 48.5 kg.

### **Spits 8 & 9**

A total of 122.5 kg of shellfish remains was excavated from this spit (Table 5.3). Oyster (*Saccostrea glomerata*) accounted for 51 kg and cockle (*Anadara trapezia*) 6 kg. 0.5 kg of shellfish remains unidentified to taxon at the time of excavation was recovered. The weight of fragmented shells was 65 kg.

### **Spits 10 & 11**

A total of 28 kg of shellfish remains was excavated from this spit (Table 5.3). Oyster (*Saccostrea glomerata*) accounted for 12 kg and cockle (*Anadara trapezia*) 1 kg. 0.5 kg of shellfish remains unidentified to taxon at the time of excavation was recovered. The weight of fragmented shells was 14.5 kg.

### **Spits 12 & 13**

Approximately 1 kg of shellfish remains was excavated from the lower spits (Table 5.3). Oyster (*Saccostrea glomerata*), cockle (*Anadara trapezia*), and fragments are recorded as having weighed under a half a kilogram each.

In summary the shellfish remains retrieved from Cutting II, Clybucca 3, show that the assemblage is dominated by oyster (*Saccostrea glomerata*) throughout the Cutting (Figure 5.4). *Anadara trapezia* forms only a very small part of the entire assemblage, and

species other than *Saccostrea glomerata* or *Anadara trapezia* are also represented in very small numbers.

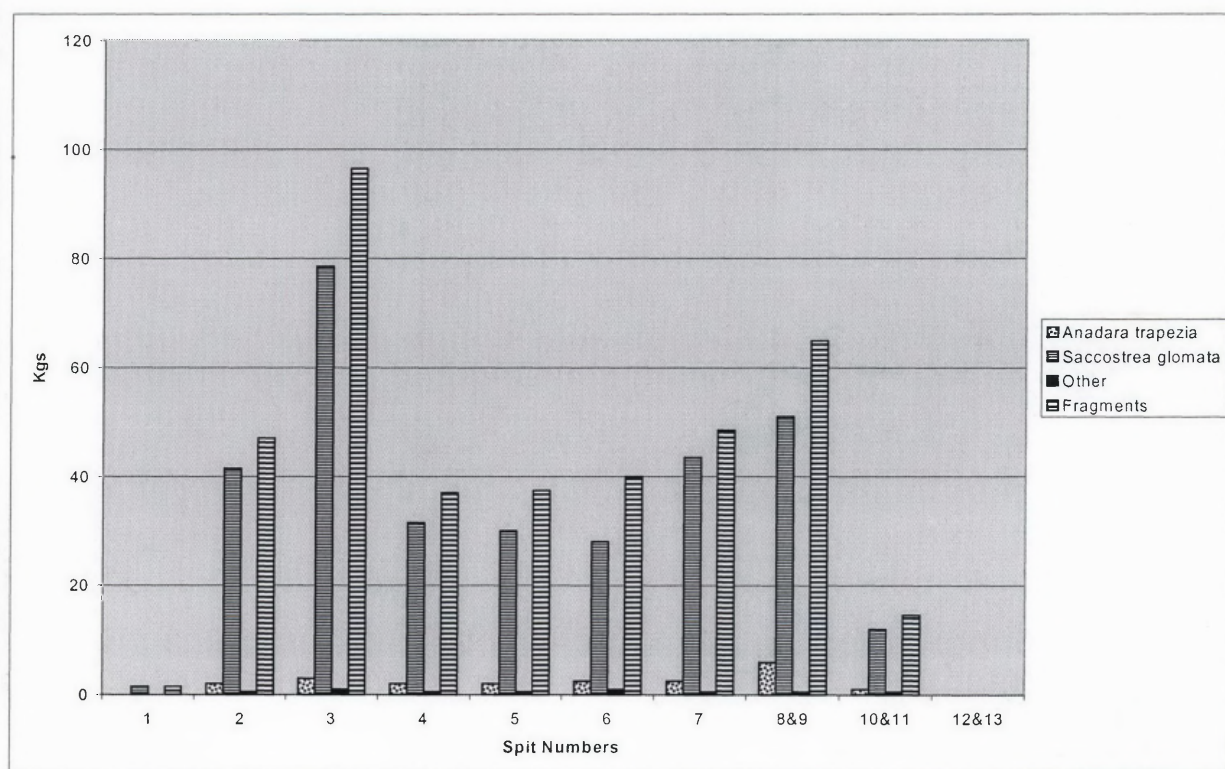


Figure 5.4 Shellfish represented in Cutting II, Clybucca 3

## 5.8 Re-Identification of Fish Remains Recovered from Cutting I, Clybucca 3

### Spit 1

Spit 1 contained three pieces of fishbone, one of which was not able to be identified to taxon (Table 5.4). The only taxon identified was Sparidae, represented by one premaxilla and one supraoccipital. The MNI for the Sparidae is one.

**Table 5.4 Fish Skeletal Elements Represented Clybucca 3/1/1**

<b>Taxon</b>	<b>Premaxilla</b>	<b>Supraoccipital</b>	<b>Cleithrum</b>	<b>Spines/Ptery</b>	<b>Scale</b>	<b>Pieces</b>	<b>Total NISP</b>	<b>Weight (g)</b>	<b>MNI</b>
Sparidae	1	1					2	.32	1
<b>NISP</b>	1	1					2	.32	
Unidentified			1				1	.10	
<b>Total</b>	1	1	1				3	.42	

### Spit 2

Spit 2 contained 149 pieces of fishbone, 128 of which were not able to be identified to taxon (Table 5.5). Platycephalidae is represented by 13 specimens, comprising dentary, premaxilla, and prevomer. Sparidae is represented by five supraoccipital. Sciaenidae has a NISP of three, comprising the premaxilla and an otolith.



**Table 5.5 Fish Skeletal Elements Represented Clybucca 3/I/2**

Taxon	Dentary	Broken Dentary	Premaxilla	Prevomer	Supraoccipital	Cleithrum	Urohyal	Otolith	Atlas	Broken vert	Spines/Ptery	Pieces	Total NISP	Weight (g)	MNI
Platycephalidae	6	5	1	1									13	2.37	3
Sparidae					5								5	2.36	5
Sciaenidae			2					1					3	5.50	2
<b>NISP</b>	6	5	3	1	5			1					21	10.23	
Unidentified	1					1	7		1	3	95	20	128	9.38	
<b>Total</b>	7	5	3	1	5	1	7	1	1	3	95	20	149	19.61	

The MNI for Platycephalidae is three, based on the number of right and left dentaries. Sparidae has a MNI of five, based on the supraoccipital, and Sciaenidae has a MNI of two, based on the premaxillae.

### Spit 3

Spit 3 contained 803 pieces of fishbone, 723 of which were not able to be identified to taxon (Table 5.6). Platycephalidae is represented by 35 specimens, comprising dentary,

**Table 5.6 Fish Skeletal Elements Represented Clybucca 3/I/3**

Taxon	Dentary	Broken Dentary	Articular	Premaxilla	Broken Premax	Quadrate	Prevomer	Broken Prevomer	Supraoccipital	Cleithrum	Hyomandib	Urohyal	Post-temporal	Inter-musc	Atlas	Abdominal vert	Caudal vert	Vertebrae	Broken vert	Ultimate vert	Vert Pieces	Spines/Ptery	Pieces	NISP	Total NISP	Weight (g)	MNI
Platycephalidae	11	5	2	6			1	4																31	35	8.72	8
<i>Platycephalus fuscus</i>																								4			
Sparidae				2	3	2			9							1	2							19	22	4.46	9
<i>Acanthopagrus australis</i>				2																				2			
<i>Rhabdosargus sarba</i>				1																			1				
Mugilidae																	14	4						18	18	1.71	2
Sillaginidae																	3							3	3	22	1
Sciaenidae	1			1																				2	2	1.96	1
<b>NISP</b>	12	5	2	12	3	2	1	4	9						2	20	4			4				80	80	17.07	
Unidentified										4	3	9	3	2				8	45	2	9	82	556	723		49.84	
<b>Total</b>	12	5	2	12	3	2	1	4	9	4	3	9	3	2	2	20	4	8	45	6	9	82	556	803		66.91	

articular, premaxilla, prevomer, 1<sup>st</sup> vertebra (atlas), abdominal vertebra, and ultimate vertebrae. Sparidae is represented by 12 specimens, comprising premaxilla, quadrate,

supraoccipital, 1<sup>st</sup> vertebra (atlas), and abdominal vertebrae. Mugilidae has a NISP of 18, comprising abdominal and caudal vertebrae. Three abdominal vertebrae from Sillaginidae were identified. Sciaenidae has a NISP of two, comprising a dentary and a premaxilla.

The MNI for Platycephalidae is eight, based on the number of right and left dentaries. Four of these can be attributed to *Platycephalus fuscus*, based on the ultimate vertebrae. Sparidae has a MNI of nine based on the supraoccipital, two of which can be ascribed to *Acanthopagrus australis* and *Rhabdosargus sarba*, based on the premaxillae identified to these species. The MNI for Mugilidae is two based upon the number of abdominal vertebrae. Sillaginidae and Sciaenidae each have a MNI of one.

#### **Spit 4**

Spit 4 contained 990 pieces of fishbone, 910 of which were not able to be identified to taxon (Table 5.7). Platycephalidae is represented by 15 specimens, comprising dentary, articular, premaxilla, prevomer, and ultimate vertebrae. Sparidae is represented by 35 specimens, comprising dentary, maxilla, premaxilla, quadrate, supraoccipital, 1<sup>st</sup> vertebra (atlas), and abdominal and caudal vertebrae. Mugilidae has a NISP of 23, comprising abdominal and ultimate vertebrae. Three abdominal and four caudal vertebrae were identified from Sillaginidae.

The MNI for Platycephalidae is three, based on the ultimate vertebrae, two of which can be attributed to *Platycephalus fuscus* and one to *Platycephalus indicus*.

**Table 5.7 Fish Skeletal Elements Represented Clybucca 3/I/4**

Taxon	Dentary	Broken Dentary	Articular	Maxilla	Premaxilla	Prevomer	Supraoccipital	Urohyal	Atlas	Abdominal vert	Caudal vert	Vertebrae	Broken vert	Ultimate vert	Vert Pieces	Spines/Ptery	Pieces	NISP	Total NISP	Weight (g)	MNI
Platycephalidae	4	2	1		3	2												12	15	2.91	3
<i>Platycephalus fuscus</i>														2				2			
<i>Platycephalus indicus</i>														1				1			
Sparidae	3	7		1	1		12		1	5	2							32	35	5.29	12
<i>Acanthopagrus australis</i>					3													3			
Mugilidae										19				4				23	23	2.21	4
Sillaginidae										3	4							7	7	.21	1
<b>NISP</b>	7	9	1	1	7	2	12		1	27	6			7				80	80	10.62	
Unidentified								13				52	61	5	24	276	479	910		55.20	
<b>Total</b>	7	9	1	1	7	2	12	13	1	27	6	52	61	12	24	276	479	990		65.82	

Sparidae has a MNI of 12 based on the supraoccipital, two of which can be ascribed to *Acanthopagrus australis*, based on the premaxillae identified to this species. The MNI for Mugilidae is four based upon the number of ultimate vertebrae. Sillaginidae has a MNI of one, based on the number of vertebrae.

### Spit 5

Spit 5 contained 421 pieces of fishbone, 394 of which were not able to be identified to taxon (Table 5.8). Platycephalidae is represented by 14 specimens, comprising dentary,

**Table 5.8 Fish Skeletal Elements Represented Clybucca 3/I/5**

Taxon	Dentary	Broken Dentary	Maxilla	Premaxilla	Prevomer	Cleithrum	Urohyal	Atlas	Abdominal vert	Caudal vert	Vertebrae	Broken vert	Ultimate vert	Vert Pieces	Spines/Ptery	Pieces	NISP	Total NISP	Weight (g)	MNI
Platycephalidae	4	5			2												11	14	2.16	3
<i>Platycephalus fuscus</i>													3				3			
Sparidae		1	3	1				1	1								7	7	.97	2
Mugilidae										2			2				4	4	.11	2
Sillaginidae									1	1							2	2	.03	1
<b>NISP</b>	10		3	1	2			1	2	3			5				27	27	3.27	
Unidentified						1	3				1	12		4	144	229	394		19.63	
<b>Total</b>	10		3	1	2	1	3	1	2	3	1	12	5	4	144	229	421		22.90	

prevomer, and ultimate vertebrae. Sparidae is represented by seven specimens, comprising dentary, maxilla, premaxilla, 1<sup>st</sup> vertebra (atlas), and abdominal. Mugilidae has a NISP of four, comprising caudal and ultimate vertebrae. One abdominal and one caudal vertebrae were identified from Sillaginidae.

The MNI for Platycephalidae is three, based on the ultimate vertebrae, all of which can be attributed to *Platycephalus fuscus*. Sparidae has a MNI of two based on the right and left maxillae. The MNI for Mugilidae is two based upon the number of ultimate vertebrae. Sillaginidae has a MNI of one, based on the number of vertebrae.

### Spit 6

Spit 6 contained 15 pieces of fishbone, 14 of which were not able to be identified to taxon (Table 5.9). The only taxon identified is a Platycephalidae is represented by one specimen, a dentary. The MNI for Platycephalidae is therefore one.

**Table 5.9 Fish Skeletal Elements Represented Clybucca 3/I/6**

Taxon	Premaxilla	Inter-musc	Spines/Ptery	Pieces	Total NISP	Weight (g)	MNI
Platycephalidae	1				1	0.22	1
<b>NISP</b>	1				1	0.22	
Unidentified		1	8	5	14	1.85	
<b>Total</b>	1	1	8	5	15	2.07	

**Spit 7**

Spit 7 contained 11 pieces of fishbone, nine of which were not able to be identified to taxon (Table 5.10). The only taxon identified is Sparidae is represented by two supraoccipital. The MNI for Sparidae is therefore two.

**Table 5.10 Fish Skeletal Elements Represented Clybucca 3/I/7**

<b>Taxon</b>	<b>Premaxilla</b>	<b>Supraoccipital</b>	<b>Spines/Ptery</b>	<b>Pieces</b>	<b>Total NISP</b>	<b>Weight (g)</b>	<b>MNI</b>
Sparidae		2			2	0.36	2
<b>NISP</b>		2			2	0.36	
Unidentified	1		5	3	9	0.97	
<b>Total</b>	1	2	5	3	11	1.33	

**Spits 8 and 9**

Spits 8 and 9 contained 26 pieces of fishbone, 24 of which were not able to be identified to taxon (Table 5.11). Platycephalidae is represented by one ultimate vertebra belonging to the species *Platycephalus indicus*. Sparidae is represented by one supraoccipital. The MNI for both Platycephalidae and Sparidae is therefore one each.

**Table 5.11 Fish Skeletal Elements Represented Clybucca 3/I/8 and 9**

<b>Taxon</b>	Dentary	Supraoccipital	Ultimate vert	Spines/Ptery	Pieces	Total NISP	Weight (g)	MNI
Platycephalidae						1	.08	1
<i>Platycephalus indicus</i>			1					
Sparidae		1				1	0.2	1
<b>Total NISP</b>		1	1			2	0.28	
Unidentified	2			15	7	24	1.11	
<b>Total</b>	2	1	1	15	7	26	1.39	

## 5.9 Re-Identification of Fish Remains Recovered from Cutting II, Clybucca 3

### Spit 1

No archaeological fishbone was recovered from Spit 1.

### Spit 2

Spit 2 contained 22 pieces of archaeological fishbone, weighing 6.77 g. Four taxa were identified and eight pieces of fishbone were unable to be identified to taxon.

Platycephalidae, Mugilidae and Sciaenidae accounted for a NISP of one, and therefore a MNI of one each (Table 5.12). The most numerous taxon in this spit is Sparidae with a NISP of 11 and a MNI of eight.

**Table 5.12 Fish Skeletal Elements Represented in Clybucca 3/II/2**

<b>Taxon</b>	<b>Broken Dentary</b>	<b>Broken Premaxilla</b>	<b>Supraoccipital</b>	<b>Abdominal vert</b>	<b>Broken vert</b>	<b>Spines/Ptery</b>	<b>Total NISP</b>	<b>Weight (g)</b>	<b>MNI</b>
Platycephalidae	1						1	0.31	1
Sparidae	1	2	8				11	4.46	8
Mugilidae				1			1	0.08	1
Sciaenidae	1						1	0.38	1
NISP	3	2	8	1			14	5.23	
Unidentified	1				1	6	8	1.54	
Total	4	2	8	1	1	6	22	6.77	

### Spit 3

A total of 259 pieces of fishbone were analysed from spit 3, weighing 39.46 g (Table 5.13). Sparidae was represented by a NISP of 26, and a MNI of 18, based on the supraoccipital bone. One piece of a premaxilla was identified to the species *Acanthopagrus australis* (bream). Platycephalidae accounted for a total NISP of 27, and a MNI of seven based on the dentaries. Six ultimate vertebrae belonging to the species *Platycephalus fuscus* (dusky flathead) were identified. The only other taxon represented was Sciaenidae with a NISP of three and a MNI of two based on two left otoliths.

**Table 5.13 Fish Skeletal Elements Represented in Clybucca 3/II/3**

Taxon	Dentary	Broken Dentary	Premaxilla	Broken Premaxilla	Supraoccipital	Cleithrum	Urohyal	Otolith	Abdominal vert	Vertebrae	Broken vert	Ultimate vert	Spines/Ptery	Pieces	NISP	Total NISP	Weight (g)	MNI
Platycephalidae	11	5		5											21	27	6.51	7
<i>Platycephalus fuscus</i>												6			6			
Sparidae			2	4	18				1						25	26	9.05	18
<i>Acanthopagrus australis</i>				1											1			
Sciaenidae			1					2							3	3	5.17	2
NISP	11	5	3	10	18			2	1			6			56	56	20.73	
Unidentified						1	2			1	3		48	148	203		18.73	
Total	11	5	3	10	18	1	2	2	1	1	3	6	48	148	259	259	39.46	

### Spit 4

Spit 4 contained a total of 63 pieces of archaeological fishbone weighing 11 g (Table 5.14), 52 of which were not able to be identified to taxon. Platycephalidae accounted for six pieces of bone, including one ultimate vertebrae belong to the species *Platycephalus fuscus*. The MNI for Platycephalidae wastwo, based on the dentaries. Sparidae was represented by a NISP of three, and a MNI of two based on the supraoccipital bone. One broken premaxilla was able to be assigned to the species *Acanthopagrus australis* (bream). Mugilidae and Sciaenidae were represented by one piece of bone each and therefore both had an MNI of one.



**Table 5.14 Fish Skeletal Elements Represented in Clybucca 3/II/4**

Taxon	Dentary	Broken Premaxilla	Supraoccipital	Otolith	Abdominal vert	Ultimate vert	Spines/Ptery	Pieces	NISP	Total NISP	Weight (g)	MNI
Platycephalidae	2	2			1				5	6	1.48	2
Platycephalus fuscus						1			1			
Sparidae			2						2	3	1.47	2
Acanthopagrus australis		1							1			
Mugilidae					1				1	1	0.07	1
Sciaenidae				1					1	1	2.48	1
NISP	2	3	2	1	2	1			11	11	5.5	
Unidentified							32	20	52		5.5	
Total	2	3	2	1	2	1	32	20	63		11	

**Spit 5**

Spit 5 also contained 63 pieces of fishbone. The weight of this bone was 10.61 g, and 46 of the pieces were not able to be identified to taxon (Table 5.15). Platycephalidae was represented by a NISP of seven, and a MNI of five based upon the dentaries, however none of these specimens were able to be identified to species. Sparidae accounted for a NISP of eight, with two premaxillae (one a broken piece) being identified to the species *Acanthopagrus australis* (bream). The MNI for the Sparid family is four.

**Table 5.15 Fish Skeletal Elements Represented in Clybucca 3/II/5**

Taxon	Dentary	Broken Dentary	Premaxilla	Broken Premaxilla	Supraoccipital	Atlas	Caudal vert	Ultimate vert	Spines/Ptery	Pieces	NISP	Total NISP	Weight (g)	MNI
Platycephalidae	6					1					7	7	1.52	5
Sparidae		2			4						6	8	2.69	4
Acanthopagrus australis			1	1							2			
Sillaginidae	1						1				2	2	0.22	1
NISP	7	2	1	1	4	1	1				17	17	4.43	
Unidentified								1	36	9	46		6.18	
Total	7	2	1	1	4	1	1	1	36	9	63		10.61	

Sillaginidae was the only other taxon identified in Spit 5. It was represented by one piece of dentary and one caudal vertebra. The NISP for Sillaginidae is therefore two and the MNI is one.

### Spit 6

Spit 6 contained 39 specimens of archaeological fishbone, weighing a total of 7.02 g (Table 5.16). Twenty-six specimens, weighing 2.73 g were not able to be identified to taxon. Platycephalidae is represented by a total NISP of nine. The two ultimate vertebrae were both identified to the species *Platycephalus fuscus*. The MNI for Platycephalidae is four based on the dentaries.

**Table 5.16 Fish Skeletal Elements Represented in Clybucca 3/II/6**

Taxon	Dentary	Premaxilla	Broken Premaxilla	Supraoccipital	Vertebrae	Broken vert	Ultimate vert	Spines/Ptery	Pieces	NISP	Total NISP	Weight (g)	MNI
Platycephalidae	7									7	9	2.24	4
Platycephalus fuscus							2			2			
Sparidae		1	1	2						4	4	2.05	2
NISP	7	1	1	2			2			13	13	4.29	
Unidentified					1	1		14	10	26		2.73	
Total	7	1	1	2	1	1	2	14	10	39		7.02	

Sparidae is represented by a NISP of four, with none of the specimens being able to be identified to a species level. The MNI for Sparidae is two based on the supraoccipital.

### Spit 7

Spit 7 contained 33 specimens of archaeological fishbone weighing 6.58 g (Table 5.17).

Unidentified to taxon accounted for 21 specimens weighing 3.37 g.

**Table 5.17 Fish Skeletal Elements Represented in Clybucca 3/II/7**

Taxon	Dentary	Broken Dentary	Premaxilla	Broken Premaxilla	Post-temporal	Supraoccipital	Broken vert	Ultimate vert	Spines/Ptery	Pieces	NISP	Total NISP	Weight (g)	MNI
Platycephalidae	3	1			1						5	6	0.93	2
Platycephalus fuscus								1			1			
Sparidae		1		1		3					5	6	2.28	3
Acanthopagrus australis			1								1			
NISP	3	2	1	1	1	3		1			12	12	3.21	
Unidentified							1		19	1	21		3.37	
Total											33		6.58	

Platycephalidae is represented by a total NISP of six, with one ultimate vertebra being identified to the species *Platycephalus fuscus*. The MNI for Platycephalidae is two based on the dentaries. Sparidae is also represented by a total NISP of six with one broken dentary being identified to the species *Acanthopagrus australis*. The MNI for Sparidae is three based upon the supraoccipital. No other taxonomic identifications were made on the material recovered from Spit 7.

### Spits 8 and 9

Spits 8 and 9 contained 41 specimens of archaeological fishbone weighing a total of 4.77 g (Table 5.18). Platycephalidae is represented by a total NISP of five, with three ultimate vertebrae being identified to the species *Platycephalus fuscus*. The MNI for Platycephalidae is therefore three based on the ultimate vertebrae.

**Table 5.18 Fish Skeletal Elements Represented in Clybucca 3/II/8 and 9**

Taxon	Dentary	Broken Dentary	Premaxilla	Supraoccipital	Atlas	Abdominal vert	Caudal vert	Broken vert	Ultimate vert	Spines/Ptery	Pieces	NISP	Total NISP	Weight (g)	MNI
Platycephalidae	1				1							2	5	0.93	3
<i>Platycephalus fuscus</i>									3			3			
Sparidae		1	1	1			1					4	6	1.4	1
<i>Acanthopagrus australis</i>	1		1									2			
Mugilidae						2						2	2	0.13	1
NISP	2	1	2	1	1	2	1		3			13	13	2.46	
Unidentified								2		22	4	28		2.31	
Total	2	1	2	1	1	2	1	2	3	22	4	41		4.77	

Sparidae is represented by a total NISP of 6, with a MNI of 1.

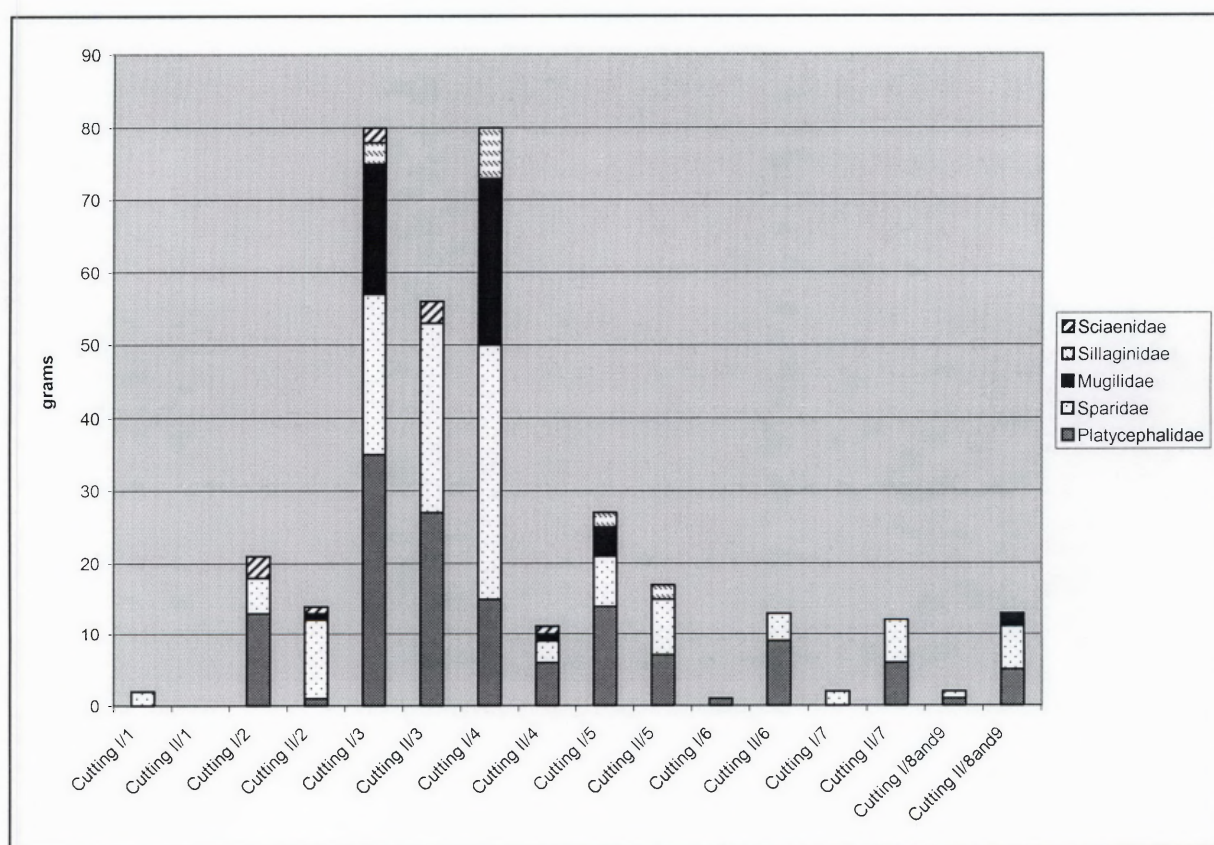
Mugilidae is represented by two abdominal vertebrae, equating with a MNI of one for this taxon.

### Spits 10 and 11

No specimens of archaeological fishbone were recovered from Spits 10 and 11.

Figure 5.5 shows a comparison of fish remains recovered from each spit in Cuttings I and II by family classification. Five families of fish remains were identified totalling at least seven species. The amount of fishbone recovered from the site is at its greatest in spits 3 and 4 of Cutting I, and in spit 3 of Cutting II.

**Figure 5.5 Fish Represented by Family in Cuttings I and II, Clybucca 3**



### 5.10 Re-Identification of Non-Fish Faunal Remains Recovered from Cutting I, Clybucca 3

The archaeological remains from terrestrial animals, along with birds, crab and turtle, recovered from Cuttings I and II, Clybucca 3 were examined, along with the fish remains. Terrestrial animal remains which had been previously included in the fish remains were removed and added to the terrestrial remains. Some pieces which had been ascribed to terrestrial remains were also removed from these totals and added to the fish remains. I have included the weights of birds, crab and turtle in the tables for the terrestrial, or non-fish, faunal remains.

#### Spit 1

No terrestrial faunal material was recovered from this spit.

#### Spit 2

This spit contained 30.56g of terrestrial faunal material (Table 5.19). One piece of dentition weighing 2.46g identified to Macropod, .47g of bird bone, and the remainder identified only to the level mammal.

**Table 5.19 Other Faunal Remains recovered from Clybucca 3 Cutting I**

Spit	Mammal g	Reptile g	Bird g	Crab g	Total g
1	0	0	0	0	0
2	30.09	0	0.47	0	30.56
3	25.75	0	1.01	1.46	28.22
4	44.56	0	3.5	0	48.06
5	6.07	0	0	0	6.07
6	3.23	0	0	0	3.23
7	11.08	0	0	0	11.08
8&9	1.75	0	0	0	1.75

**Spit 3**

This spit contained 28.22g of terrestrial faunal remains (Table 5.19). Included in this was 1.46g of crab shell, .18g mandible identified as an eastern water rat (*Hydromys chrysogaster*), and pieces of dentition (2.93g) from a swamp wallaby (*Wallabia bicolor*). Bird bone accounted for 1.01g. The remaining 22.64g was identified as 'marsupial'.

**Spit 4**

This spit contained 48.06g of terrestrial faunal remains (Table 5.19). Bird bone accounted for 3.5g, 4.86g of broken pieces was identified as pademelon (*Thylogale thetis*), and .26g of teeth were identified to a brushtail possum (*Trichosurus vulpecula*). The remaining 39.44g was identified only to the level of mammal.

**Spit 5**

Spit 5 contained only 6.07g of terrestrial faunal remains (Table 5.19). Macropod teeth identified as brush tail possum (*Trichosurus vulpecula*) accounted for .75g, and the remaining 5.32g of bone was identified to 'macropod'.

**Spit 6**

Spit 6 contained only 3.23g of terrestrial faunal remains (Table 5.19). All of this was fragmented pieces identified only to the level mammal.

**Spit 7**

This spit contained 11.08g of terrestrial faunal remains (Table 5.19). A tooth weighing .24g was identified as swamp wallaby (*Wallabia bicolor*), and the remaining 10.84g was identified only to the level of mammal.

**Spits 8 and 9**

These combined spits contained only 1.75g of terrestrial faunal remains (Table 5.19), all of which could only be identified to the level of mammal.

### 5.11 Re-Identification of Non-Fish Faunal Remains Recovered from Cutting II, Clybucca 3

#### Spit 1

This spit contained no remains of terrestrial, bird, crab or turtle bone.

#### Spit 2

Spit 2 contained a total of 23.21 gram of terrestrial bone (Table 5.21). A mandible piece from a swamp wallaby (*Wallabia bicolor*), a small piece of mandible possibly from a possum (*Trichosurus vulpecula*), 4.12 gram of bone which could only be identified to Macropod, and 13.66 gram which could only be identified to mammal, comprised the mammal total. An additional 1.71 gram of bird, predominantly broken pieces of long bones, made up the total weight.

**Table 5.20 Other Faunal Remains recovered from Clybucca 3 Cutting II**

Spit	Mammal	Reptile	Bird	Crab	Turtle	Total
	g	g	g	g	g	g
1	0	0	0	0	0	0
2	21.5	0	1.71	0	0	23.21
3	71.26	0.16	2.12	0.24	1.76	75.54
4	72.81	0	0	0	0	72.81
5	58.53	0.22	0	0	0	58.75
6	45.15	0	0	0	0	45.15
7	47.28	0	0	0	0	47.28
8and9	23.84	0.47	0	0	0	24.31
10and11	5.7	0	0	0	0	5.7

#### Spit 3

This spit contained a total of 75.54 gram of terrestrial bone (Table 5.20). The mammal component included a mandible piece from a wallaby (*Wallabia bicolor*), a mandible pieces of a pademelon (*Thylogale thetis*), a mandible piece of a native cat (*Dasyurus*



*viverrinus*), and the remainder 61.96 of broken bone being identified only to mammal. Spit 3 also contained the remains of a reptile, in the form of one vertebra, 2.12 gram of pieces of bird bone, 0.24 gram of crab shell, and 1.76 gram of turtle remains.

#### **Spit 4**

Spit 4 contained 72.81 gram of terrestrial bone, which could only be identified to the level of mammal (Table 5.20).

#### **Spit 5**

Spit 5 contained a total of 58.75 gram of terrestrial bone (Table 5.20). This included a piece of pademelon mandible (*Thylogale thetis*), 1.36 gram of bone identified to macropod, 55.27 gram identified only as mammal, and one reptile vertebra.

#### **Spit 6**

This spit contained a total of 45.15 gram of terrestrial bone (Table 5.20). All of this was mammal and included a piece of mandible, incisor and molar identified to *Macropus sp.*

#### **Spit 7**

Spit 7 contained a total of 47.28 gram of terrestrial bone (Table 5.20), all of which was mammal. A small piece of mandible and premolar could be identified to *Macropus sp.*

#### **Spits 8 and 9**

The combined spits 8 and 9 contained a total of 24.31 gram of terrestrial bone (Table 5.20). One reptile vertebra was recovered, but the remainder was mammal bone, including a mandible piece, incisor, and tarsal from *Macropus sp.*

#### **Spits 10 and 11**

Spits 10 and 11 contained 5.70 gram of terrestrial, none of which could be identified further than 'mammal' (Table 5.20).

## 5.12 Conclusion

In this chapter I collated all of the archaeological data from Clybucca 3 that were available to this research. I explained that – as the quantities of shellfish recovered from Cutting I were not recorded – I would be using the shellfish data from Cutting II for analysis and comparison with the Stuarts Point shellfish data. I presented the results of my re-examination of the Clybucca shellfish, and the results of my re-identification of the fish and non-fish faunal remains. This re-identification detected the presence of seven species of fish. Non-fish faunal remains included mammal, reptile, bird, crab and turtle, which had not previously been identified in the assemblages. Chapter 7 presents my analysis of the material presented here, along with comparative analysis of the Stuarts Point results presented in the following chapter.