ARCHAEOLOGICAL EXCAVATIONS IN THE ZULTI NORTH MINING LEASE

FOR RICHARDS BAY MINERALS

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INTRODUCTION

Umlando cc undertook rescue excavations of four sites during November 2010 and December 2010. The excavated sites were all marked earlier in the year as having high excavation potential. Test-pit excavations are used to test the full potential of an archaeological deposit. These test-pit excavations may require further excavations if the site proves to be of any significance. We tested 11 sites for excavation potential in October 2010 and in the end excavated the four with the highest significance. A third person was hired to clean and sort the excavated material into broad categories. The material was then analyzed and data based. All the material has been moved to Amafa aKwazulu-Natali in Pietermaritzburg for storage, as per agreement with RBM, KZN Heritage, and the Natal Museum.

Management of the sites is always in accordance with the KZN Heritage Act.

METHODOLOGY

All sites are grouped according to low, medium, and high significance for the purpose of this report. Sites of low significance have no diagnostic artefacts, especially pottery. Sites of medium significance have diagnostic artefacts and these are sampled. Sampling includes the collection of artefacts for future analysis. All diagnostic pottery, such as rims, lips, and decorated sherds are sampled, while bone, stone, and shell are mostly noted. Sampling occurs on most sites. Sites of high significance are excavated and/or extensively sampled. Those sites that are extensively sampled have high research potential, yet poor preservation of features. We attempt to recover as many artefacts from these sites by means of systematic sampling, as opposed to sampling diagnostic artefacts only.

Defining significance

Archaeological sites vary according to significance and several different criteria relate to each type of site. However, there are several criteria that allow for a general significance rating of archaeological sites.

These criteria are:

1. State of preservation of:

1.1. Organic remains:

1.1.1. Faunal

1.1.2. Botanical

1.2. Rock art

1.3. Walling

1.4. Presence of a cultural deposit

1.5. Features:

1.5.1. Ash Features

1.5.2. Graves

1.5.3. Middens

1.5.4. Cattle byres

1.5.5. Bedding and ash complexes

2. Spatial arrangements:

2.1. Internal housing arrangements

2.2. Intra-site settlement patterns

2.3. Inter-site settlement patterns

3. Features of the site:

3.1. Are there any unusual, unique or rare artefacts or images at the site?

3.2. Is it a type site?

3.3. Does the site have a very good example of a specific time period, feature, or artefact?

4. Research:

4.1. Providing information on current research projects

4.2. Salvaging information for potential future research projects

5. Inter- and intra-site variability

5.1. Can this particular site yield information regarding intra-site variability, i.e. spatial relationships between various features and artefacts?

5.2. Can this particular site yield information about a community's social relationships within itself, or between other communities?

6. Archaeological Experience:

6.1. The personal experience and expertise of the CRM practitioner should not be ignored. Experience can indicate sites that have potentially significant aspects, but need to be tested prior to any conclusions.

7. Educational:

7.1. Does the site have the potential to be used as an educational instrument?

7.2. Does the site have the potential to become a tourist attraction?

7.3. The educational value of a site can only be fully determined after initial test-pit excavations and/or full excavations.

The more a site can fulfil the above criteria, the more significant it becomes. Test-pit excavations are used to test the full potential of an archaeological deposit. These test-pit excavations may require further excavations if the site is of significance. Sites may also be mapped and/or have artefacts sampled as a form of mitigation. Sampling normally occurs when the artefacts may be good examples of their type, but are not in a primary archaeological context. Mapping records the spatial relationship between features and artefacts.

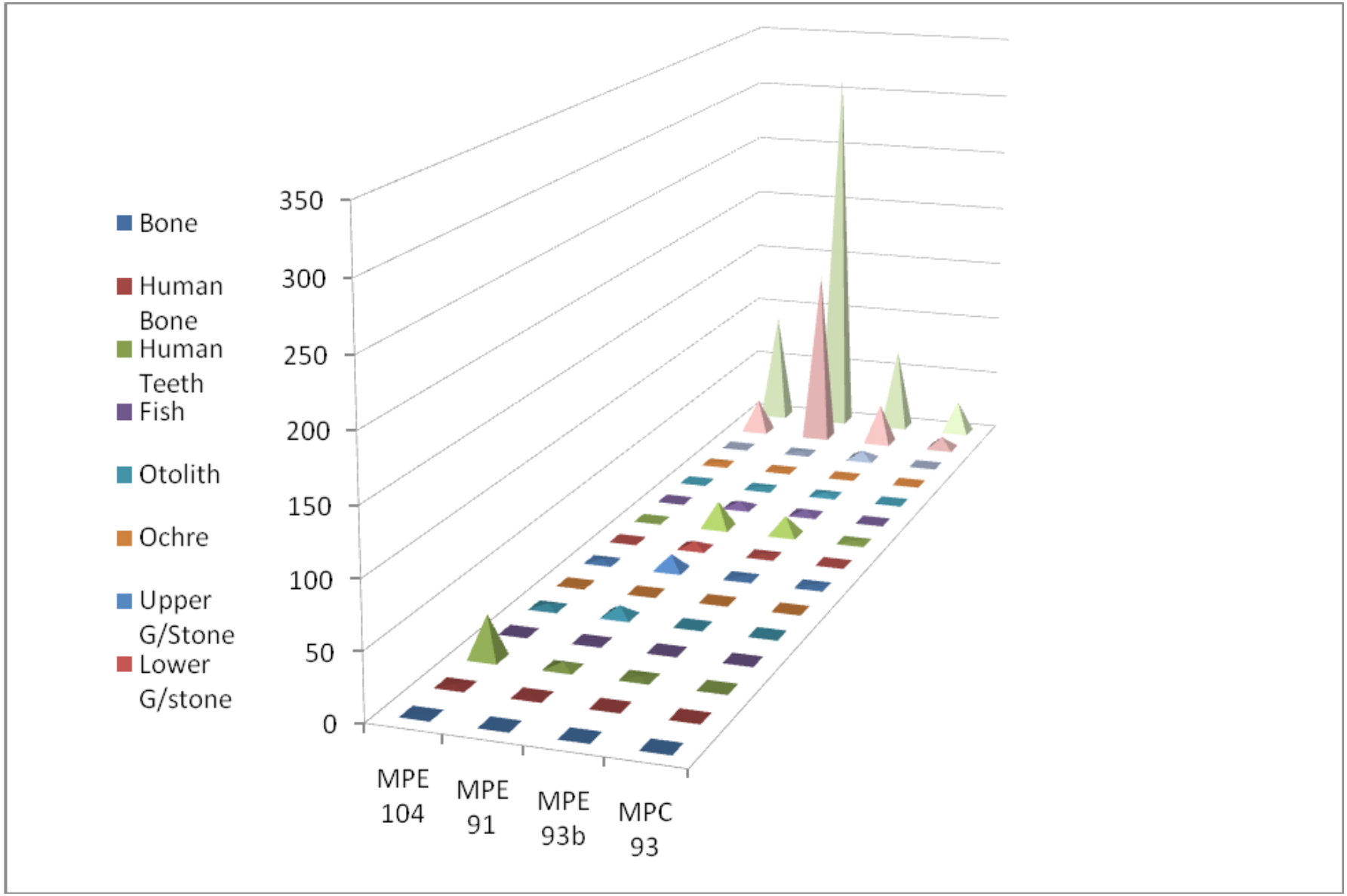
EXCAVATIONS

Table 1: summarises the artefacts from all of the excavations, and figure 1 illustrates this.

Table 1: Summary Of Artefacts From The Excavations

Site	MPE 104	MPE 91	MPE 93b	MPC 93	Total
Bone (g)	0.135	0.003	0	0	**0.138**
Human Bone (g)	0.803	0.204	0	0.002	**1.009**
Human Teeth (n)	32	4	1	0	**37**
Fish (g)	0	0.077	0.007	0	**0.084**
Otolith (n)	3	8	0	0	**11**
Ochre (n)	0	0	0	0	**0**
Upper G/Stone (n)	1.805	12	1	1	**15.805**
Lower G/stone (n)	0	5	1	0	**6**
Nassa. (n)	0	21	15	1	**37**
Charcoal (g)	0.035	5	4	0.018	**9.053**
Cowrie (n)	0	1	2	0	**3**
Coral (g)	1	0.333	0.158	0	**1.491**
Pendant (n)	0	1	7	0	**8**
Shell Weight (kg)	27.184	144.874	33.204	9.48	**214.742**
Pottery (n)	90	311	68	27	**496**

Fig. 1: Summary Of Artefact From All Excavated Sites



MPC 093

MPC 093 is located on the second dune cordon from the ocean. We first recorded it in October 2010 as an intact shell midden, next to the road, consisting mainly of brown mussel, limpets and an extensive scatter of surface pottery (fig. 2).

Fig. 2: MPC093 Excavations

Method

The site was divided into 3, 1m x 1m squares in the area with the highest concentration of shell on the surface (fig. 2). The top 5cm was removed as Surface, which exposed a dense shell layer. This shell layer was removed as Lens 1 and consisted of compacted brown mussel, pottery, small amounts of charcoal and upper grinding stones in a grey ash. The midden consists of only the single shell lens that was completely removed.

Results

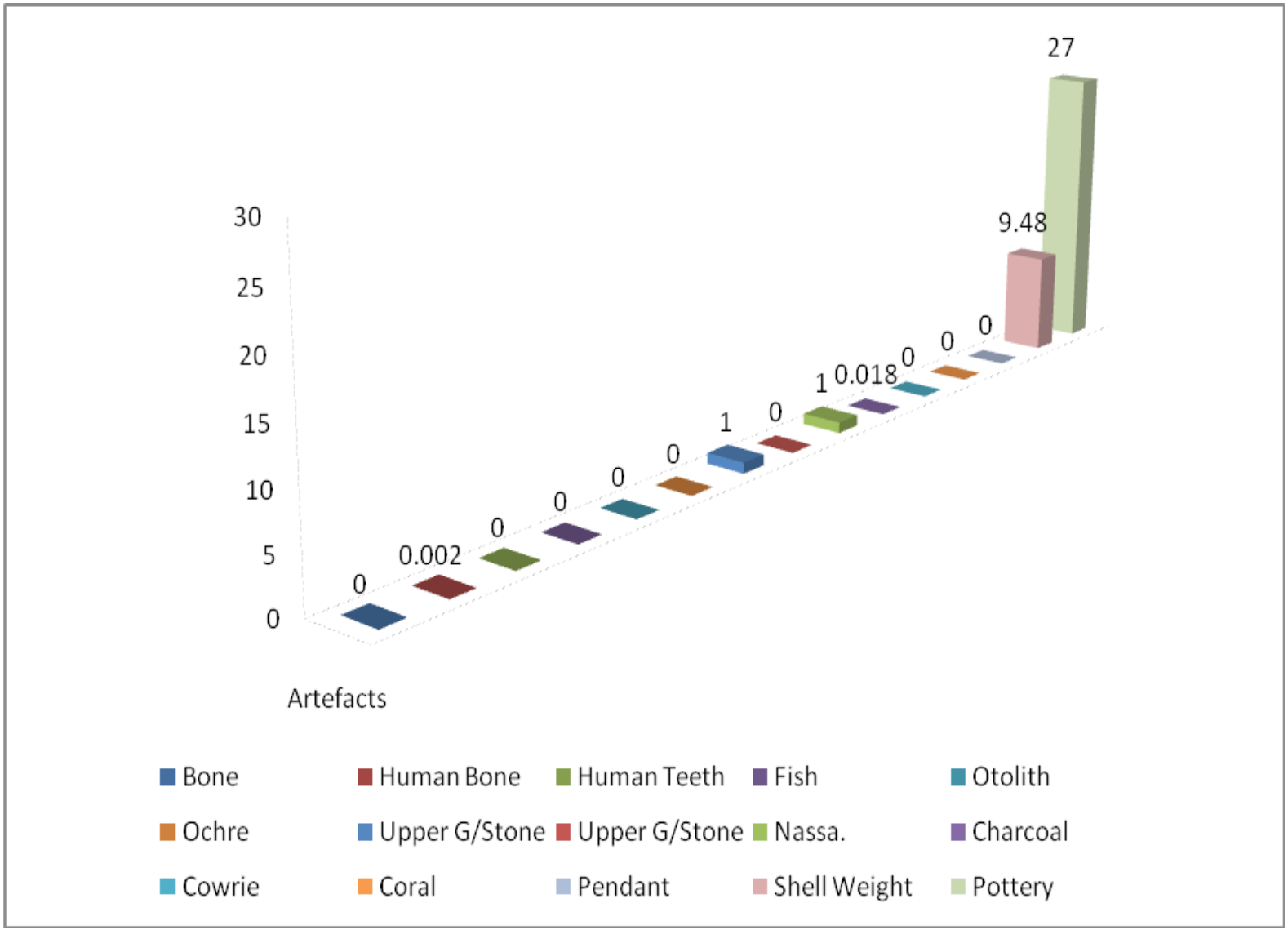
Fig. 2 illustrates the results from Table 1. After the excavated material was sorted and analyzed, it became apparent that the site did not yield much more than shell. A shell lens that forms part of a midden is made up out of percentages of different species of shellfish. The ratio of percentages depends on what the target species was. For example, a lens made up of mainly *P. perna,* or the common brown mussel, will consist of *P. perna* and, in lesser quantities/percentages, shellfish that was taken inadvertently whilst removing the target species, in this case, *P. perna.*

It is important to keep in mind that a midden, in most cases, is nothing more than an ancient rubbish dump/pit. It was mostly located behind the individual huts in a village set-up. Communal middens do occur frequently in the RBM dunes. A communal midden is usually a multi-component midden, away from a village, and closer to the food source – referred to as processing sites. Each midden would represent several days of shell discard, however it is not possible to excavate these middens by each episode.

MPC 093 yielded 9,5kg of shell, mainly *P. perna.* We also noted a single *Nassarius kraussianus* mollusc (hereafter referred to as Nassa.), also known as the 'tick shell' for its habit of making its home on the shell of larger species of mollusc and bi-valves, such as the brown mussel and oyster. This may explain its presence in this particular shell sample. The shell of the *Nassa.* mollusc is also extensively used as beads, not only for their varied colouring, but their natural shape makes them very easy to perforate.

A single piece of charcoal and 27 pottery sherds made up the remainder of the artefacts yielded.

Fig. 3: Artefacts Densities From The Excavations



Management Plan

The excavations are complete and the site needs no further mitigation. It will, however, be monitored for as long as it still exists.

MPE 91

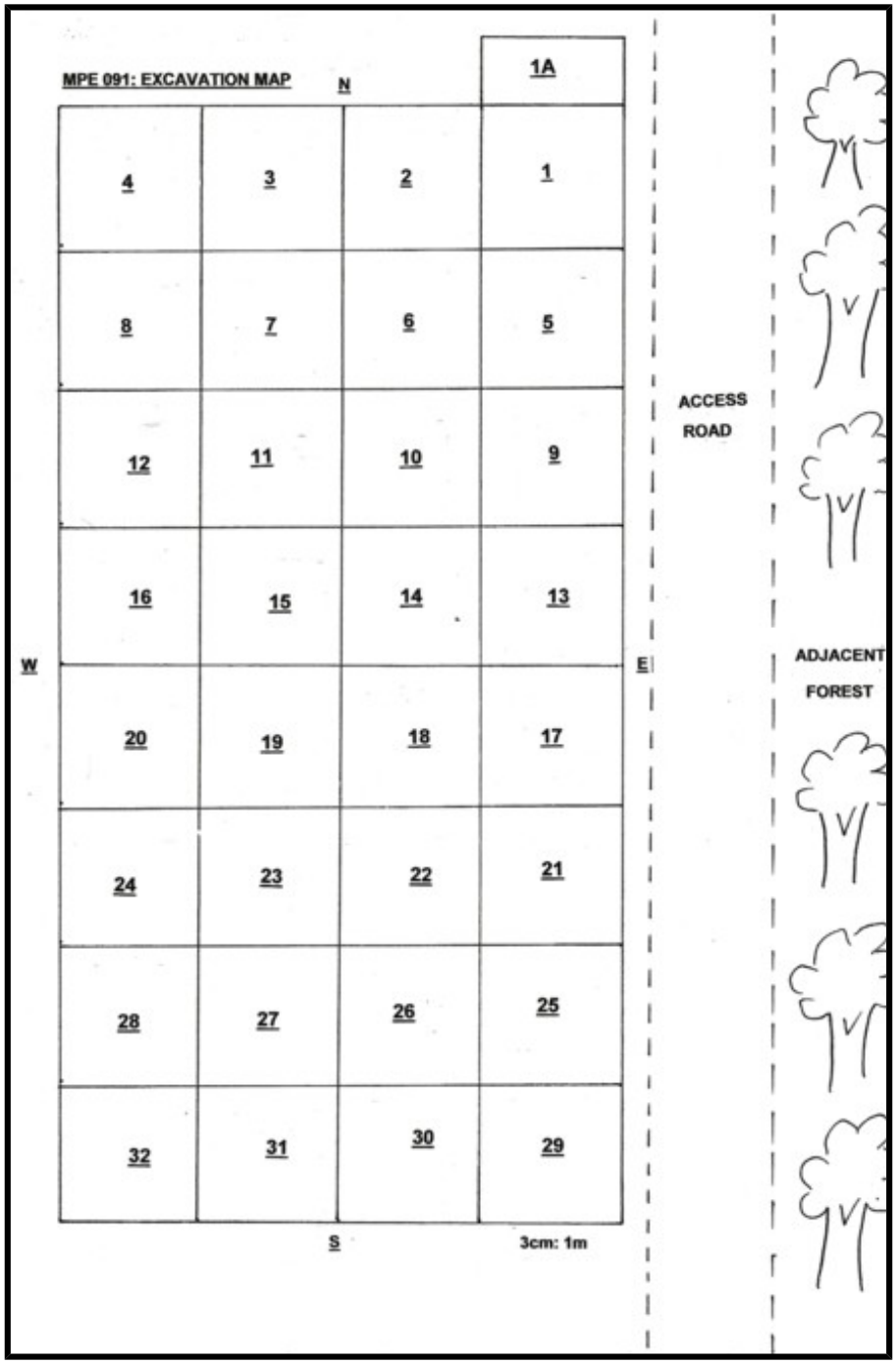
MPE 91 is located close to the Sokhulu Reservoir, on both sides of a track at the top of a high dune. It was first recorded in June 2009 as a shell midden consisting mainly of brown mussel and oyster. The site extends into the adjacent forest and was marked for test-pits (fig. 4). There was also a large scatter of surface pottery, some decorated, which placed the site in the Group 7/Tsonga category.

Fig. 4. : Excavations at MPE091

Method

This site was divided into 32, 1mx1m squares, forming a large rectangle (Fig. 4-5). The squares on the outer edges were excavated first, working our way towards the obvious shell midden located roughly in the centre of the rectangle.

Fig. 5: Excavation Map Of MPE091



Results

The outer squares were excavated in Spits. A spit is a 10cm measure of excavation that is used when there is no discerning layer visible. The spits continue in 10cm layers until a definite new layer is visible. Surface was removed from all the outer squares and then a Spit 1 and Spit 2 onto the yellow sand (LBS) that we regard as being the sterile layer. The non-midden squares yielded large amounts of pottery, some upper and lower grinding stones and bovid bone.

All the outer squares followed a virtually identical pattern, with the exception of Sq. 1. Sq. 1 is located in the SE of the grid. Instead of the mottled light brown sand of the other outer squares, it was humic from the start. 30cm below the surface the deposit started and continued down to about 80cm. Along the east section a well-defined pit occurs that goes down to 80cm (fig. 6). An upper and lower grinding stone was found at the top of the pit. Sq. 1A was opened as to remove the complete pit, which contained several potsherds.

The first sign of in *in situ* shell was in Sq. 23, in the SE section. From Sq. 23 the midden gradually became denser and occurred in Sq.'s 23, 22, 21, 18, 17, 19, 14, 15, 13 and to a lesser extent in Sq.'s 26, 25, 30 and 29. The midden consists of a multi-component site of several lenses deposited over a period of time. In total, 32 squares were completely excavated. The lenses in sq.'s 9, 13, 17 and 21 were not completely removed as it extends across a main access road. Figures 7 – 9 show these middens.

Since the first excavation was completed, an alternative road has been made over the completed part of the site so that the excavations may continue without interfering with access. The part of the site that occurred in the adjacent bush, on the opposite side of the access road has been cleared and we have done small test-pits to determine the extent. The new excavation area has been demarcated with danger tape and signs and we intend to continue with full excavations in August/September 2011.

Fig. 6: Pit in Sq. 1/1A

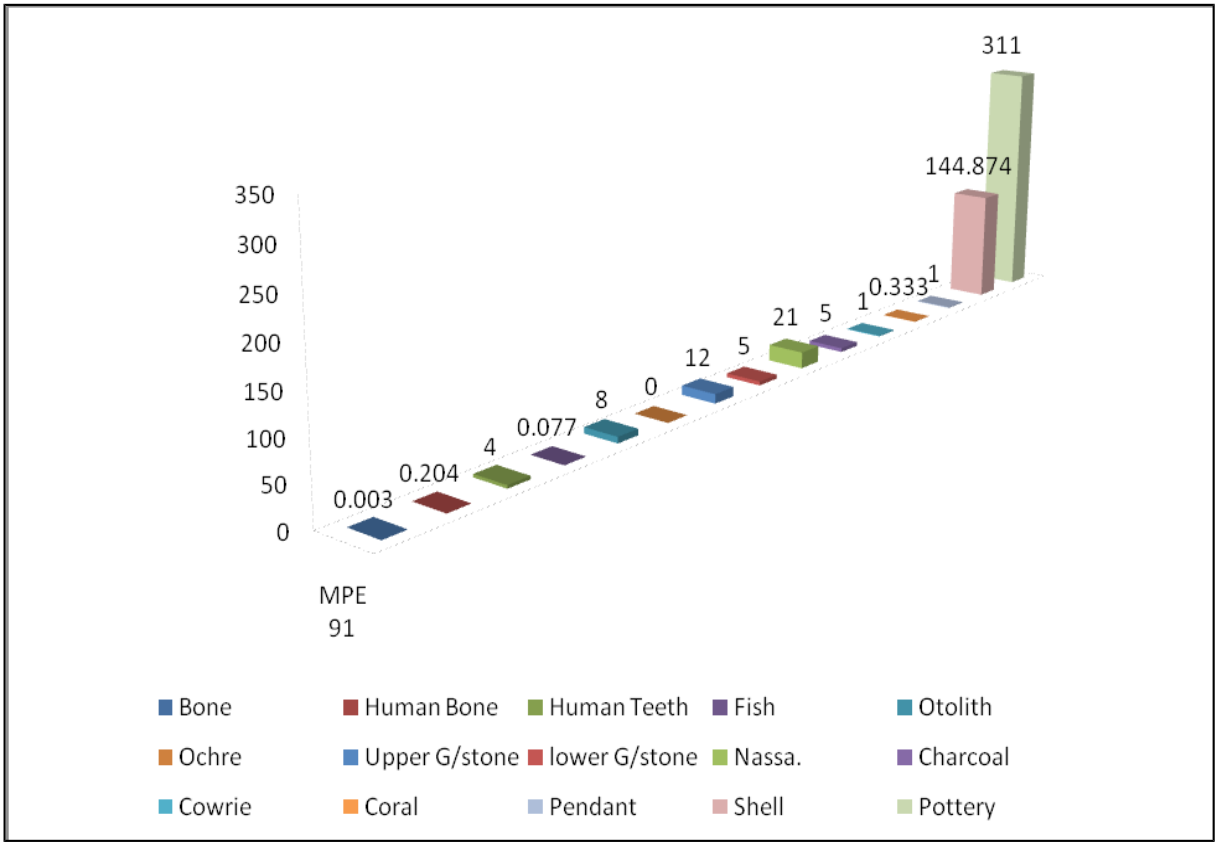
Fig. 7: Shell Midden At Sq. 13

Fig. 8: Shell Midden At Sq. 25

Fig. 9: Shell Midden At Sq. 21/25

The results are illustrated in Fig. 10.

Fig. 10: Artefacts from MPE091



This site has more artefacts than the other excavated sites, mainly due to its size, and density of the middens. The middens consist mostly of *P. Perna,* with some oyster and limpets... Ecofacts such as coral, and Nassa. is probably a result of being attached to the *P. Perna.* Although the Nassa. could be brought in for beads.

The pottery is mostly undecorated, however, a few sherds were decorated with a circular dot motif. This is probably a Group 6 (or Blackburn) type of pottery that dates between AD1200 – AD14500. The radiocarbon dating in the dune system, and along the eastern seaboard is problematic, since the shell has not been calibrated. A single sherd with a shell-impressed motif was found on the surface, and this could date between AD1450 and AD 1700.

The human tooth is a milk tooth molar. While the human bone is a possible human fragment. The other bone is that of domestic cattle.

Management Plan

The excavations at MPE 91 is ongoing. The final report on the site will be handed in once we have completed excavations and sorted, analyzed and data based all material.

MPE 093b

This site was initially recorded as a large shell midden adjacent to what was then just a smallish track. Subsequent to this, the track was widened and now serves as a main access road to the ponds. A large portion of the original midden was lost in the process (fig. 11).

Fig. 11: Location Of MPE093b

Method

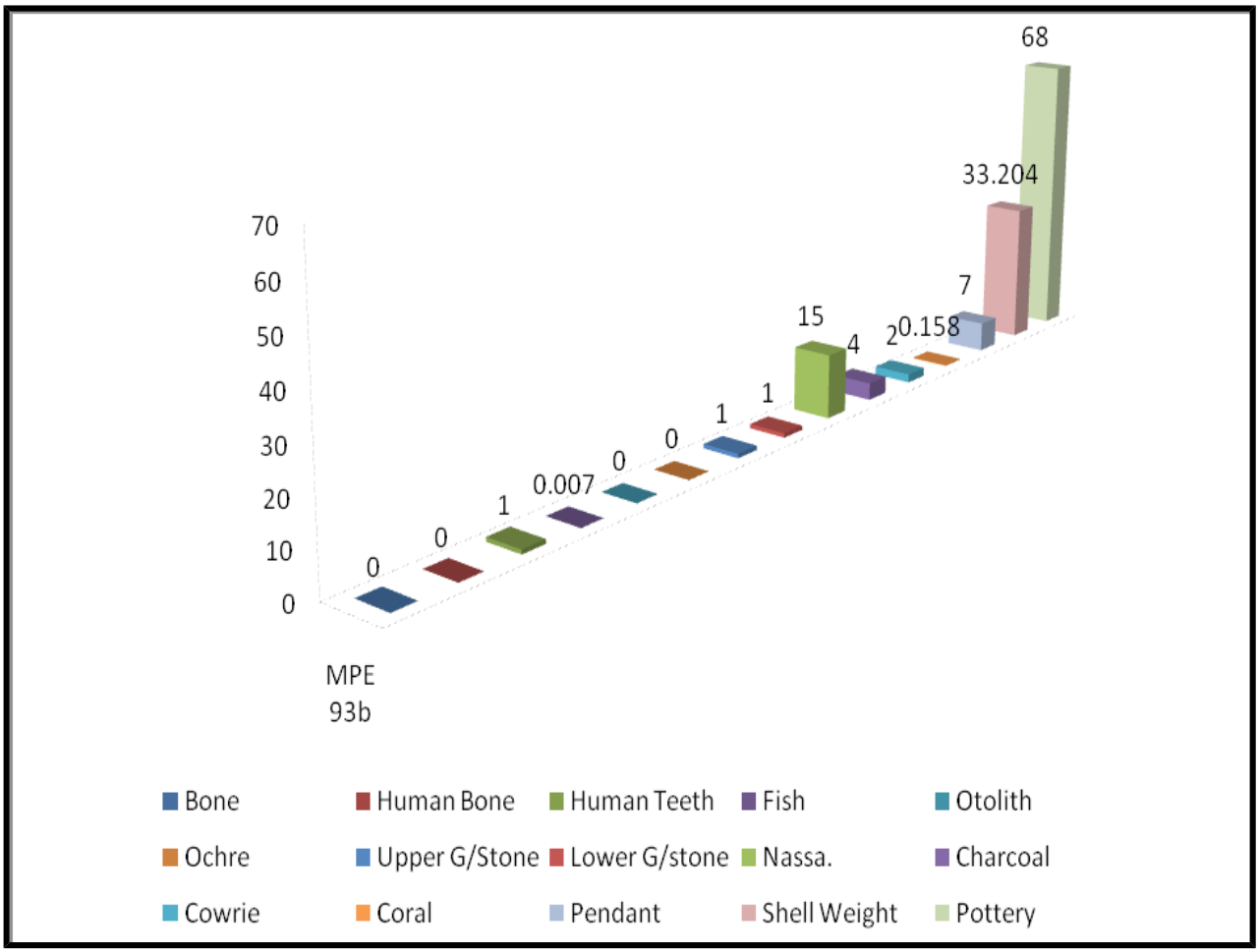
A grid of six 1m x 1m squares was laid out and was excavated (fig. 12). A surface layer was removed, then an Above Lens 1, Lens 1 and a Below Lens 1. Lens 1 consisted of a loose layer of brown mussel in an ashy sand and very little else. Below Lens 1 purely served the purpose of making sure no artefacts were missed.

Fig. 12: Final Excavation Area At MPE093b

Results

MPE 093b yielded an impressive amount of material if you take into account that most of the midden does not exist anymore and only six small squares were worth excavating. After sorting and analyzing the material, the total came to 33kg of shell, mainly *P. perna,* but also a good sample of oyster, cowry, limpet, and whelk. The midden contained a small quantity of fishbone, upper and lower grinding stone fragments and several small pieces of coral. The remainder of the sample was made up of 14 Nassa beads and 7 shell pendants, which suggests jewellery in the form of a bracelet or necklace and, intriguingly, a single human tooth. This could mean, as was the case with MPE 104, that there was a human burial inside the midden, which was removed by bulldozer activity during the widening of the track. Alternatively, it could just mean that one of the people originally associated with the midden lost a tooth!

Fig. 13: Excavated Artefacts From MPE093b



Management Plan

The excavations are complete and the site needs no further mitigation

It will, however, be monitored for as long as it still exists.

MPE 104

The site was marked for test-pits during the October 2010 survey (fig. 14). Test-pits were undertaken in November and the cranial remains of a human were found. The remains were located in the centre of the road, which is a well-used track. A large shell midden appears to have been located in what is now the road and was destroyed in order for the track to exist. Part of this midden was still intact to the east of where the burial was found. In its original state, the grave would have been underneath and inside the midden. We find in most cases that burials inside middens are much better preserved than the alternative.

Fig. 14: Completed Excavation Area At MPE104[1]

[1] White arrow = location of human burial

Method

We proceeded with the excavation of the skeleton in an attempt to determine if it was intact or fragmented by vehicle activity: as was the case for the cranium. We realised that most of the skeletal remains were *in situ*, although it was fairly trampled by the vehicle activity. The *in situ* skeletal remains were relatively well preserved, considering its location, especially the larger bones. The skeleton would have been in a seated position. The left arm was above the femur, possibly near the chest and the right arm and hand was lying across the right tibia/fibula and femur. It is difficult to tell what the original position was as the remains had shifted in the sand. It seems, however, that his/her arms were folded over the chest and tucked in between the tibia/ fibula and femur of the corresponding leg. Most of the cranium had been crushed and was ±30 cm away from the rest of the skeleton, apart from the mandible that was inverted and above the chest. The skeleton was facing westwards, or sunset.

A general analysis of the skeleton can be made so far: The skeleton appears to be that of a juvenile, it is so small. However, according to the teeth, of which there were 32 in total, it is a young adult, or a person in his/her late teens, at least. Humans have 20 primary teeth and 32 permanent teeth. The final set, or permanent teeth, includes four wisdom teeth. Teeth are a useful guideline, but can only provide approximate ages since each person's teeth erupts/ drop out at their own pace. We are unsure about the sex. The person was small for his/her assumed age (110cm – 120 cm). The bones do not show any initial signs of trauma and appear to be well formed, just small. A more detailed analysis would need to be undertaken by a physical anthropologist. It is not possible to give a direct date for the skeleton. However, I believe that the skeleton dates to the Historical Period, rather than the Late Iron Age. The occurrence of the remains of a young adult is enigmatic, especially considering that several rib bones were recovered. Under normal circumstances, the ribs of older adults tend to be poorly preserved[2], and if they do exist, they are very fragile in relation to the other bones, especially the long bones. The bones of a younger person tend to be more cartilaginous, as they have not yet completely ossified. They thus tend to preserve less well than adult remains. Figure 14 shows some aspects of the excavation of the human skeleton. A full photographic record is available on request.

[2] In the acidic soils of the coastal dune forest only shell middens preserve bones very well, and this may have been the case in this instance.

Fig. 14: Excavation Of Human Burial At MPE104

Fig. 14: Excavation Of Human Burial At MPE104 (cont.)

After the removal of the burial, 12, 1mx1m squares, were excavated in adjacent squares to remove the midden and to determine if more skeletal remains would occur. Once the surface was removed a large shell midden was exposed and completely removed as Lens 1 (fig. 15). A Below Lens 1 layer was also excavated. Lens 1 was a densely compacted brown mussel midden, with some pottery and charcoal in a grey/black ash. Below Lens 1 was a 10cm layer underneath Lens 1 that was excavated to be sure that no deposit was missed. Below Lens 1 became a yellow sand towards the base, which at RBM, we see as the sterile layer.

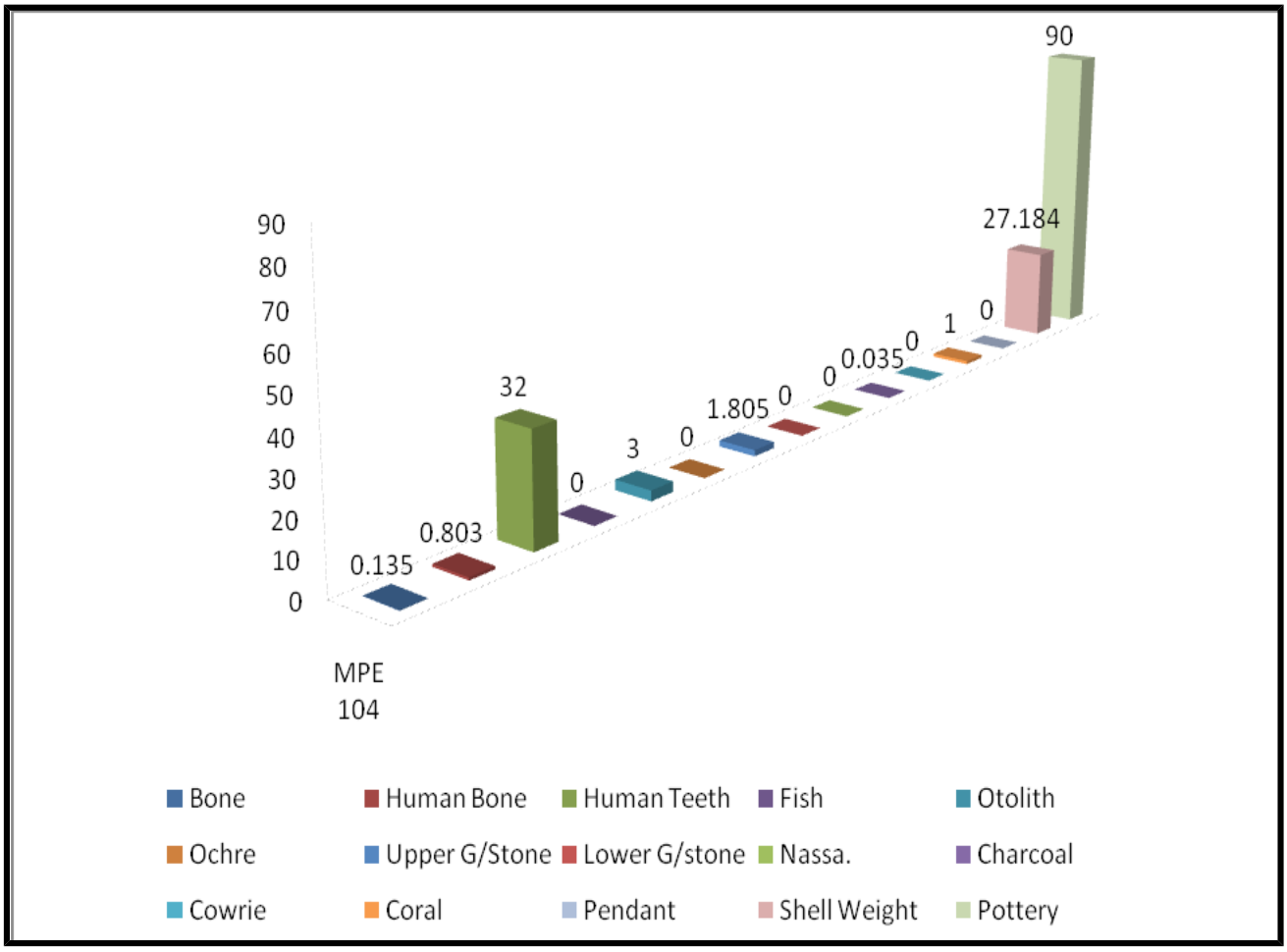
Fig. 15: Shell Midden At MPE104

We removed an additional 12 1m x 1m squares between the midden and burial, to determine of there were any more finds. We recovered a scatter of artefacts, but no features.

Results

Apart from the human remains, the site yielded almost 28kg of shell (mainly oyster and brown mussel), 90 potsherds, several small pieces of coral and charcoal, 4 upper grinding stones, a small amount of bovid bone, fishbone, and 3 otoliths (fig. 16). An otolith is the inner ear bone of a fish. It is species specific, hence is a tool to determine the different species of fish that was eaten and of which the remains are found in the middens. Considering that the site was partially destroyed, it yielded a good-sized sample and remains of high significance because of the human burial.

Fig. 15: Artefacts From MPE104



The site remains of high significance due to the burial and it will still be monitored for more human remains until mining has occurred. The main excavations on this site are complete and no further mitigation is required.

CONCLUSION

Four sites were excavated over a two-month period in 2010. These sites yielded interesting information regarding human settlement. While each site is not large, all of these sites do add up to produce a long sequence of human occupation in the dune system. That is a single site may only represent ten years (for example), however if we excavate a further ten sites that overlap each other in time, we could have a century's worth of human occupation in the dune system. This is the significant part of the RBM material.

The middens can also provide a long sequence in marine isotope analyses for future research. The isotope analyses would be used for reconstructing palaeoclimates. Furthermore, the marine shell has the potential to inform us of eating habits, species prevalence and under/over exploitation.

The human skeletal remains are also significant. The skeleton at MPE104 probably relates to the Mbonambi people, and will be returned to them after dune mining, as are other human remains from this area that post date 1820s.