

■ TANZANIA

Overview of Work Conducted in the Mafia Archipelago 2008-2010

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Introduction

This report outlines research conducted in the Mafia Archipelago, Tanzania between 2008 and 2010 as part of broader project *to explore the socio-cultural context of maritime interactions in the archipelago* (Christie 2011). Several methodological approaches were combined to identify and elucidate maritime practices at different spatial and temporal scales, and the project was divided into two inter-related phases (Table 1). The surveys conducted in the first phase developed an understanding of modern and historic maritime practices exploring each of these in a local context. In the second phase, maritime practices were examined archaeologically – using the 16th to 18th centuries AD site of Kua on Juani Island as an example (Figure 1). The project thus builds on previous work on Mafia by, among others, Neville Chittick (1961), Felix Chami (1994, 2000, 2004), Stephanie Wynne-Jones and Bertram Mapunda (2006, 2008) and Daniel Rhodes (2010).

Maritime Practices in Local Context

Transect surveys, shovel test-pit (STP) excavations, ethnographic interviews and fish catch survey were used to determine the organisation and distribution of maritime activities within the landscape/seascape by recording how they were conducted and examining whether/how they were influenced by various social dynamics such as status or gender.

Transect Surveys

Methods. Transect surveys aimed at investigating the foreshore and inter-tidal area, were conducted around three areas: Chole Island, Mfuruni and Kirongwe. As each of these areas had different coastal environments the influence of environment on maritime activities could be examined. During the foreshore surveys several 1km long transect zones were surveyed within each area, with parallel transects spaced 20m apart following the line of the coast.

During the inter-tidal surveys only two 1km transect zones could be surveyed during a single tide. The first kilometre was surveyed by parallel transects spaced 25m apart following the ebbing tide to the low water mark (LWM). In light of the variability in the coastal ecology of the survey areas, the area covered by the intertidal surveys was determined by the size of the intertidal zone. Around Chole the area exposed at low tide was 400-500m from the edge of the mangroves. Around Mfuruni this was considerably larger – extending at least 1km seaward at the lowest tides. The second transect zone was completed on the flowing tide. Identified sites were marked with a Garmin eTrex Vista Global Positioning System (GPS) (accuracy $\pm 3m$) and notable features and local histories were recorded. The sites identified were classified as one of five site types (Table 2)

Results. Fifty-six sites were identified during these surveys, 21 of which were pottery scatters (Figure 2). While the majority of these scatters were surface finds, some sub-surface archaeology was visible in cultivated areas.

Mfuruni and Kirongwe were the most productive survey areas (Figure 2). Kirongwe had the highest proportion of shell scatters and maritime activity areas (mostly lime processing sites). These scatters had a less diverse range of shell species present when compared with similar scatters around Mfuruni, however this could reflect the diversity of coastal habitats in the Mfuruni area.

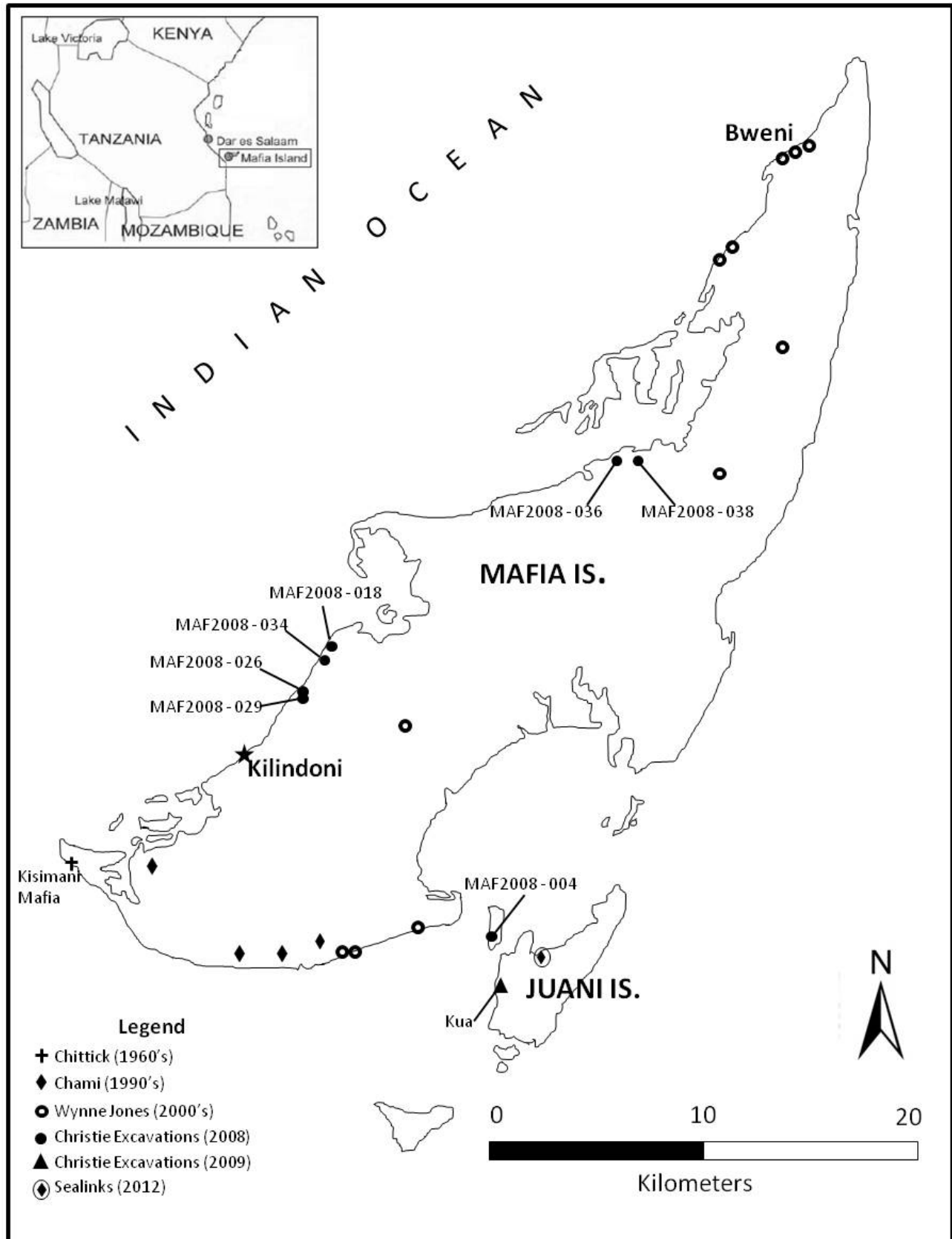


Figure 1: The Mafia Archipelago showing the location of excavated sites.

Phase	Work Conducted	Specific Research Objectives
1 Understanding modern maritime practices		
	Transect surveys	<ul style="list-style-type: none"> To identify archaeological sites and explore settlement histories To record maritime activity areas from an ethnoarchaeological perspective
	Shovel Test Pit (STP) excavations	<ul style="list-style-type: none"> To determine the extent of subsurface archaeology at selected sites
	Ethnographic surveys	<ul style="list-style-type: none"> To elucidate the socio-cultural context of maritime activities To record the tools and techniques of those activities
	Fish catch surveys	<ul style="list-style-type: none"> To observe fishing activities To map fishing grounds and determine why specific areas were selected To identify potential correlations between fishing techniques and fish catch composition.
2 Examining maritime practices in an archaeological context		
	Buildings surveys	<ul style="list-style-type: none"> To create a plan of the settlement To determine whether/ how settlement organisation was influenced by the sea
	Excavations	<ul style="list-style-type: none"> To evaluate whether access to marine resources had been influenced by social or economic status in the past

Table 1: Objectives of the methods employed.

Site Type	Description
Pottery Scatter	Varyingly sized scatters of pottery occasionally associated with other archaeological debris.
Maritime Activity Area	Boatbuilding areas; coconut processing sites; net storage/boat landing sites; fish or lime processing sites and fish traps.
Shell Midden	Large accumulations of shell extending sub-surface. Occasionally associated with pottery and other archaeological debris.
Shell Scatter	Small mounds/scatters of shells, restricted to the surface. Generally associated with shell processing areas.
Structural Remains	Ruined or intact historic buildings

Table 2: Summary of site types recorded during the surface surveys.

Maritime activity areas such as boat building areas, coconut coir processing and sea grass collection were observed more frequently close to Chole Island. Historical sources (e.g., Rezendes in Freeman-Grenville 1975: 183) refer to both coconut coir processing and boatbuilding activities close to Chole Island as being important to the Islands' economy. Coconut coir processing gained increasing prominence in the island's economy during the periods of Omani and German occupations (18th to 19th centuries AD) when the coir was used to produce rope bales for export; while boatbuilding is noted in historical sources from at least the 17th century AD and the islands were praised for their "pitch bearing trees... and ...good timbers" which would have been exported (Rezendes in Freeman-Grenville 1975: 183). These traditions may thus be still strongly embedded within the local economy on Chole.

STP Surveys

Methods. STP excavations were conducted at seven sites identified during the transect surveys (Table 3) (Figure 1). In addition to their archaeological potential, excavated sites were selected on

the basis of the density and extent of the surface remains, the likelihood of recovering maritime debris and the impact that the excavations might have on the surrounding landscape.

Nine 0.5m x 0.5m test pits were excavated at each site - organised in a cross (+) shape with the central point situated over the densest artefact concentration. A site datum was established with a GPS point and site plans were drawn in relation to this. Test pits were excavated in 10cm spits. All visible material was collected and bagged by test pit and layer. Artefact recovery may have been reduced because the deposits were not sieved due to time constraints and lack of adequate equipment.

Results. Over 2000 artefacts were recovered from the excavations. These included sherds of local and imported pottery, and faunal remains (bone and shellfish).

a) Local Pottery and Imported Pottery. Local pottery comprised nearly half the recovered assemblage. The majority of these were recovered from MAF2008 - 004 (Figure 1) - reflecting the

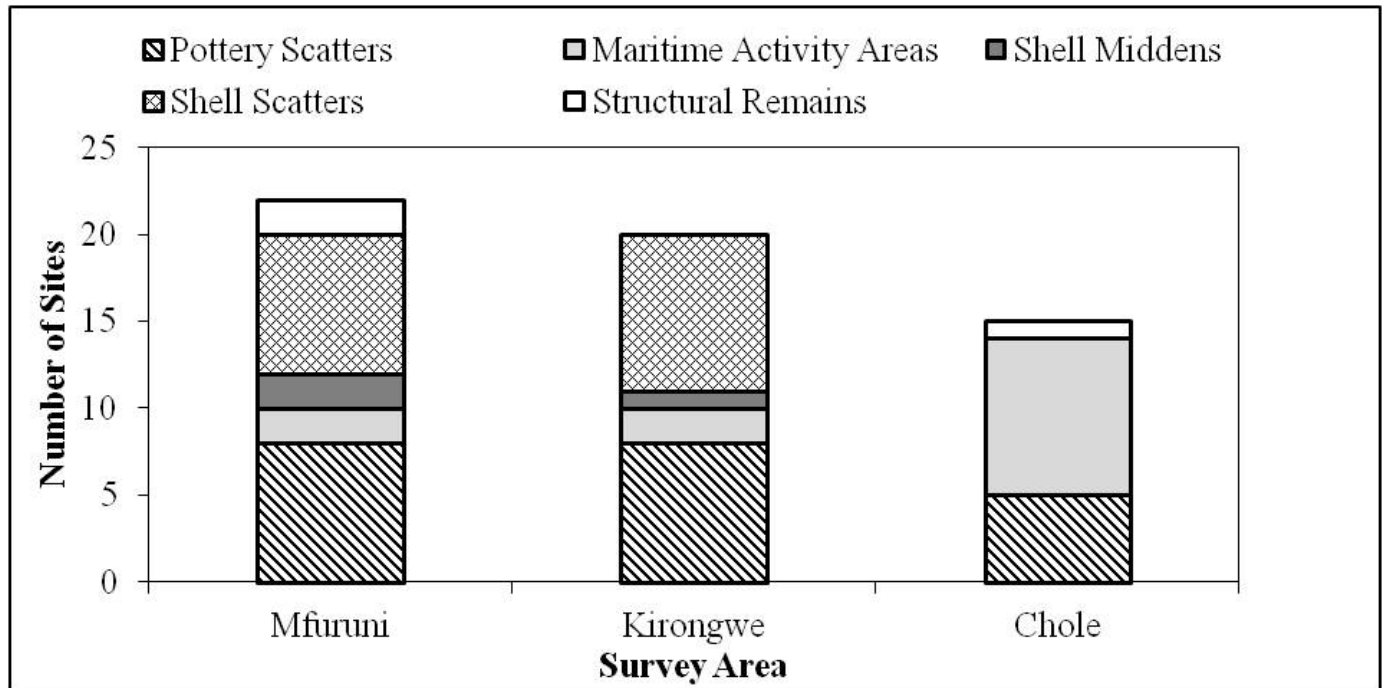


Figure 2: Proportion of site types identified in each survey area.

Site Code	Site Type	Description
Chole Island		
MAF2008 – 004	Pottery Scatter	Large scatter of pottery and faunal remains covering over 50m ² .
Kirongwe		
MAF2008 – 036	Pottery Scatter	Extensive scatter of local pottery close to Kirongwe ‘Old Port’.
MAF2008 – 038	Pottery Scatter	Dense scatter of local and imported pottery close to Kirongwe ‘New Port’.
Mfuruni		
MAF2008 – 026	Structural Remains	Structural remains on the coastal edge thought to date to the 18 th -19 th c. AD
MAF2008 – 029	Pottery Scatter	Extensive pottery scatter on the top of a ridge ±100m from the coastal edge.
MAF2008 – 034	Pottery Scatter	Moderate pottery scatter on the same ridge as MAF2008 – 029.
MAF2008 – 018	Shell Midden	Shell midden associated with local pottery eroding from the same ridge.

Table 3: Sites selected for STP excavation.

density and distribution of the surface remains. MAF2008 – 026 was the least productive in all artefact categories despite the intriguing references from local villages to an area of intensive settlement in its’ vicinity. Most of the local pottery was undiagnostic and could not be used to establish site chronologies. The diagnostic sherds (rim and neck sherds, bases and decorated pieces) tend to date to the 18th to 19th centuries AD; however, there were a few of the sherds from MAF2008 – 004 that were characteristic of Triangular Incised Ware/ Tana Tradition pottery.

Comparatively few sherds of imported pottery (56 sherds) were recovered. The highest concentration of these was recovered from MAF2008 – 038 (79% n=49 of the assemblage). These porcelain ceramics were decorated with coloured linear or floral designs and tend to support the chronology established from the local pottery, dating to the 18th to 19th centuries AD.

Similar ceramics were recovered from

MAF2008 – 029, MAF2008 – 034 and MAF2008 – 026, albeit in much smaller quantities – with less than five sherds recovered from each of site. Interestingly, most of the imported ceramics recovered from MAF2008 – 004 were sherds of Chinese blue-on-white which Horton (1996: 16) suggests was “introduced to East Africa in the later 14th century”. These sherds were all recovered from the uppermost 20cm of deposits with no apparent concentration of any pieces in a single test pit.

b) Faunal Remains: Shellfish. Unsurprisingly MAF2008-018 had the highest concentration of marine mollusc remain, representing 65% of the whole assemblages. Note that NISP is based on counts of left hand valves for bivalve species and spire fragments from gastropod species. Six shellfish species were identified, which even today are generally used for subsistence rather than decoration or other social use (which in the past included as currency) (Table 4).

Combe, Nalwale and Tondo were recov-

Swahili	Latin	Habitat	Use
<i>Combe</i>	<i>Anadara antiquata</i>	Eulittoral buried in muddy sand	Food
<i>Nalwale</i>	<i>Volema pyrum</i>	Eulittoral sand and sea grass flats	Food
<i>Tondo</i>	<i>Terebralia palustris</i>	Upper eulittoral mud/ mangrove swamps	Food/Bait
<i>Makome</i>	<i>Chicoreus ramosus</i>	Shallow, sheltered reefs	Food
<i>Cowrie</i>	<i>Cypraea tigris</i>	Under coral and boulders, in shallow/deep water	Decoration, currency
<i>Kikete</i>	<i>Cypraea annulus</i>	Shallow water, tide pools, amongst seagrasses	Decoration

Table 4: Habitats and use of mollusks recovered during the STP excavations (after Richmond 1997: 247-261, 274-277).

ered from all sites. *Makome* and *Cowrie* were only present MAF2008-004 and all but one specimen of *Kikete* were found at MAF2008-038. *Combe* and *Nalwale* were the most common species recorded, with *Tondo* represented in much smaller quantities, generally recovered from later deposits within the test pits. The increasing representation of *Tondo* could either indicate there was changes to patterns of exploitation or could suggest the coastal ecology of the area had changed and supported a larger mangrove habitat.

c) *Faunal Remains: Bone.* In contrast to the large mollusc assemblage only 16 bone fragments were recovered. Of these, only one specimen (recovered from MAF2008-038) was identifiable to element let alone species. The remaining osteological assemblage (recovered from MAF2008-004) comprised degraded fragments of terrestrial rather than marine species (based on their texture and composition). Although the paucity of osteological remains in part could be attributed to sampling biases arising from a lack of sieving, their absence from the assemblages raises the question ‘where are large deposits of osteological faunal remains likely to be recovered?’

Comparative Analysis

The archaeological debris from sites around Mfuruni was generally concentrated in the uppermost deposits of the test pits (between 0-20cm

subsurface). The most productive sites were those situated on a ridge overlooking the coastal zone (approximately 100m above the high water mark (HWM)). However, the depth of deposition and limited range of material culture suggests they are not indicative of intensive settlement.

The archaeological deposits around Kiron-gwe were equally shallow; however the distribution of material culture across the site is more even. This suggests that the activity area (particularly at MAF2008-038) was quite extensive. The site is likely to have been part of an old port facility in the 18th to 19th centuries AD, and the high proportion of imported pottery points to its involvement in trading networks during this period.

In contrast to Mfuruni and Kirongwe, the deposits from MAF2008 – 004 on Chole Island were both rich and deep, with continuous deposition throughout the test pits. This site also had a more varied assemblage with a higher proportion of shells used for decorative purposes (e.g., *Cypraea tigris*) and poorly preserved faunal remains. The density and diversity of material culture at this site and the presence of earlier period pottery would make this site a strong candidate for further investigation.

Ethnography and Fish Catch Surveys

The ethnographic surveys used a combination of focus group discussions, informal in-

interviews with maritime practitioners, and direct observations to gain an understanding of maritime practices in the Archipelago. The focus groups were organised according to the activity in which the informants were engaged (e.g., fishers, shellfish collectors, shellfish processors etc.), further divided by technique. Discussions were conducted in Swahili with the assistance of an interpreter and followed a standard list of questions, the order of which was flexible to allow the discussion to flow naturally. The structure of the discussions facilitated a thematic analysis - highlighting the similarities and differences between the techniques used and the activities observed.

Shell collection methods and processing techniques were observed during the transect surveys. However, as most fishing activities took place at sea, these practices were recovered during a series of fish catch surveys - where fishers were visited at their fishing grounds. These surveys also provided an opportunity to map fishing ground locations, and to explore potential correlations between fishing techniques and fish catch composition (recorded to family level). These surveys suggest that fishing grounds selection is influenced by the technique used.

Additionally, although there were overlaps in fish catch composition, the dominance of some fish families within the catch tends to be influenced by the technique selected. Specifically, fishers using box traps tended to catch a higher proportion of Parrotfish than other species while fishers using hand lines tended to catch more Groupers and Emperors. These data played an important part in the interpretation of the faunal assemblages from Kua.

Examining Maritime Practices in an Archaeological Context: Kua Ruins

Kua (Figure 1) was selected as a case study because it had a large number of standing remains and the archaeology associated with these was more extensive than other sites in the archipelago.

The nature of the site was beneficial from two perspectives. First, the standing remains lent themselves to GPS mapping and recording and as such any plans created as a result, could be used to evaluate the influence of the sea on the organisation of the settlement. This survey was assisted by the discovery of an earlier plan of the site made in the 1950s identified in the Mafia Island District Book at the Dar es Salaam National Archives.

Second, local informants had suggested that, at least at Kua, rubbish was disposed of on a house-by-house basis, thus the faunal remains recovered from the midden deposits associated with two households considered to have been of different status could be examined comparatively to explore whether access to marine resources was influenced by status in the past.

Buildings Surveys

Methods. Each of the structures identified at Kua were numbered and recorded using the following criteria (Table 5).

Results. These criteria (Table 5) were used as a basis to assess building status. Mosques were considered representative of higher status structures (Wilson 1982) and as such certain mosque features were considered status markers. These included:

- evidence of plastering,
- the use of non coral-rag building materials (such as *Porites* coral),
- the number and elaboration of any niches, and
- the presence of “plaster decoration on the walls... doors and entrances” (Sheriff 2001: 66)

On this basis, most of the recorded structures were classed as either high or medium status – an interpretation that reflects discussion in local histories of the settlement (Freeman-Grenville 1962: 212). When examined spatially, these data suggest that most of the ‘lower status’ structures were situated further from the coastline than those

Criterion	Description
Location	Northwest corner marked with a Global Positioning System (GPS)
Orientation	Degrees clockwise off the north-south axis of the structure
Measurements	External length, width and wall thickness. Dimension of internal spaces.
Condition	Preservation of the remains, evidence of modern damage or debris, number of rooms, indications of additional storeys.
Features	Niches, windows, doorways, mihrab and plaster detailing were drawn to scale and their location within the structures was noted. Graves, wells, toilets and internal structure were also recorded.
Construction	Evidence of building techniques (e.g. timber beam holes, scaffolding marks) and nature of materials used in construction.
Accessibility	Evidence of differentiation between public and private space; inter-building visibility, visibility of the sea.
Local Traditions	Local interpretations of building function, stories associated with particular structures
Function	Assessment of function was generally based on local traditions and historical sources; Mosques were identified by the presence of a mihrab.
Associated Archaeology	Visible surface remains (local and imported pottery, beads, mammal or fish bones, accumulations of marine shell) were described

Table 5: Criteria used to record the buildings at Kua.

of middling to higher status (Christie n.d.a).

Taking a functional perspective, it could be argued that these higher status structures were associated with merchants, who were more actively engaged in trade activities. However, it could also be suggested that the location of higher status structures closer to the shore was a way of their owners reiterating their status by controlling access to the marine environment.

Excavations

Trench Locations. Two 2 x 3m trenches (Trenches 1 and 2), were excavated. Trench 1 was subsequently extended by an additional 1 x 1m (Trench 1A). Situated about 1km south of the main site, Trenches 1 and 1A targeted a large surface scatter of marine shells and local pottery associated with some structural debris. This scatter was interpreted as a rubbish midden deposit associated with

a domestic structure.

Trench 2 bisected a low mound with a large surface scatter of archaeological material. The mound was situated within, but to the north of, the main ruins complex on the top of a small but steep cliff that marked the HWM. The mound was thought to have been a rubbish midden associated with a higher status household.

As the assemblages from Trenches 1 and 1A were thought to have been associated with the same household, these data were combined during the analysis and are collectively referred to as coming from ‘Area 1’. For consistence therefore, Trench 2 is referred to as Area 2.

Methods. Both trenches were excavated and recorded stratigraphically following the guidelines outlined in the Museum of London *Archaeological*

Site Manual.

All deposits were sieved using either a 2.5mm mesh (Trench 1/1A) or a 3mm mesh (Trench 2). The larger mesh size was used because only one 2.5mm sieve was available and the trenches were too far apart for it to be shared. Recovered artefacts were bagged according to context and material.

Twelve charcoal samples were collected from sealed contexts, three of which were selected for radiocarbon dating. Their chronological implications will be discussed in detail in a subsequent paper (Christie *in preparation*).

Results. Materials recovered from the excavations included local and imported pottery, beads, animal bones and the remains of marine molluscs.

a) *Ceramics.* Over 14,000 sherds of pottery were recovered of which imported pottery made up less than 1% (n=136). The majority of these im-

ports (61% n=83) are likely to have come from the Middle East, however these were too fragmented to identify to specific types. Most of the identifiable imported ceramics were from the Far East (33% [n=45] of the assemblage). These were mostly sherds of Chinese blue-on-white, recovered from later deposits in Area 2. Only one piece of Chinese celadon ware (generally associated with deposits dating to c. 14th to 15th centuries AD) (Chittick 1957:3) was recovered – this came from the deepest deposit in Area 1. The remaining 5% (n=8) of the imported assemblage were sherds of European Tin Glaze, thought to date to the 17th to 18th centuries AD (Telfer 2006: 191). These were only recovered from the uppermost deposit of Area 2. The distribution of imports from different parts of the world across the site is shown in Figure 3.

Diagnostic local sherds (decorated, rim sherds, large body sherds) contributed 14% (n=1969) of the total assemblage. These are the focus of the discussion below.

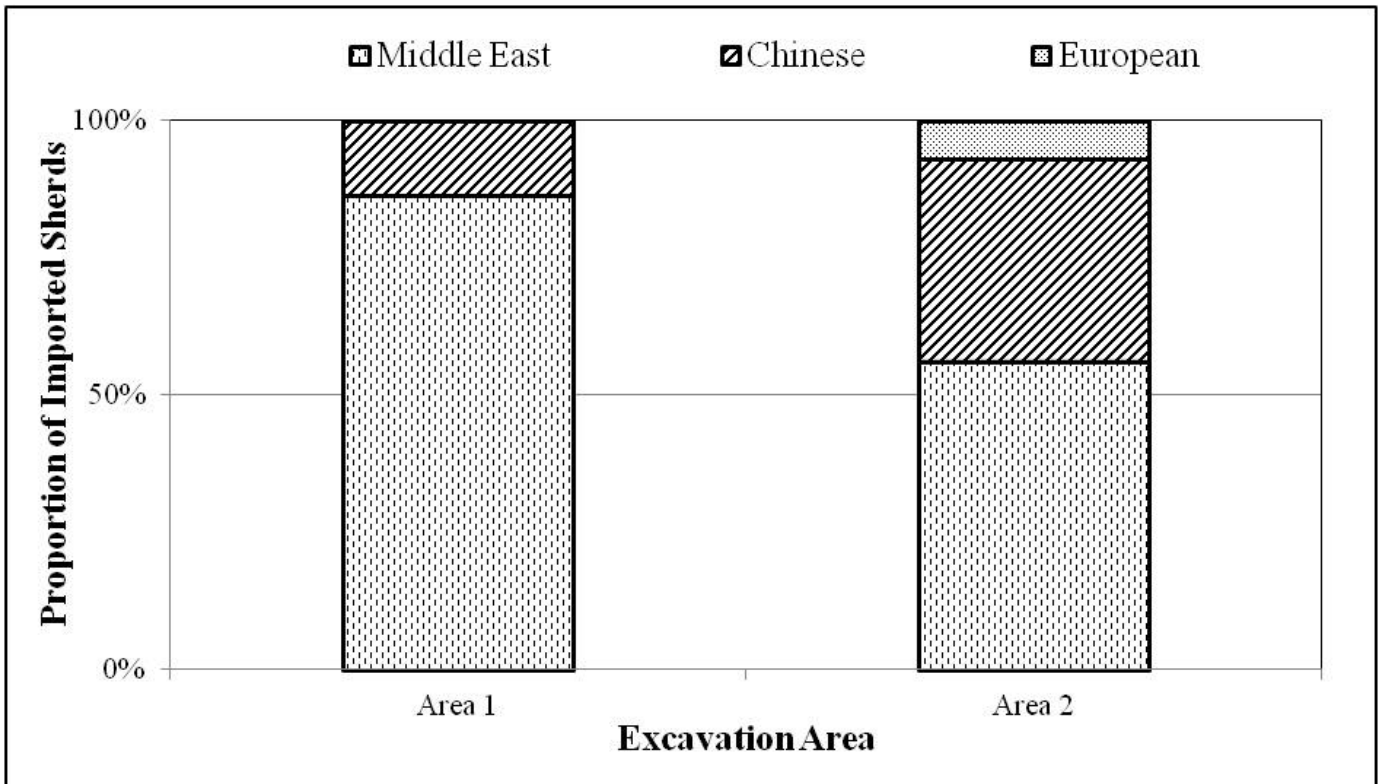


Figure 3: Proportions of imported pottery in each excavation area.

Open bowls or pots and medium-large pots with necks were the most frequently represented vessel types in both excavation areas – comprising nearly 90% of the diagnostic assemblage in Area 1 and nearly 70% in Area 2. Area 1 had a slightly higher proportion of shallow platters, compared

with the more varied assemblage from Area 2 – which included examples of spherical bowls, cups, carinated bowls and flared necked pots.

A higher proportion (65%) of rim sherds recovered from Area 1 had a vertical (as opposed

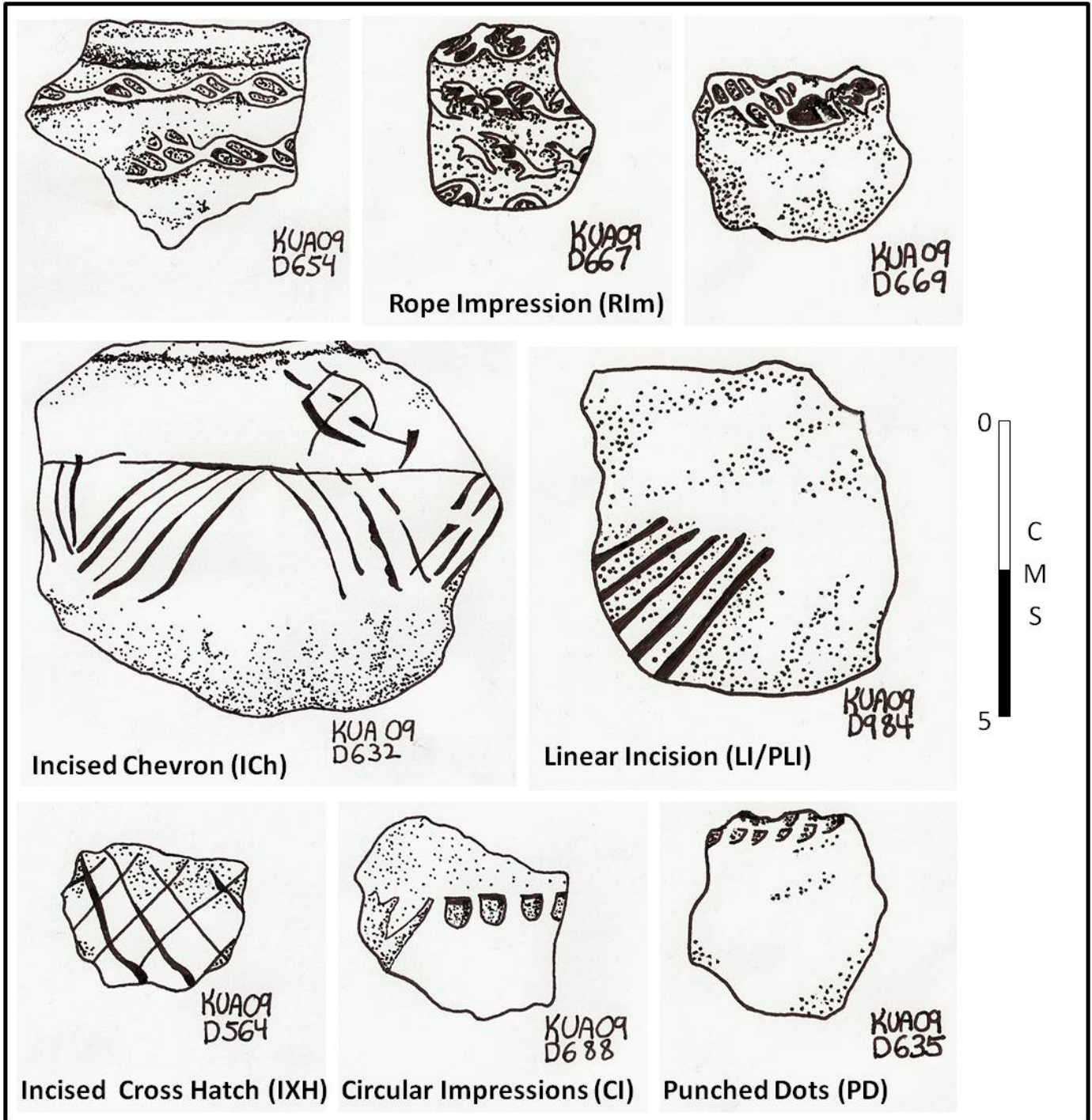


Figure 4: Most common decorative motifs observed at Kua (drawings Mg Shoenfelder).

to restricted or unrestricted) rim profile. Restricted rim profiles were significantly less frequent than unrestricted vessels, with the latter represented in a much wider range of vessel types.

Decorated pieces represented 35% (n=694) of the diagnostic assemblage. Linear or parallel linear incisions (LI or PLI), referred to by Chami (1994) as oblique incisions (Chami 1998: 209) and incised cross hatching (IXH), are the most frequently identified decorative motifs. Others include Rope Impressions (RIm), Incised and Nested Chevrons (ICh/ NCh), Circular Impressions (CI) and Punched Dots (PD) (Figure 4). A greater variety of motifs were observed in Area 2.

Painted sherds and sherds with evidence of other types of surface treatment (slipping, burnishing, etc.) made up just 4% (n= 421) of the total assemblage. Traces of paint (generally red in colour

were found on 350 sherds, with the majority coming from later contexts in both excavation areas. Interestingly the highest proportion (72% n=253) of painted sherds was recovered from Area 2.

There was very little stratigraphic variation in the ceramic assemblages. The exception to this is the general decrease in the proportions of open/ bowls and pots in Area 2 over time. This decreases in tandem with a general increase in necked vessels and shallow bowls. While it is possible that these changes reflect differences in sample size between the different contexts, it is also possible that it is an indication of a changing preference – with shallow bowls becoming a more popular serving vessel.

b) *Faunal Remains.* Over 3000 bones and over 2500 mollusc remains were recovered during the excavations. Identifiable elements were recorded and terrestrial remains were grouped into

Category	Family Name	Latin Name	Description
Terrestrial Fauna			
Large Ungulate	Cow	<i>Bos spp.</i>	Bones from taxa weighing 75-500 kg
Medium Ungulate	Goat, Sheep	<i>Capra spp.; Ovis spp.</i>	Bones from taxa weighing 25-75kg
Small Ungulate	Blue Duiker	<i>Philantomba monticola</i>	Bones from taxa weighing 0-25kg
Bird	Chicken	<i>Gallus gallus</i>	
Other	Rat, Dog	<i>Rattus spp.; Canis familiaris</i>	
Category	Family Name	Latin Name	Habitat
Marine Fauna			
Fish	Emperor	<i>Lethrinidae spp.</i>	Coral reefs and sea grass beds
	Grouper	<i>Serranidae spp.</i>	Shallow coral reefs/lagoons
	Snapper	<i>Lutjanidae spp.</i>	Coral/rocky reefs, mangroves
	Parrotfish	<i>Scaridae spp.</i>	Reefs, lagoons, seagrass beds
	Sweetlips	<i>Haemulidae spp.</i>	Coral reefs
	Rabbitfish	<i>Siganidae spp.</i>	Inshore areas, sea grass beds
	Triggerfish	<i>Balistidae spp.</i>	Reefs, lagoons, seagrass beds
	Goatfish	<i>Mullidae spp.</i>	Sandy bottoms around reefs

Table 6: Types of osteological remains identified at Kua.

one of five categories (Table 6). Fourteen percent (n=271) of the fish bones were subsequently selected for identification to family level (Table 6). This is discussed in more detail (Christie n.d. b) Molluscs were identified to species level and grouped according to their likely use for either subsistence or decoration (Table 4).

Analysis of the Kua assemblages suggests there were differences in patterns of resource use between the two excavation areas. Material from Area 1 comprised mostly of fish bones and subsistence molluscs. In contrast, the material from Area 2 was more diverse, with a higher proportion of remains from terrestrial species, and a higher proportion of molluscs used for decorative purposes in the assemblage (Figure 5).

The proportions of specific mollusc species at each of the excavation areas also have the potential to inform our understanding of the coastal ecol-

ogy of the two areas. Of note, is the much higher proportion of *Tondo* in the assemblages from Area 1 which suggests that individuals from the household in Area 1 were more actively exploiting mangrove resources – this seem likely when considered in light of the fact that Area 1 is known locally as *Mkokotoni* (literally ‘at the mangroves’).

Examining the terrestrial remains in more detail there are also differences in the distribution of large ungulate elements between the two excavation areas. Elements recovered from Area 1 tend to be from either the cranium or the forelimbs whereas the elements from Area 2 are more varied, with a higher proportion of remains from the hind limbs and pelvis. This suggests that individuals from the higher status household had access to better cuts of meat – as some of the leanest steaks (e.g., fillet, rump or sirloin) are removed from the rear of the cow (Christie 2010).

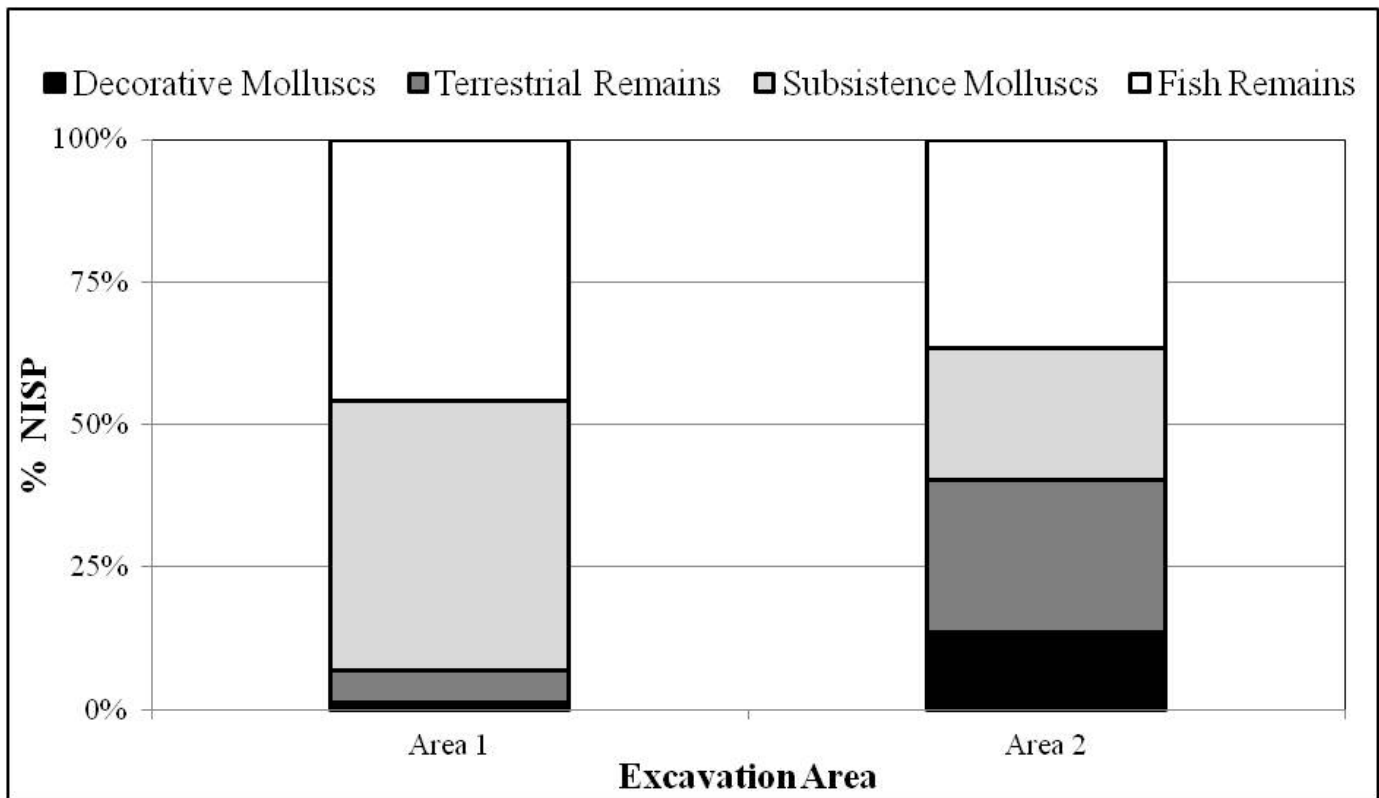


Figure 5: %NISP of different tact from each of the excavation areas.

Concluding Remarks

Similar to other surveys conducted (e.g., Chami 1994, 2000, 2004; Wynne-Jones 2006) most of the sites recorded during the surface surveys and STP excavations were suggestive of more transient occupation – with shallow and dispersed artefact deposition. This suggests that Kisimani Mafia and Kua may have been the only stone town settlements on the islands. This raises the question of where (if at all) the others were located and, if these were the only two large settlements, why were others not constructed?

The buildings surveys and excavations at Kua have highlighted the complexities of the archaeology of later period Swahili settlements – documenting considerable differences in settlement design when compared to other Swahili stone town sites such as Shanga (Horton 1996), Kilwa (Chittick 1974) and Songo Mnara (Wynne-Jones 2010). These surveys also demonstrated the importance of exploring intra-settlement differentiation – in terms of both settlement organisation and patterns of consumption.

While this project has added to knowledge of the nature and extent of archaeological remains from a range of time periods and has contributed to our understanding of maritime practices in the archipelago, it is but a foundation for future research.

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