

Ancient Mediterranean, Red Sea and Afro-Asia links across the Western Indian Seaboard. Recent Underwater Discoveries in Mafia Archipelago, Central Coast of Tanzania.

Caesar Bita

Underwater Archaeologist, National Museums of Kenya (mcbita@gmail.com)

ABSTRACT

Coastal communities of the east African coast have, for millennia, traded with the Far East, the Mediterranean Region, India and the Red Sea going back to at least the first millennium BCE or before. These trade links across the Indian Ocean seaboard reached to lands as far as China and the Americas. The east African seaboard, popularly referred in the ancient time as Azania, was, by the first millennium BCE, also known to the Romans who visited and reported about this territory and its settlements. Terrestrial archaeological studies along this coast have shown existence of trade routes connecting the coast with the hinterland of Africa where some merchandise for international commerce was collected. Recently underwater archaeological surveys have recovered materials that indicate ancient global maritime trade connections extending back to the Graeco-Roman period. That the east Africa coast was a major player in the ancient international maritime trade makes it an important area for maritime archaeological studies. This paper reports on findings from a recent underwater archaeological survey in the Mafia archipelago in the central coast of Tanzania. The findings confirm the existence of ancient international maritime connectivity between the East African coast and the Mediterranean region, Red Sea, India and the Far East.

Key Words: Mafia, Transoceanic, Maritime, Indian Ocean

INTRODUCTION

Tanzania is one of the east African coastal countries bordering the Western Indian Ocean (WIO). The country has one of the longest coastlines on mainland east Africa after Somali and Mozambique. Tanzania has three of the five largest islands of this region including Zanzibar, Pemba, and Mafia. Archaeological studies have shown that the country's coast has the earliest evidence of ancient links with the Mediterranean region, Red Sea, Persia, India and south east Asia going back to the first century CE. Initially, much of this evidence however came from terrestrial archaeology since underwater archaeology is not developed in the country. Similarly, evidence of these earliest links has been reported in Mafia archipelago and Rufiji areas of central Tanzanian coast.

Mafia archipelago is located in the central coast of Tanzania at S 7° 37' 8" 10', E 39° 30' 39° 55' about 120 km south of Dar es Salaam city and 21 km offshore of Rufiji Delta (Fig. 1). It is the fifth largest island on the coast of east Africa after Madagascar to the south, Zanzibar, Pemba and Lamu all to the north (Chami, 1994; Shikoni *et al.* 2019). It is also an archipelago composed of a number of islands including Miewe, Chole, Juani, Jibondo, Bwejuu to the south of the main one by the same name Mafia Island. There are also several smaller islets of Mbarakuni, Shungimbili and Nyongoro found to the north. The main Mafia Island is elliptically shaped, lying in a NE-SW orientation; narrowing to the North east (Fig. 4). At its longest, the island measures approximately 47 km from the Southwest end to the Northeast tip and its widest point is 17 km (Fig. 4; Bita *et al.* 2023).

Mafia has always been perceived as having evidential remains associated with the ancient Western Indian Ocean trade connections. This has largely resulted from land based archaeological findings recovered from the archipelago and its immediate hinterland. Although the archipelago has received progressive terrestrial archaeological research, no underwater archaeological studies were done to corroborate findings from land archaeology. It is only recently, after locals reported of offshore submerged features in the north-eastern side of the archipelago that subsea surveys begun.



Figure 1: Tanzanian coast showing location of Mafia Islands (H. Pazza)

Tanzania and Ancient transoceanic connections

That the ancient east African coast was internationally known very early in time is no longer in doubt. Roman records including Strabo's *Geography*, Pliny's *Natural History*, the *Periplus of the Erythraean Sea* / *Periplus Maris Erythraei*, Claudio Ptolemy's *Geography* and *Accounts of Cosmas Indicopleustes* mentioned and documented this coast (Casson 1989; McLaughlin 2018; Datto 1970; Huntingford 1980; Freeman-Grenville 1975; Berggren and Jones 2001). Graeco-Roman sailors and traders of the Roman era from 64 BCE to 170 CE have described the geography, names of places, people, trade and other economic activities that took place on this coast (Miller 1969; Casson 1989; Chami 2006; 2009; McLaughlin 2018). Some of the places and people described are in the Coast of Tanzania. For instance, Periplus mentioned an

island in the Azanian coast as *Mafiaco*, which is similar to the modern-day Mafia Island (Freeman Grenville 1962). Periplus also described the people living in *Mafiaco* being recognized as *Rafiji*, which is very similar to the modern-day Rufiji people who occupy the modern Rufiji area of Tanzania (Oldfather 1961; Freeman-Grenville 1962; 1975; Datoo 1970; Huntingford 1980; Casson 1989; Lacroix 1998; McLaughlin 2018).

Archaeological studies in Mafia and Rufiji areas have recovered ancient trade items that corroborate these Graeco-Roman records. Studies have unearthed beads some identified as having been manufactured at Rhodes Island in the Roman Mediterranean Sea (Fig. 2 a-b). Other findings include Roman *terra sigillata* ceramics (Fig. c-d; Chami 1999b; 2001; 2021; Mandela *et al.* 2022).



Figure 2: Ancient artifacts of foreign origin (a) Indian beads from Rufiji delta; (b) Phoenician Beads; (c and d) and Red Roman *terra Sigillata* ceramics recovered in Mafia archipelago (Chami, 1999a; 2021; Mandela *et al.* 2020)

Underwater Archaeology of Tanzanian coast

The coastal parts of east Africa from Somali to Mozambique were part of the ancient vibrant international trade networks across the Indian Ocean Seaboard linking India, Europe, Persian Gulf Red Sea and the Far East. Remains recovered in this region and associated with these ancient networks include shipwrecks, beads, ceramics and cultural traditions that continue to occur in many parts of this coast. Since the beginning of the twentieth century, this region has witnessed increased terrestrial archaeological research that has revealed these global transoceanic connections. However, despite the vibrancy of terrestrial research and the huge potential in underwater archaeology, underwater archaeological research in the region is still in its infancy.

In Tanzania, there have been very few underwater archaeological surveys. Although there are many shipwrecks recorded in the waters of the country, except for Patience (2006) who did many commercial salvage operations on the east African coast and documented numerous wrecks, not much surveys have been undertaken of Tanzanian coastal waters. The few cases involved documentation of maritime practices including folklore associated with fishing communities (Ichumbaki 2015; Lubao and Ichumbaki 2023) and nautical infrastructure including boat landing places, jetties, lighthouses, navigational guides (Pollard 2008a; 2008b). Other studies have involved documentation of marine crafts (boats), exploitation of marine resources and social and religious manifestations of maritime cultural traditions (Pollard and Ichumbaki 2017; Ichumbaki *et al.* 2022).

Although archaeological research in Mafia began at the advent of colonization (Revington 1936; Piggott 1941; Wheeler 1955; Baumann 1957; Chittick 1957; 1961; Freeman-Grenville 1962), no maritime studies of the archipelago have been undertaken prior to this study (Bita *et al.* 2021-22; 2023). The only study that had a maritime component was involved in maritime history and looked at long-term history and long-distance trade in Mafia archipelago yet no attempts were made at underwater archaeological surveys (Wynne-Jones 2006; Crowther *et al.* 2014). Others looked at fishing practices to demonstrate differences in access to maritime resources between members of different categories of the community in Juani island (Christie 2011). As argued by Lane (2012), although these studies were not of an underwater archaeological approach, they contributed a great deal to the understanding of maritime infrastructure and landscape development, traditions, resource exploitation and history of long-distance trade during the first half of the second millennium CE.

The only detailed underwater archaeological survey in Tanzania prior to this, was done of the ancient port of Kilwa, one of the most important ancient ports in South East Tanzania. The study recovered Persian and Middle Eastern artefacts including glass jars and a stone anchor (Fig. 3; Pollard *et al.* 2016). Stone anchors are known to have been in use for a long time extending to about 3,000 BC (Vosmer 1999). Their discovery in association with imported ceramics is an indication of long international maritime connections (Bita 2015; Tripathi and Bita 2015).

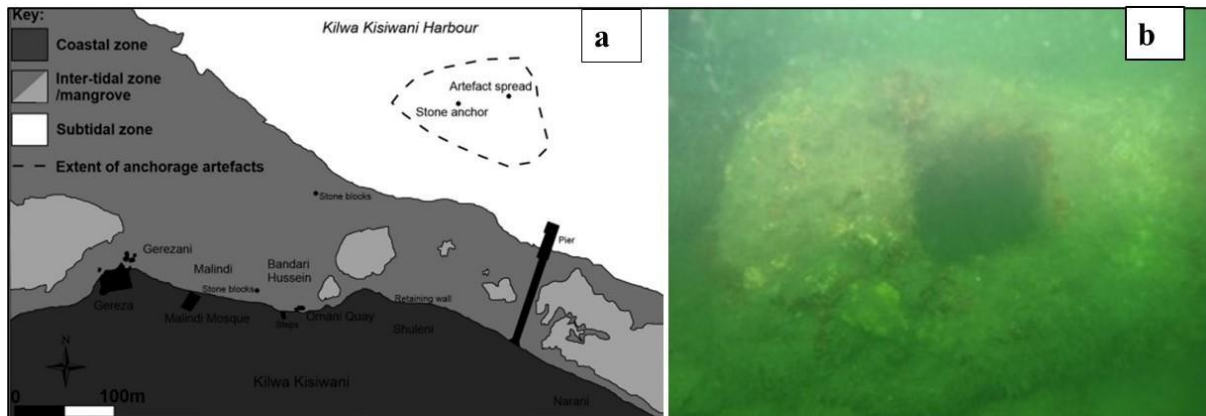


Figure 3: Kilwa Kisiwani Port showing (a) scatter of artefacts underwater and (b) stone anchor (Pollard *et al.* 2016)

The earliest record of submerged archaeological finds in Mafia was in 1977 when locals reported brass cannons, anchors, fragments of cannon balls and a bronze bell off Juani Island (Lane 2005; 2012). However, there were no underwater archaeological survey efforts until 2016 when fishermen reported of submerged wall-like features, locally referred as Makutani or Mwamba Ukuta, north of the archipelago (Fig. 4; Bita 2019; Chami 2021). Ukuta is the local people's Swahili word for a wall. Mwamba Ukuta means a sturdy wall. It is after this, that sustained underwater archaeological studies in this part of Tanzania began (Bita *et al.* 2021-22; 2023).



Methodology and findings

Underwater archaeology surveys and interviews were the main methodology used in this research. Following interviews with local fishermen, divers surveyed the area observing, and recording archaeology finds. Other methods employed included sub-sea probing with specially designed metal probes to determine and record cultural heritage buried beneath the sea floor. Foreshore and intertidal reconnaissance were conducted that entailed systematically walking over the foreshore and intertidal zones to locate areas with higher concentration of cultural heritage. These were carried out at the reported submerged site of Makutani to the north and Chole Bay to the south of the archipelago respectively (Fig. 4).

Submerged wall features

Underwater surveys north of Mafia were done with a purpose to confirm the reported submerged wall features in Makutani, and whether these are ancient settlements and whether these are in sync with findings from terrestrial surveys (Shikoni *et al.* 2019; Bita *et al.* 2021-22; 2023; Mandela and Chami 2021). Investigations noted that the feature is located about three km from the northern shore of Mafia Island and is a spherical enclosure made of four sections which remain fully submerged with only small sections visible during low ocean tides (Bita *et al.* 2021-22; 2023). Some sections have been broken and eroded creating imaginary separations. It is this phenomenon that has informed locals to give them different names. The inner circumference is 8.17 km and has an inside area of 2.42 km². It has two openings located west and north commonly referred to by local fishermen as gates, because these are the only access ways at high tides through the feature (Fig. 5).

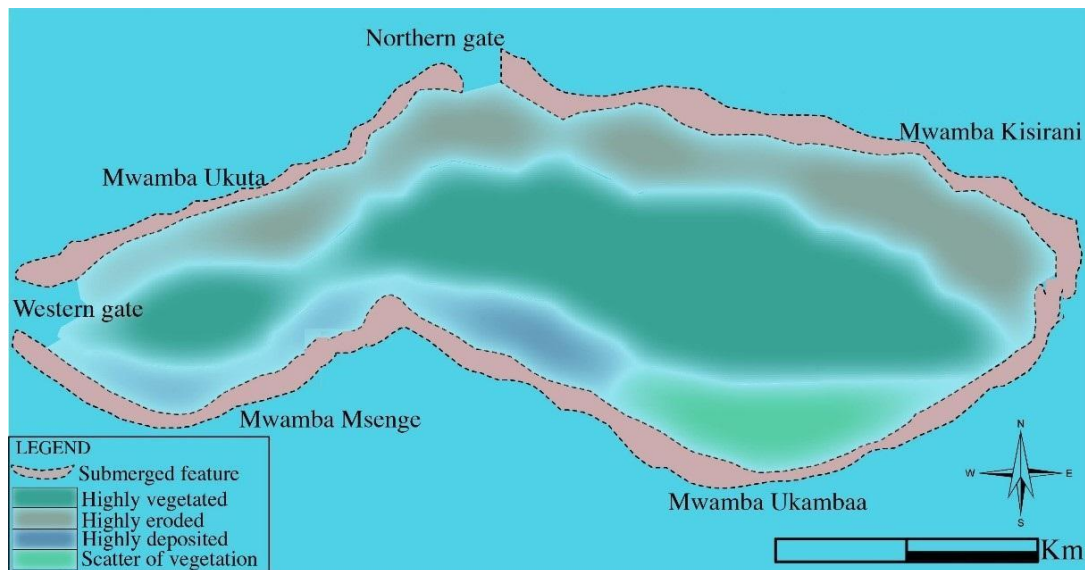


Figure 5: The submerged Makutani wall feature with the four sections (C. Bita)

Underwater surveys around the submerged feature observed linear boulders collapsed in a line indicative of a perimeter surrounding wall. The blocks were found to be of flat surface, compact and ranged between three m long, 2.5 m wide and 0.3 m thick (Fig. 6 a). Petrological analysis showed these are concrete, made of cement and lime. Their composition includes lime and different grog fragments to temper the block and as cementing material, which was a Roman technology (Delatte 2001). The analysis also confirmed that these are made of materials not locally found in Mafia Island but brought from outside (Fig. 7). On the base of the standing sections, feature were observed concentrations of concreted objects (Fig. 6 b) from where some of the imported ceramics were recovered (Fig. 6 c-d).

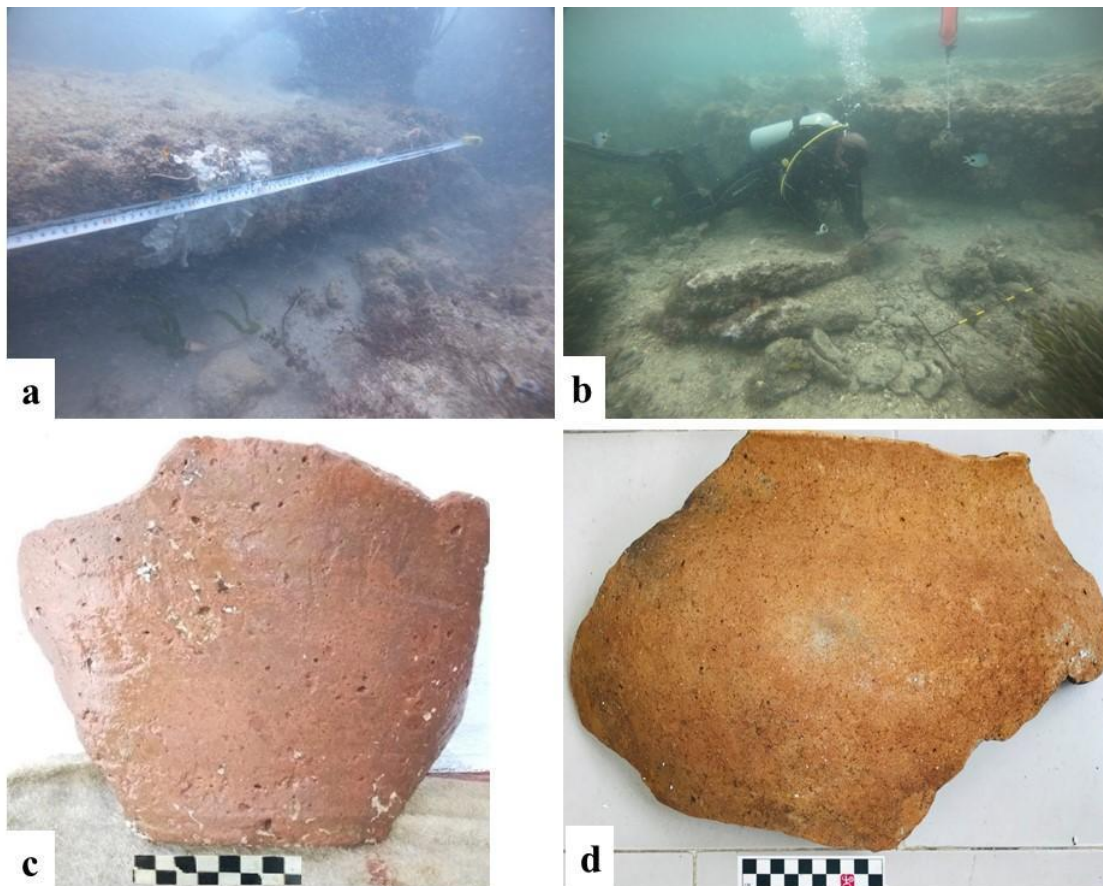


Figure 6: (a) Linear block underwater in Makutani, (b) standing Makutani wall section with concretions of pottery in the foreground (c) Base shard of a Roman amphora (d) Middle Eastern pottery (Bita *et al.* 2023)

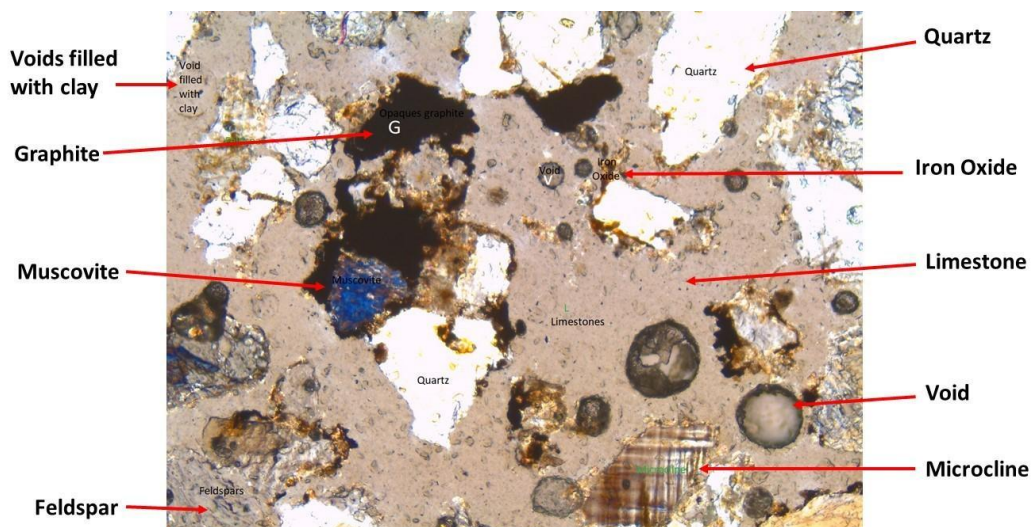


Figure 7: Composition of analysed concrete from Makutani (Bita *et al.* 2023)

Local pottery of Early Iron Working (EIW) tradition and Triangular Incised Ware (TIW) were also found in association with the imported ceramics. EIW is the local cultural tradition that spanned the dates between fourth century B.C. to fifth century CE (Chami 1994; 1998; Mapunda 1995). Its pottery is characterized by thick fluted / beveled rims in combination with comb-stamping or incisions and were of upturned or open bowls (Fig. 8c-d; Chami 1994; Soper 1967, Waltz and Kwekason 2022). TIW is the

cultural tradition that succeeded the EIW tradition along the eastern Africa coast and dates 100 to 500 CE (Chami 1994-5). Triangular Incised Ware decorative elements seem to have been derived from the EIW tradition hence showing some cultural continuity (Chami 1994; 1998). Typical decoration in TIW pottery includes incised triangles, double lines of punctates / stamps, zigzagging double incisions, *appliqués* and oblique incisions (See Fig. 8 a-b). Recovery of these local pottery traditions in associated contexts with foreign ceramics is an indication of early external trade contacts with ancient communities of east Africa (Bita *et al.* 2021-22; 2023).

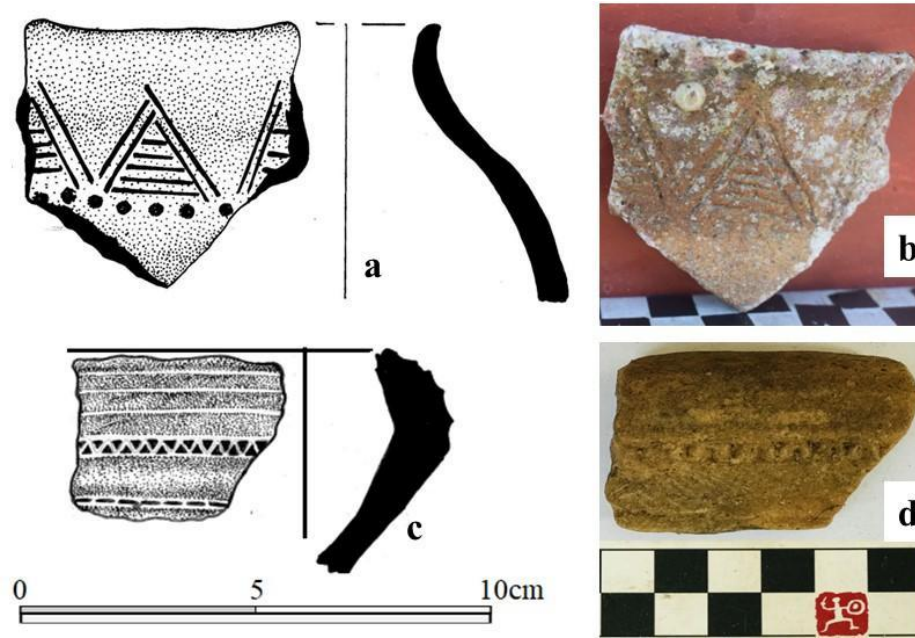


Figure 8: a-b TIW and c-d EIW pottery from the Makutani submerged site (Bita *et al.* 2023)

Surveys at Chole Bay

Underwater archaeology survey at Chole Bay recorded five sites with high concentrations of ceramics of both local and foreign origin (Fig. 9). These occurred in contexts ranging from five and 12 m in depth and included Middle Eastern, Mediterranean, Persian and Indian wares. While some were recovered under sand, others were heavily concreted onto coral (Fig. 9 e). Other studies around Bwejuu Island and Kisimani Mafia to the west, all closer to the Rufiji delta, have yielded ceramics from the Middle East and Mediterranean world dating to the period of BC / CE changeover (Mandela and Chami 2021). These recoveries corroborate the terrestrial archaeological findings that indicate very early international trade contacts with the wider east African coast.

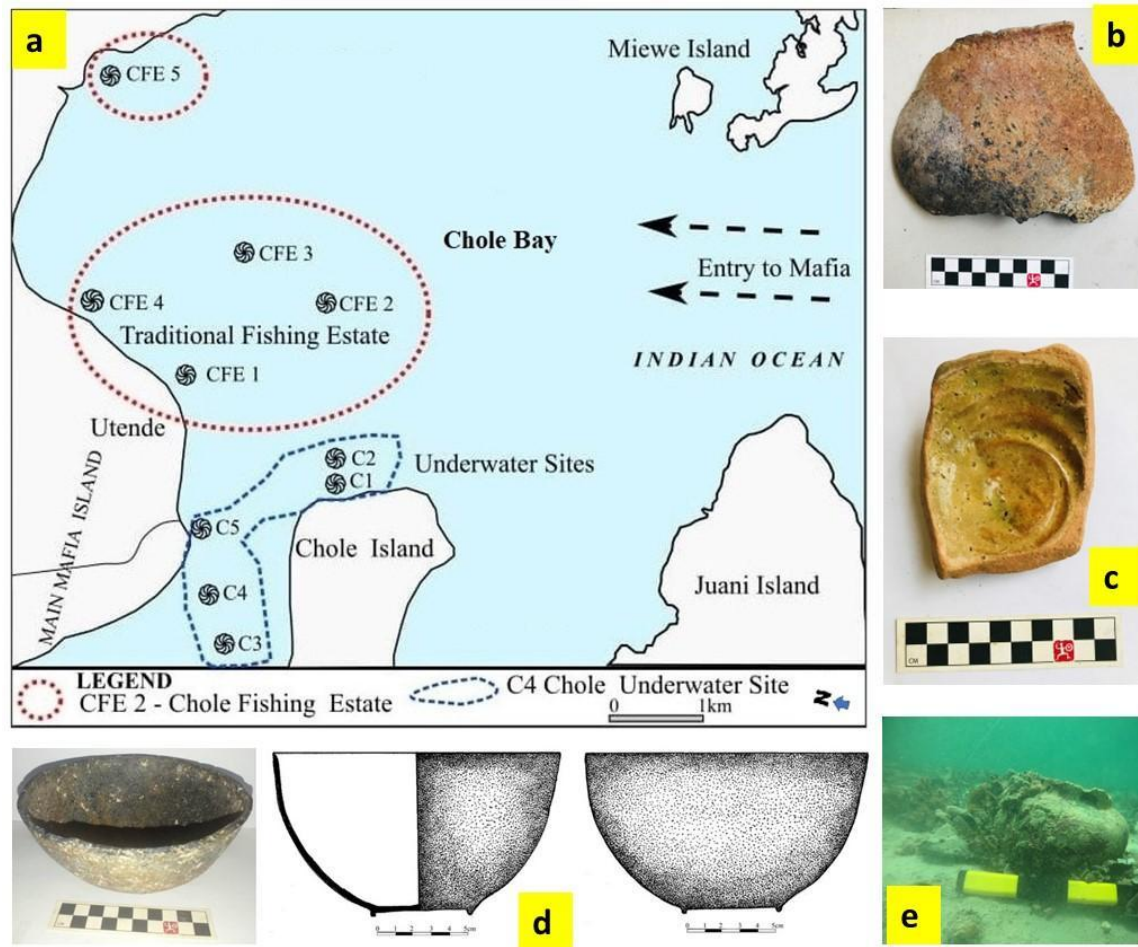


Figure 9: (a) Chole Bay showing underwater sites; (b) far Eastern jar; (c) Middle Eastern yellow glazed rim; (d) Mediterranean bowl with black fabric; (e) Indian pot in-situ underwater (Bita *et al.* 2021-22; 2023)

DISCUSSION

According to Chami (2006), the EIW communities were the same people reported in ancient Roman records (Casson 1989; 1974; Huntingford 1980; McLaughlin 2018) and who in the ancient time occupied the Rufiji Delta region that is adjacent to Mafia archipelago and largely the central coast of Tanzania. The people reportedly traded with the Roman Empire during the early centuries CE with the lost city of Rhapta reported as their capital (see Casson 1989:61; Lacroix 1998; Chami 2021; Mandela and Chami 2021; Bita *et al.* 2023). Recent studies have discovered materials found to originate from various parts including Asia, India, the Red Sea and Mediterranean regions. For instance, recovery of Roman wares confirms ancient Roman classical records of the first century CE that mention and describe this coast. Similarly, these records also mention transoceanic connections between the east African coast and the Indo-Pacific region (Miller 1969; Casson 1974; Sedov 2007; McLaughlin 2018) as they did with the Red Sea region and Persian Gulf.

Contacts between the east African coast and Persia are known to exist in antiquity (Gupta 2016; 2021; Bita 2013a; 2013b). The Arabs are said to have dominated the East African coastal strip long before the advent of the Roman and after the collapse of the Roman empire before the arrival of Portuguese (Hourani 1963; Mathew 1963). Recovery of Middle Eastern wares underwater in Mafia suggest contacts in the early centuries of the CE to the fifth century CE, a period within which the EIW cultural tradition of the east African coast is dated. These findings also lend credence to ancient Chinese records of third century CE that allude to the existence of contacts between the east African coast and the Arabian Peninsula (Hill 2004). This is a manifestation that local communities of this coast were not passive participants but were

actively connected and involved in ancient international maritime trade across the Western Indian Ocean Seaboard (Fig. 10).



Figure 10: Regions and routes involved in ancient maritime networks with east African Coast (C. Bitá)

CONCLUSION

This paper has shown that ancient communities of Mafia archipelago had regular contact with other parts of the globe. Evidence of this contact had previously been recovered on the mainland especially along the Rufiji River delta. However, recent research has identified an abundance of this evidence submerged underwater in the archipelago. Previously, it was only from terrestrial studies in the archipelago that revealed evidence of the region's involvement in ancient global maritime trading (Chami 1999c; 2021; Shikoni *et al.* 2019; Mandela and Chami 2021). Trading meant traders had to access the archipelago through the sea (Figs. 4; 9 a). However, there had not been archaeology data from underwater in the region to substantially link the archipelago with the vibrant ancient Indian Ocean trading of the Greco-Roman period as described in the *Periplus of the Erythraean Sea* and *Ptolemy's Geographia*. Recent studies have recovered a substantial amount of local and imported pottery that show existence of ancient trade connection between the archipelago, the hinterland and the wider Indian Ocean Seaboard to as far as India, South East Asia, Red Sea and the Mediterranean world.

ACKNOWLEDGMENTS

The author is thankful to the Recentring Afro-Asia Project for providing funds for this research. Special thanks to Prof. Chami and Dr. Pastory Bushozi of University of Dar es Salaam for identification of the local ceramics. Thanks to Prof. Sunil Gupta at Allhamadad Museum in India; Prof. Hakan Oniz and colleagues at Alkdeniz University, Turkey; Dr. Alexandra Ratzlaff from the Department of Classical Studies Mendel Center for the Humanities at University of Israel; Prof. Bridget Buxton of History Department at University of Rhode Island USA for identification of imported ceramics. Thanks to Mr. Hitson Pazza for the cartographic work and Brian Nyambu of National Museums of Kenya for the conservation treatment of artifacts.

BIBLIOGRAPHY

- Baumann, D. Mafia Island. *Tanganyika Notes and Records* 45 (1957): 1-24
- Berggren, J.L. and Jones, A. *Ptolemy's Geography: An annotated translation of the theoretical chapters*. Princeton NJ: Princeton University Press.(2001).
- Bitá, C., Bushozi, P. and Chami, F. Socio cultural and economic aspects of the ancient Roman reported metropolis of Rhapta on the coast of Tanzania: some archaeological and historical perspectives. *International journal of environment and Geoinformatics* 10, no. 1 (2023): 28-49.
- Bitá, C, Chami, F. and Bushozi P. Underwater archaeological survey of Mafia, south east Tanzania: Discovery of pottery of transoceanic connections and the location of the ancient port of Rhapta. *Journal of Indian ocean archaeology* 17-18 (2021-2022):69-83.
- Bitá, C. Report of underwater archaeological survey of Makutani Reef, Mafia Island, Tanzania. Department of Archaeology. University of Dar es Salaam. Tanzania. (2019)
- Bitá, C. . Historical period stone anchors from Mombasa, Kenya: Evidence of Overseas Maritime Trade contacts with Asia and Middle East. *International Journal of Environment and Geoinformatics* 2, no. 3 (2015):13-24.
- Bitá, C. Martaban Jars found in Kenya. *Southeast Asian Ceramics Museum Newsletter* VII, no. 1 (2013a):3
- Bitá, C. Ancient Afro-Asia Links: Evidence from a Maritime Perspective: *Journal of Indian Ocean Archaeology* 9 (2013b): 1– 12.
- Casson, L. *Periplus Maris Erythraei*. Princeton: Princeton University Press. (1989).
- Casson, L. *Travel in the ancient world*. London: The Johns Hopkins University Press.(1974).
- Chami, F. Roman Beads from the Rufiji Delta, Tanzania: First Incontrovertible Archaeological Link with the Periplus, *Current Anthropology* 40, no. 2 (1999a): 237-2014
- Chami, F. . Graeco-Roman trade link and the Bantu migration theory. *Anthropos* 93, 3 (1999b): 205-215
- Chami, F. The Early Iron Age on Mafia Island and its relationship with the mainland, *Azania* 34 (1999c): 1-10.
- Chami, F. 'A Review of Swahili Archaeology.' *African Archaeological Review* 15, no.3 (1998):199 - 218.
- Chami, F. The first millennium A.D. on the East African Coast: a new look at the cultural sequence and interactions' *Azania* 29-30 (1994):227-237.
- Chami, F. The Unit of African Ancient History 3000 BC to AD 500. Dar es Salaam: E&D Limited. (2006).
- Chami, F. The longue Duree of Zanzibar and the Western Indian Seaboard. in Zanzibar and the Swahili Coast from c.30 000 years ago, Dar es Salaam, E & D Vision Publishers. (2009): 194 – 222.
- Chami, F. The Geographical extent of Azania. *Theoria* 68, (2021): 167.
- Chittick, N. *Kisimani Mafia: Excavations at an island settlement on the East African coast*. Dar es Salaam: Antiquities Division Occasional Paper no.1.(1961)
- Chittick, N. Mafia Group. Mafia Island District Book – History: Tanzania National Archives. (1957)
- Christie, A. C. "Exploring the Social Context of Maritime Exploitation in the Mafia Archipelago, Tanzania." Unpublished PhD Thesis: University of York.(2011).
- Crowther, A., Horton., M., Kotarba-Morley., A., Prendergast., M., Morales., E.Wood., M. Shipton, C., Fuller, D.Q., Tibesasa, R., Mills, W., Boivin, A. N. Iron Age agriculture, fishing, and trade in the Mafia Archipelago, Tanzania. *Azania* 49, no. 1 (2014): 21-44.
- Datoo, B. A. Rhapta: The location and importance of East Africa's first port. *Azania* 5 (1970): 65-77.
- Delatte, N. lessons from Roman cement and concrete. J. Prof. Issues. 123 (3). Cleveland State University. USA. (2001): 109-115
- Freeman-Grenville, G. S. P. *The East African coast: Selected documents from the First to the earliest nineteenth century*. Oxford: Clarendon Press. (1975).
- Freeman-Grenville, G.S.P. The medieval History of the Coast of Tanganyika. London: Oxford University Press. (1962).
- Gupta, S. Contact Between East Africa and India in the First Millennium CE, in Early Exchange between Africa and the Wider Indian Ocean World (G. Campbell Ed.), Palgrave: Series in Indian Ocean World Studies. (2016): 157-171.

- Gupta, S. Early glass trade along the maritime silk route, 500 BCE-500 CE: An Archaeological Review. Springer Nature proceedings from the IIT Gandhinanagar Workshop (2021): 451-488.
- Hill, E. (transl.) The Peoples of the West from the Weilue by Yu Huan in 429 C.E. <http://depts.Washington.edu/uwch/silkrad/texts/weilue/weilue.html>. (2004).
- Huntingford, G. W. The Periplus of the Erythraean Sea, London, Hakluyt Society (1980).
- Hourani, F. G. Arab Seafaring, Beirut, Khayats. (1963).
- Ichumbaki E.B Maritime and underwater cultural heritage of the United Republic of Tanzania: history, opportunities and future directions. In: Tripathi S (ed) Shipwrecks Around the World: Revelations of the Past. Delta Book World, New Delhi, (2015): 526–536
- Ichumbaki E B, Gastor M, John P. C, Sinyati R, Elinaza A. M, Lucy B. and Thomas J.B. Names of Contemporary Wooden Boats of Coastal East Africa: Origins and Meanings, Eastern African Literary and Cultural Studies. Routledge. Taylor and Francis. (2022).
- Lacroix, W. F. G. Africa in Antiquity. A linguistic and toponymic analysis of Ptolemy's Map of Africa. Nijmegen Studies in Development and Cultural Change. Publishing house for development policy Saarbrücken GmbH (1998).
- Lane, P. Maritime and Shipwreck Archaeology in the Western Indian Ocean and Southern Red Sea: An Overview of Past and Current Research. *Journal of Maritime Archaeology* 7. (2012):9–41.
- Lane, P. Maritime archaeology: a prospective research avenue in Tanzania. In *Salvaging Tanzania's cultural heritage*. Edited by Mapunda B, Mswema P Dar es Salaam University Press, Dar es Salaam (2005): 95–131
- Lubao, C.B and Ichumbaki E.B. Fishing Songs from Kilwa Kisiwani, Tanzania: A Case Study of Intangible Maritime Cultural Heritage on the Swahili Coast, *Journal of Maritime Archaeology* (2023). <https://doi.org/10.1007/s11457-023-09356-5>
- Mandela, P. R. and Chami, F. A Find of Transoceanic Pottery at Bwejuu Island of the Rufiji Delta and Mafia Island, Tanzania: More Clue to the Elusive Ancient Azania's metropolis of Rhapta. *International Journal of Archaeology* 9, no. 1 (2021): 24-33
- Mandela P, Shikoni, A.D., Chami F.A. and Sutton A. (2020). "The Cultural History of Kisimani Mafia Stone Town Site, Mafia Archipelago, Tanzania: findings from re-excavation of the site," *Archaeologies*.
- Mapunda, B. An archaeological view of the history and variation of iron technology in southwestern Tanzania. Unpublished PhD Dissertation, University of Florida. (1995).
- Mathew, G. The East African Coast until the coming of Portuguese, in History of East Africa. Edited by Oliver, R. and Matthew, G. Oxford, Clarendon Press (1963): 94–128.
- McLaughlin, R. The Roman Empire and the Indian Ocean. Pen and Sword Books Limited. Yorkshire – Philadelphia, 2018.
- Miller, J. I. *The spice trade of the Roman empire, 29 BC to AD 641*. Oxford; Oxford University Press, 1969.
- Oldfather, C. H. Diodorus of Sicily (12 Volumes). London: William Heinemann, 1961.
- Patience, K. Shipwrecks and Salvage on the East African Coast. Dar Akhbar Al Khaleej, Bahrain. (2006).
- Piggott, D.W.I. History of Mafia. *Tanganyika Notes and Records* 11 (1941): 35-40.
- Pollard, E. *The archaeology of Tanzanian Coastal Landscapes in the 6th to 15th Centuries AD (The Middle Iron Age of the Region)*. Oxford: British Archaeological Reports International Series, 2008a.
- Pollard E. Inter-tidal causeways and platforms of the thirteenth- to sixteenth-century city-state of Kilwa Kisiwani, Tanzania. *International Journal of Nautical Archaeology* 37, (2008b): 98–114.
- Pollard E., Richard B., Bitu C. and Ichumbaki E. Shipwreck Evidence from Kilwa Tanzania. *International Journal of Nautical Archaeology* 45, no. 2 (2016): 352 – 369.
- Pollard E, Ichumbaki EB Why land here? Ports and harbours in Southeast Tanzania in the early second millennium AD. *Journal of Island & Coastal Archaeology* 12, no. 4 (2017) : 459–489
- Revington, T. Some notes on the Mafia Island group (Mafia, Chole, Juani and Jibondo) *Tanganyika Notes and Records* 1 (1936): 33–37.
- Sedov, A.V. The port of Qana and the incense trade. In *Food for the Gods: New Light on the Ancient Incense Trade*. Edited by D. Peacock., A.C.S. Peacock, and D. Williams. Oxford: Oxbow. (2007): 71–111.

- Shikoni, A.D., Maninzali, G., Mandela, P., Kessy, E.T., and Ombori, T.L., Chami, F. Preliminary report of the re-excavation of Ukunju limestone cave in Juani, Mafia archipelago, Tanzania: More evidence of ancient transoceanic trade connections. *Man and Environment* 44, no. 2, (2019): 29-40.
- Soper, R. C. Kwale: an early Iron Age site in south-eastern Kenya. *Azania* 2 (1967): 1-17.
- Tripathi, S. and Bitu, C. Historical period stone anchors from Mombasa, Kenya Evidence of maritime contacts with Indian Ocean countries. *Bulletin of the Australasian Institute for Maritime Archaeology* 39 (2015): 84 – 91.
- Vosmer, T. Indo-Arabian stone anchors in the western Indian Ocean and Arabian Sea. *Arabian Archaeology and Epigraphy* 10 (1999): 248–263.
- Walz J R. and Kwekason, A. Ceramics, copal, and coconuts. Results of archaeological investigations at Mlongo, Mafia Island, Tanzania, AD 250-1000. South African Archaeological Bulletin, 2022.
- Wheeler, M. “Archaeology in East Africa” *Tanganyika Notes and Records* 40 (1955): 43–47.
- Wynne-Jones, S. Reconstructing the long-term history of the Mafia Archipelago. Unpublished Report. Tanzania Antiquities Department, Dar es Salaam.(2006).