

MORPHOLOGICAL CORRESPONDENCE OF 10TH–13TH CENTURY CHINESE CERAMICS: A COMPARATIVE STUDY OF THE TANJUNG SIMPANG MENGAYAU WRECK (SABAH) AND THE SUNGAI LIMA MANIS SITE (BRUNEI)

Masyella Masbaka

Pusat Penataran Ilmu dan Bahasa, Universiti Malaysia Sabah
Universiti Malaysia Sabah, Jalan UMS, 88400 Kota Kinabalu, Sabah
Email: masyella@ums.edu.my

Ismail Ali

Pusat Penyelidikan Ekonomi Biru dan Keselamatan Maritim,
Universiti Malaysia Sabah, Jalan UMS, 88400 Kota Kinabalu, Sabah
Email: ismailrc@ums.edu.my

Corresponding author: *masyella@ums.edu.my

Dihantar: 2 Mei 2026/ Diterima: 1 Jun 2026/ Terbit: 30 Jun 2026

Abstract

This research provides a detailed morphological comparison of ceramic assemblages recovered from two significant maritime archaeological contexts in Northern Borneo: the Tanjung Simpang Mengayau (TSM) wreck off Kudat, Sabah, and the terrestrial riverine site of Sungai Limau Manis (SLM) in Brunei Darussalam. Both sites are dated to the Song Dynasty (10th–13th centuries CE) and serve as critical indicators of the "Age of Commerce" in Southeast Asia. Based on analysing primary data retrieved from the TSM cargo (n = 2,590 ceramic pieces) and secondary data of the SLM site context, this paper notes remarkable similarities in vessel types including high-footed conical and deep bowls. The study concludes that while TSM represents a primary maritime cargo of predominantly Northern Song origin, SLM reflects a secondary distribution hub with a mix of Song and Yuan Dynasty materials, highlighting the integrated nature of Borneo's early maritime trade networks.

Keywords: Morphology, ceramics, shipwrecks

Introduction

Challenges arising from the emerging thalassocratic states of Southeast Asia in the 10th to 13th centuries CE, such as Srivijaya and Po-ni (Brunei), facilitated connected seaborne trade between China and the Indonesian Archipelago. Northern Borneo, with its particular focus on the waters encircling the region of Sabah and Brunei's riverine systems were identified as a key "hotspot" of maritime activity (Flecker, 2019).

The oldest Northern Song Dynasty shipwreck site discovered in Malaysian waters is the Tanjung Simpang Mengayau (TSM) wreck which was discovered in the

Morphological Correspondence of 10th–13th Century Chinese Ceramics: A Comparative Study of the Tanjung Simpang Mengayau Wreck (Sabah) and the Sungai Limau Manis Site (Brunei)

1990s and excavated officially from 2003 to 2006 (Sjostrand, 2003). At the same time, the Sungai Limau Manis (SLM) site in Brunei, discovered during river widening in 2002, disclosed an extensive terrestrial assemblage of ceramics and artefacts that suggested a sophisticated settlement and trade hub (Karim, 2004). The study herein concentrates on the morphological comparison between these two locations for inference of trade mechanics and cultural melting-pot of Chinese ceramics as it pertains to Northern Borneo .

Contextual Background of the Sites

The Tanjung Simpang Mengayau Wreck (Sabah) is the first site. 12 meters deep of 500 meters off the Tip of Borneo, carrying a huge cargo of ceramics and metal objects from the Northern Song Dynasty (960–1127 CE), is the TSM wreck. The ship is believed to be a Chinese vessel travelling the trading route between China ports and Srivijaya (Sumatra). Its ceramic payload is dominated by celadon wares, specifically high-fired stoneware in Northern China celadon style.

The second site is Sungai Limau Manis Site (Brunei) Though it is no wreck or shipwreck but an archaeological site accidentally recovered from a river-widening project by Bruneian government. SLM is a maritime and riverine location upstream of the Brunei River. While the TSM wreck is a "frozen moment" capturing the cargo of a ship, SLM is probably a supply town or port where maritime activities feed larger backwater markets. Excavation of the site produced around 500,000 ceramic fragments, mostly from China and Thailand, dating to between the 10th and 13th centuries CE. According to Karim (2004), the site thus far managed to unearth various items: Chinese coins from the Tang Dynasty, wooden mask, beads, glass bracelets, shells, gold rings and bracelets, animals and humans' bones, lithic objects and about 500 000 Chinese and Thai potteries of which Chinese dominated.

Methodology: Morphological Classification

The main methodology used is morphological analysis, which groups artefacts together based on physical characteristics such as form, size, glaze colour and decoration.

- a. Vessel Form: This analysis focused on the types identified in the TSM collection including that is also appear in SLM.
- b. Glaze and Decoration Ceramics were evaluated for monochrome differences in green, brown and white based on the Munsell Color System.
- c. Stylistic Dating: Relative dating of forms (e.g. lotus petals and "chi" characters) compared with Chinese kiln records.

Comparative Morphological Results

The comparison exposes a considerable typological overlap and suggests that both sites received the same maritime distribution networks.

1. Bowls: Deep (U-Shaped) and Conical

Bowls form the largest ceramic category at both sites. TSM Wreck is 62.1% of the collection is made up of conical bowls (V-shaped). The outer design is usually vertically bamboo-combed and so is the lining with floral incisions, while SLM Site has the same high-footed cones and deep bowls are the leading characters. They share a very broad

Morphological Correspondence of 10th–13th Century Chinese Ceramics: A
Comparative Study of the Tanjung Simpang Mengayau Wreck (Sabah) and the
Sungai Limau Manis Site (Brunei)

morphological match in the deep U-shaped bowls, which in both cases have a high focal point towards the inner base. The important differentiator is TSM mainly concerns olive-green and greyish glazes contrasted to SLM, where a much higher rate of white-glazed deep bowls found.

2 Jars and Jarlets

Jars link the two sites, though they differ in quality and material. Through fabric type and finish, these vessels are made possibly of earthenware or crude stoneware, with the surface only glazed for about 2/3 around the body of the jar to prevent sticking from hand oils. The decorations both sites feature jars with wavy carvings circling the shoulder and neck. Jarlets (vessels under 10cm) are present in both, typically used for medicine or ointments.

3 Distinctive Markers: Motifs and Inscriptions

The "Chi" Inscription: TSM ceramics frequently bear the Chinese character "*chi*" (meaning good luck) impressed on the inner base. This same practice is documented in SLM, indicating that both sites received wares from Fujian Province kilns specializing in these trade-centric marks.

The lotus motifs such as lotus petals—either carved or impressed—is the most popular decorative element across both sites, a hallmark of Northern Song ceramic aesthetics.

Table 1: Ceramics comparisons between TSM, JDW and Sungai Limau Manis

Ceramic Types	TSM	JDW	Sg. Limau Manis
Bowls	 Deep bowl	 Deep bowl	 Deep bowl
	 Large bowl	 Large bowl	 Large bowl
Plates	Only have saucers/small plates.	 Plate	 Plate

Source: Sg. Limau Manis pictures are from entitled "Sungai Limau Manis: Tapak Arkeologi Abad Ke-10 – 13 Masihi" by Osman (2004)

The deep bowl is similar in shape, the U-shape produces high focal point to bowl inner base, but the glaze colour is exceptionally white as TSM and JDW have a

Morphological Correspondence of 10th–13th Century Chinese Ceramics: A Comparative Study of the Tanjung Simpang Mengayau Wreck (Sabah) and the Sungai Limau Manis Site (Brunei)

lesser amount of white glazed ceramics. The second form is large bowls. Across the table, large bowls from the three places have the same fabric, yellowish-orange glaze colour, and dimension. They took up the V-shaped as in conical bowl only larger and broader. Other ceramics from Sungai Limau Manis does carry other white ware and green ware. Initially, they have assumed it came from Quan Zhou are in Fi Jian Province but later determined it to be from Ci Zhou (Ko, 2015).

Both reference materials from Sungai Limau Manis dated to the Song Dynasty (Table 6.1), suggesting that the TSM samples were produced during the same period. Celadon bowl with the Chinese character carved on the inner surface, which refer to a wish for good luck or fortune, is standard practice on the celadon products manufactured by the kiln sites in Fu Jian Province.

The ceramics stylistically dated to the Song and Yuan Dynasties. The report of the findings from Sungai Limau Manis entitled "Sungai Limau Manis: Tapak Arkeologi Abad Ke-10 – 13 Masihi" by Karim Osman, is the primary reference material used to compare the findings from the TSM and JDW due to the similarity of ceramic types, production date and most importantly because the Bruneian sites also located in the island of Borneo. Despite holding the largest record of Chinese ceramics in Brunei.

Trade Hub vs. Shipwreck Cargo

The morphological alignment between TSM and SLM provides evidence for the Po-ni (Brunei) – China trade route comparison is as follows:

Table 2: Ceramic comparison between TSM and SLM

Feature	Tanjung Simpang Mengayau (Sabah)	Sungai Limau Manis (Brunei)
Site Type	Shipwreck (primary deposit)	Riverine port/settlement (secondary)
Dominant Form	Conical bowls (62.1%)	Bowls and plates
Glaze Profile	Primarily olive green (celadon)	Mix of white, green, and brown
Key Inscription	"Chi" (Luck) character	"Chi" and other Fujian marks

1 Quality Shifting

While TSM represents a mass-produced cargo intended for trade (quantity-centric), the terrestrial findings at SLM show a broader range of "use-wear" and variety. The TSM ceramics are largely stoneware (97%), whereas SLM includes a higher proportion of varied ceramic materials from later eras (Yuan Dynasty), suggesting it was a long-term habitation site.

2 Cultural Synthesis

The presence of "tajau" (burial jars) in local Sabah culture correlates with the large jars found in the TSM wreck, suggesting that Chinese merchants specifically curated

their cargo to meet the indigenous demands of Borneo tribes, such as the Kadazan-Dusun.

Conclusion and Recommendations

The morphological comparison between the TSM wreck and the SLM site confirms that Northern Borneo was a cohesive maritime economic zone during the 10th–13th centuries. The striking similarity in bowl forms and decorative "chi" inscriptions indicates a shared supply source, likely from kilns in Guangdong or Fujian.

The TSM wreck represents a specialized cargo primarily intended for trade volume, evidenced by its thousands of conical bowls. Sungai Limau Manis, as a settlement or trading hub, displays a wider variety of glaze colours—specifically high-quality white wares—and more complex decorative motifs. These findings underscore Borneo's role as a major recipient of Longquan and Fujian kiln products, cementing its status in early maritime commerce (Reid, 1988). The key findings in this study are:

1. **Typological Consistency:** High-footed conical and deep bowls are the "index fossils" for this period in Borneo trade.
2. **Strategic Connectivity:** TSM was likely a vessel destined for or stopping at ports like SLM to replenish and trade local commodities (camphor, beeswax) for ceramics.

Table 3: Features to improve on both sites.

Feature	Scientific Profile	Conservation/Policy Action
Glaze Stability	Thinner glaze layers with prominent "crackles".	Prioritize slow, controlled desalination to prevent salt crystal expansion within existing crackle networks.
Clay Porosity	Grainy stoneware with visible air pockets/pores.	Use consolidated polymers during drying to reinforce the structural matrix of fragile, low-fired fragments.
Metallic Oxidation	High copper (70.5%) and lead (10%) content in mirrors.	Implement oxygen-free storage environments to halt active corrosion (oxidation) that obscures decorative motifs.
Site Integrity	Oldest cargo ship in Malaysia; intact hull but looted cargo.	Establish "Maritime Heritage Zones" with 24/7 radar monitoring to prevent further looting of primary trade evidence.
Regional Heritage	Shared V-shaped and U-shaped vessel forms across Borneo.	Develop a trans-boundary "Borneo Ceramic Database" to track trade artifacts across Sabah, Sarawak, and Brunei.

These findings therefore beg for action in heritage management and conservation policy. The high porosity and thinner glaze layers of TSM ceramics make them particularly susceptible to underwater degradation and "crackling". Policy frameworks in Sabah and Brunei should prioritize an in-situ protection, produce a desalination protocols and regional collaboration with Brunei universities. Given the intact nature of the TSM hull and its status as the oldest cargo ship in Malaysia, stringent measures must be implemented to prevent looting, as seen with the other wreckages in Malaysia, especially in Sabah. For the desalination protocols, the presence of high titanium and

iron in TSM clay bodies necessitates specialized chemical stabilization to prevent oxidation upon recovery. Finally, onto the regional collaboration, these shared ceramic types (e.g., V-shaped large bowls and U-shaped deep bowls) across Sabah and Brunei suggest a unified maritime cultural landscape that requires trans-boundary heritage management. For future research, it is recommended that lead isotope analysis and clay petrography be conducted across both sites to pinpoint exact kiln sites and differentiate between wares intended for "supply towns" vs. those intended for "imperial entrepôts". More improvements are listed in the Table 6.3 below.

Acknowledgement

The author gratefully acknowledges the late Mr. Sintiong Gelet, former Director of the Sabah Museum Department, for his invaluable assistance and unwavering support. Appreciation is also extended to the individuals, staff of the Sabah State Museum Department, and private collectors who generously shared their knowledge, expertise, and collections of artifacts from the Tanjung Simpang Mengayau Wreck, which greatly contributed to the successful completion of this research.

References

- Flecker, B. (2019). *Sister ships: Three early 12th century CE shipwrecks in Southeast Asia*. Special Section: Shipwrecks. *Current Science*, 117(10)(25): 1654-1663.
- Karim, O. (2004). *Sungai Limau Manis: Tapak Arkeologi Abad Ke-10-13 Masihi*. Jabatan Muzium-Muzium Brunei, Kementerian Kebudayaan, Belia dan Sukan.
- Ko, J. (2015). *The Study of Chinese Trade Ceramics in Sungai Sadong, Sarawak*. Unpublished Master's Thesis. Universiti Sains Malaysia.
- Masbaka, M. (2022). *Comparative study and discussion* (Chapter 6). In A Study of Artefacts from Tanjung Simpang Mengayau Wreck and Jade Dragon Wreck PhD Thesis. Universiti Sains Malaysia.
- Sjostrand, S. (2003). *The Tanjung Simpang Mengayau Wreck*. Nanhai Marine Archaeology Sdn. Bhd.
- Reid, A. (1988). *Southeast Asia in the Age of Commerce, 1450-1680*. Yale University Press.
- Reid, A. (1999). *Charting the shape of early modern Southeast Asia*. Silkworm Books, Thailand.
- Manguin, P. Y. (1993). Trading ships of the South China Sea: shipbuilding techniques and their role in the development of Asian trade networks', *Journal of the Economic and Social History of the Orient* (36): 253-280.