COMPREHENDING AQUAPELAGIC COMPLEXITY:

Maritime practices and socio-economic-ecological relations in Luang, Indonesia

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Efilina Kissiya

University of Pattimura, Ambon, Indonesia <efilinakissiya12@gmail.com>

Nur Aida Kubangun

University of Pattimura, Ambon, Indonesia <nuraidakubangun@gmail.com>

Gábor Biczó

University of Debrecen, Hungary <gavrilbenedictus@gmail.com>

Philip Hayward

University of British Columbia, Canada <prhshima@gmail.com>

ABSTRACT: This study examines the maritime practices and related socio-economic-ecological relations that have produced an aquapelago in the lagoon space around Luang, one of Indonesia's outermost small islands. Drawing on qualitative fieldwork, our findings demonstrate that traditional marine resource practices produce differentiations of marine space determined by ecological rhythms and related temporalities, social roles and scales of activity. These practices and their outcomes demonstrate that aquapelagos are complex and volatile spaces that are continuously configured and negotiated by interactions between human and non-human entities, their activities and environmental processes. These spaces also function as sites of knowledge production, where ecological understanding is developed and continuously adapted through embodied experience and intergenerational transmission. As importantly, our study emphasises the extent to which aquapelagic spaces are shaped by unequal access to resources, differentiated mobility capacities and social structures that regulate participation in local livelihood activities. Furthermore, increasing integration into global economic networks, particularly through high-value marine commodities, illustrates the extent to which local fishing practices are embedded within broader processes of commodification and value chains that determine patterns of spatial use and access. By foregrounding everyday practices as the basis of spatial production, this study demonstrates that aquapelagic spaces and temporalities are continuously reconfigured through the interplay between livelihood practices, ecological dynamics and global political-economic processes.

KEYWORDS: Aquapelagic space, maritime practices, socio-economic-ecological relations, Luang, lagoons

Introduction

Contemporary scholarship in the social sciences and humanities has long been shaped by land-based perspectives that conceptualise islands as bounded, isolated and territorially fixed entities. Within this purview, islands are often treated as marginal spaces defined by separation from mainland regions and by presumed limits in resources, scale and connectivity. Such assumptions are closely aligned with what Agnew (1994) termed the "territorial trap," namely the tendency to understand space as a static container governed by clear and stable boundaries. While this perspective has informed the classification and governance of island territories, it has also constrained efforts to understand island environments as dynamic, relational and constituted through movement, exchange and ecological interaction. In response, more recent work in Island Studies and related fields has challenged the image of islands as closed and self-contained units. Scholars have instead emphasised relationality, mobility and connectivity, showing that islands are embedded within wider networks of circulation, exchange, and socio-environmental interaction (Baldacchino, 2007; Stratford et al., 2011). Similarly, Hau'ofa's influential notion of a "sea of islands" (1994) served to repositions the ocean as a connective medium linking people, places, and practices across island worlds. In a similar vein, Steinberg & Peters (2015) argue that marine space should not be treated as empty or passive, but as socially produced through movement, practice, and power. These interventions are important because they dislodge the land-centred assumptions that have historically dominated the analysis of islands.

This article builds on that shift by adopting the aquapelagic framework as its principal analytical lens. The term aquapelago denotes a type of relational space in which land and sea are not separate domains but are co-constituted through everyday practice, mobility, livelihood and ecological process (Hayward, 2025a, 2025b). In this sense, aquapelagic space is not simply socio-ecological; more precisely, it is socio-economic-ecological, because livelihood strategies, resource access, exchange relations and ecological rhythms are mutually constitutive rather than analytically separable (Béné et al., 2010; Berkes, 1999, 2017a). This point is crucial for the present study. The empirical phenomena examined in Luang cannot adequately explained through mere territorial or regional understandings of islandness because the organisation of space emerges through the practical entanglements of fishing, movement, value, subsistence and environmental variability. To ensure clarity, we draw a conceptual distinction the between archipelagic and aquapelagic. In this article, the term 'archipelagic' is used in a limited and descriptive sense to refer to broad regional configurations of islands and inter-island relations and does not function as the main analytical framework. By contrast, the term 'aquapelagic' is used to explain how lived space is actively produced through the interaction of land, sea, livelihood, mobility and social organisation. This distinction is important because the primary concern of the article is not the abstract arrangement of islands within a regional system, but the everyday production of socio-economic-ecological space through marine-oriented practice.

Although socio-ecological approaches in ecological anthropology have made important contributions by foregrounding the interdependence of human systems and environmental dynamics (Berkes, 2017b; McGinnis & Ostrom, 2014) they are not always sufficient for analysing outermost small-island settings. This is particularly the case for *Pulau-pulau Terluar*, a term used in Indonesia to refer to 111 outer islands that constitute key markers of

the nation's maritime boundaries.[1] In these settings, marine mobility, tidal rhythms and inter-scalar relations are central to everyday life. To date, there have been few grounded accounts of how aquapelagic space is concretely produced through daily practice around small islands, particularly under conditions shaped by ecological variability, unequal market incorporation and differentiated access to marine resources. This study addresses that gap by examining Luang, in the Southwest Maluku Regency of eastern Indonesia (Figures 1 and 2). Rather than treating Luang as a bounded territorial unit, our analysis focuses on how maritime mobility, fishing practices and local ecological knowledge continuously produce space in ways that are socially embedded, temporally structured, and ecologically differentiated.

Luang is small (3.7 km^2) island that shows the characteristics of being the peak of a dormant ocean floor volcano that was elevated by tectonic uplift, resulting in a fringing coral reef now encircling a central lagoon that covers over 180km^2 and includes several small, low-lying coral islets (Figure 2). The island is home to around 1900 residents, spread over two villages (East and West Luang), who rely on the lagoon's rich marine resources of fish, crustaceans, molluscs and sea plants. Our research has established that the livelihoods, lifestyles and general mode of existence of Luang islanders is not centred on the small terrestrial area in the centre of the lagoon. Instead, space is continuously enacted through ongoing interactions between land and sea, everyday fishing practices, ecological rhythms, inter-island mobility and economic pressures. While various forms of marine resource use and customary management systems exist on Luang, this study focuses specifically on everyday fishing practices such as *mensyari*, *rhulu* and *barmaeng tali* that organise marine space through use, timing, skill, social relations and value (rather than such space existing in a neutral or homogeneous manner). At the same time, these practices are shaped by broader political-economic conditions, including market integration, unequal access to resources, and environmental pressure. In addition to adopting the aquapelagic framework as the most appropriate basis for understanding the empirical realities under discussion, this article seeks to comprehend and convey the complexity of a single aquapelago – in this case, one constituted with a coral lagoonscape – in order to create a more nuanced understanding of how such assemblages operate.

Methodology

This study employs a qualitative approach, with an ethnographic research design combined with geographically informed spatial analysis. This enables an in-depth exploration of how space is actively produced through the interaction of maritime practices, mobility, ecological processes, and livelihood activities. An emic perspective is adopted as the basis for interpretation, allowing the study to capture lived experiences and local understandings of human–environment relations (Creswell, 2012; Hammersley & Atkinson, 2019; Walliman, 2015). Data were collected through in-depth interviews, participant and non-participant observation, and the researchers' documentation of socio-cultural and maritime practices. Documentation serves as both visual and narrative evidence, enabling the recording of spatial practices, ecological interactions and everyday engagements with the marine environment. Informants were selected using purposive sampling, targeting individuals with direct knowledge and involvement in maritime and socio-economic-ecological activities, including customary leaders, fishers, seaweed farmers, women and other

[1] For discussion of these and their role, see Pone, Arman, Lado et al. (2024).

community members. This process was expanded through snowball sampling (Parker, Scott & Geddes, 2019), to capture a broader range of perspectives.

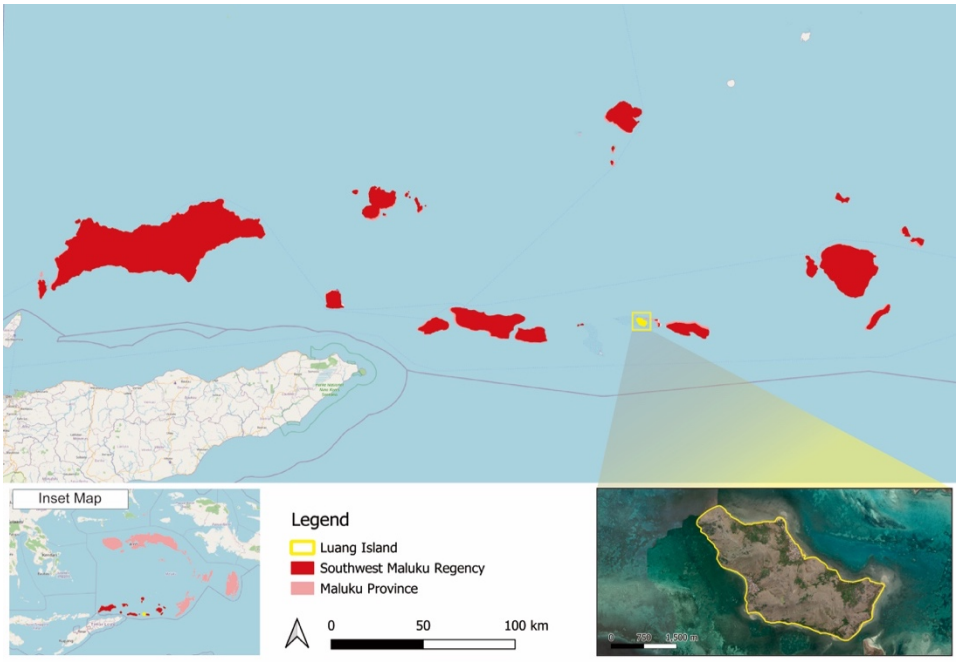

Figure 1 - Map showing the position of Luang in the Maluku Regency and its position as a *pulau terlua* (Kissiya, 2023).

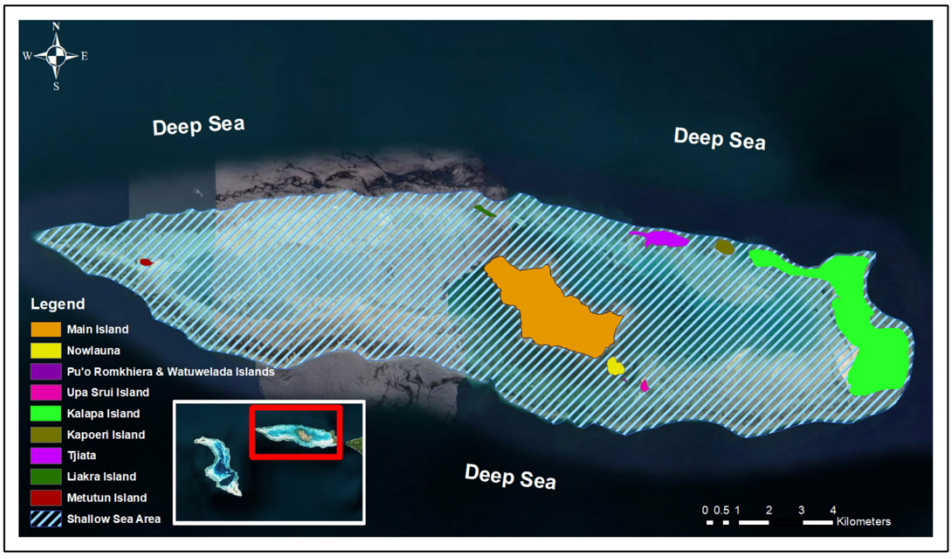

Figure 2 - Map of Luang within its lagoon space and adjacent islands (Kissiya, 2025).

The study involved 265 informants from diverse social groups. Informants were categorised and anonymised using identification codes to ensure confidentiality while maintaining systematic data referencing. These included elders (EL1–EL50), fishers (F1–F65), seaweed farmers (SW1–SW65), women (W1–W50), and children (C1–C35). The inclusion of children is significant, as they actively participate in the intergenerational transmission of local ecological knowledge (Christensen & James, 2017). In communities such as Luang, knowledge is acquired through embodied practices and everyday interaction with the sea. This aligns with Traditional Ecological Knowledge (TEK) and with the concept of dwelling, which emphasises learning through direct engagement with the environment (Ingold, 2021).

Fieldwork was conducted between June and October 2023 in the island's two villages: Luang Barat and Luang Timur. Ethnographic data were analysed using a thematic-inductive approach grounded in an emic perspective (Spradley & McCurdy, 1972). The analysis focused on identifying patterns in maritime practices, mobility, ecological rhythms, temporality and socio-economic organisation as key elements in the production of aquapelagic space. Spatial data were analysed using geographically informed methods to map both physical characteristics and socially meaningful marine spaces (Longley et al., 2005; Martin & Ormeling, 1999; Weibel & Dutton, 1999). This spatial analysis was interpretively integrated with ethnographic findings to examine how spatial distribution is shaped by practice, access, value and temporal dynamics such as tides, seasons and fishing cycles that, in turn, strongly effect social temporality.[2] Data validity was ensured through triangulation of multiple sources, including interviews, observations, documentation and spatial data (Kumar, 2019). Differences in informants' perspectives were treated as reflections of diverse social positions and experiences within the aquapelagic system (Creswell & Creswell, 2017). Through this integrated approach, Luang and its lagoon are analysed as a dynamic aquapelagic space continuously produced and negotiated through the interaction of cultural practices, maritime mobility, ecological processes and economic relations.

Findings - Study Area

Luang island is located in the southern part of the Maluku Archipelago and is administered by the Southwest Maluku Regency. The island is situated in the southern Banda Sea and occupies a strategic position within Indonesia's maritime border region, directly facing international waters and bordering Australia to the south and Timor-Leste to the west (Figure 3) This position establishes Luang as one of Indonesia's *pulau terlua*, small peripheral islands that playing an important role in marking maritime sovereignty as well as serving as a node within the broader geographical configuration of Eastern Indonesia. In addition, the island lies within the southern part of the Coral Triangle, widely recognised as the global centre of marine biodiversity (Estradivari et al., 2015; Kissiya & Biczó, 2023) (Figure 4).

[2] See Oroz (2026) for a discussion of Island Studies and island temporalities and Gaini, Hayfield & Hayward (2025) for a discussion of social temporalities on islands that have traditionally been engaged in local fisheries and now have significant proportions of the workforce involved in remote fishing operations.

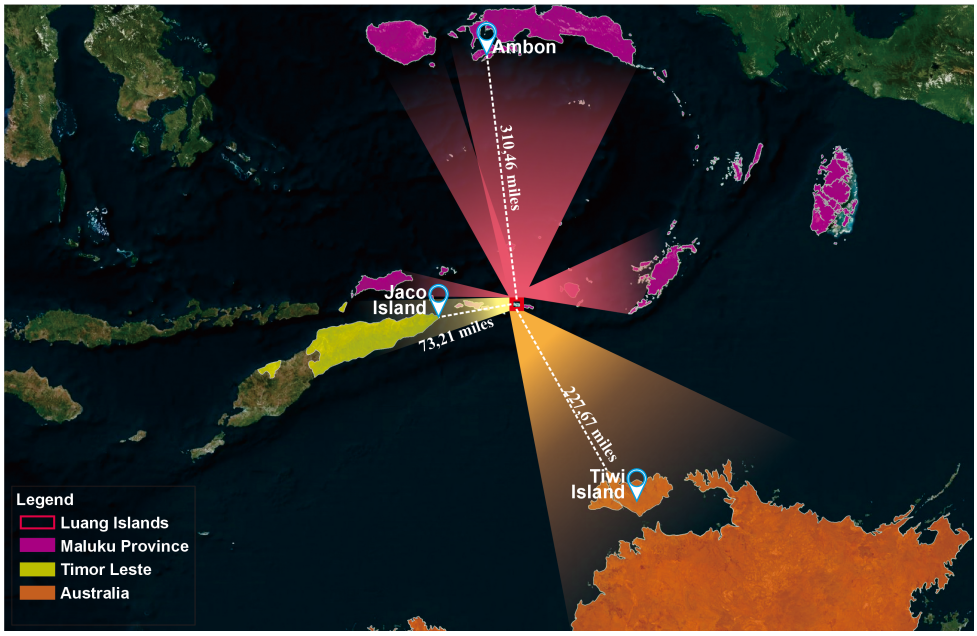

Figure 3 - Map showing position of Luang with regard to Australia and Timo Leste (Kissiya, 2023).

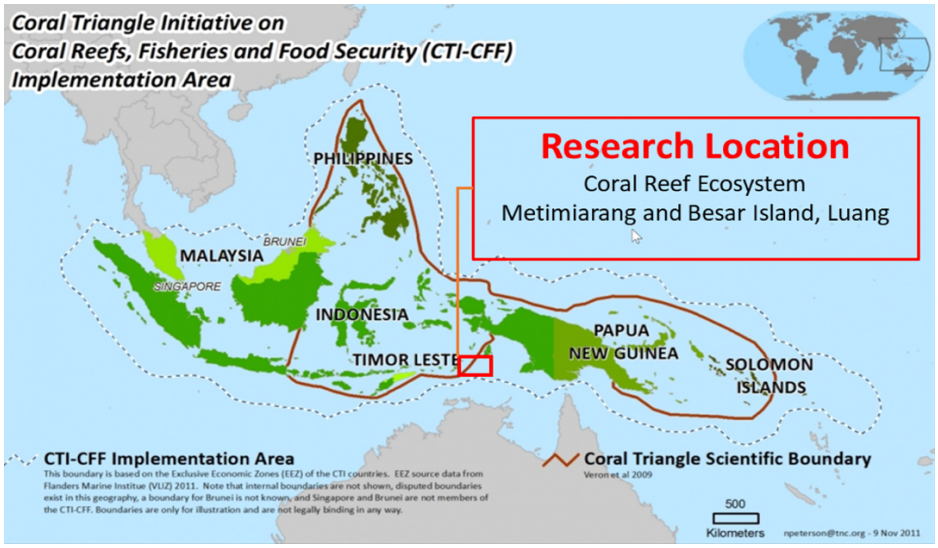

Figure 4 - The position of Luang within the Coral Triangle Reef Ecosystem (CTI-CCF, 2009).

Luang exhibits a complex past that is manifest in material remains such *negeri lama* (abandoned ancestral habitation sites typically located in mountainous areas for protection) and royal residences that served as centres of traditional authority (Figure 5), and in oral narratives that continue to be actively maintained by the community (Pannell, 2007; Karuna

& Serpara, 2021).One important narrative is *Upa Srui*, a local myth describing the fragmentation of a large ancestral island destroyed by a fish known as *Upa Srui*, symbolically represented as a fish-shaped island. Another narrative, *Ikan lamadang,*[3] refers to local knowledge of fishing from land through a technique known as *lutur*, in which stones are arranged to form tidal traps that utilise ebb and flow dynamics. These narratives are not only part of collective memory but also play an important role in shaping how space and human–sea relations are understood in everyday life. Furthermore, field findings show that the spatial landscape of Luang is also marked by areas considered sacred by the community, extending from terrestrial zones to marine spaces. On land, certain locations, particularly in mountainous areas, and historical sites are regarded as sacred due to their association with ancestral history and past power structures. In marine areas, reef edges, coral formations and specific points in the waters are believed to possess spiritual significance. These areas are not only understood as physical spaces but also as meaningful locations that regulate human interactions with the marine environment. Beliefs in these sacred spaces persist to this day and influence patterns of resource use, including the determination of location, temporal patterns and types of marine activities.

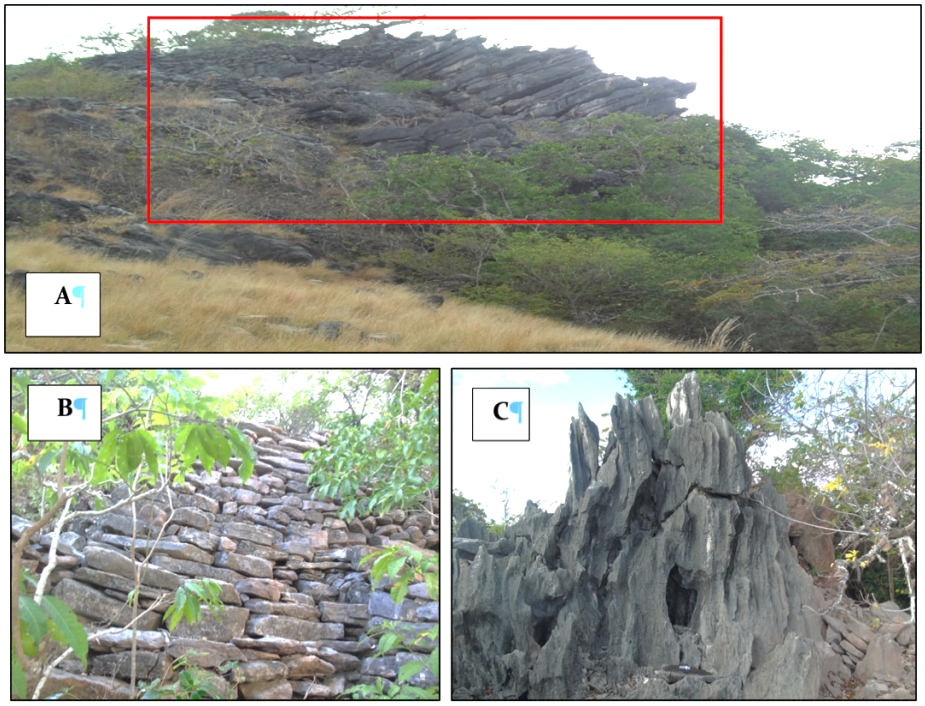

Figure 4 - (A) Location of the former settlement (*negeri lama*) situated on the mountain peak, indicated by the red rectangle; (B) a stone enclosure located along one side of the former settlement area; (C) the residence and throne of the king of Luang Island. This area is locally regarded as a sacred site by the Luang community (Kissiya, 2023).

[3] Interview data were collected from fishers in Luang Barat and Luang Timur villages between 5 and 21 August 2023.

Ecologically, Luang displays typical characteristics of small islands with limited terrestrial resources. Vegetation cover is dominated by shrubs, coconut plantations along the foothills and coastal vegetation, while freshwater availability is highly dependent on seasonal rainfall. Thin and rocky soil conditions limit the development of large-scale agriculture, making land-based economic activities insufficient to fully support local livelihoods (Figure 5). In this context, terrestrial ecological limitations shape a strong orientation toward the sea as the primary space for subsistence and livelihood.

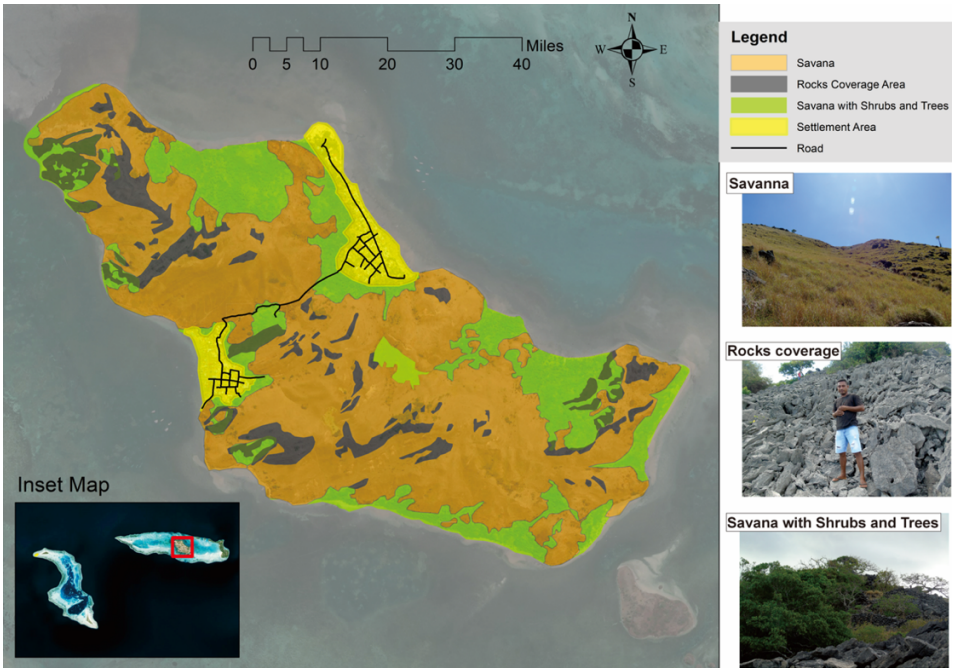

Figure 5 - Map of savanna–rock landscape distribution on Luang (Kissiya, 2023).

Marine ecology constitutes the dominant component of the livelihood system on Luang. The surrounding waters are characterised by shallow zones (*meti*), coral reef ecosystems, seagrass beds and a variety of marine species with high ecological and economic value[4] (Figure 6). In practice, the sea functions not only as an economic space but also as an ecological domain managed through local knowledge and practices developed within the community. This is reflected in various marine resource utilisation practices that continue to be performed across generations, such as *hygeralai*, *mensyari*, *rhulu*, and *barmaeng tali* (Figure 7). While *hygeralai* represents an important customary institution for regulating marine resource use, its primary function lies in the governance and periodic management of specific resources rather than in the everyday practices through which aquapelagic space is continuously produced. Given that the analytical focus of this study is directed toward routine maritime practices such as *mensyari*, *rhulu*, and *barmaeng tali* that are more directly illustrate how space is enacted, differentiated, and negotiated through daily interaction

[4] This typology results from observations of both terrestrial areas and shallow marine environments, including underwater observations at depths of approximately 3 metres.

between humans and the marine environment, we omit a detailed study of *hygeralai,* which warrants a separate analysis.

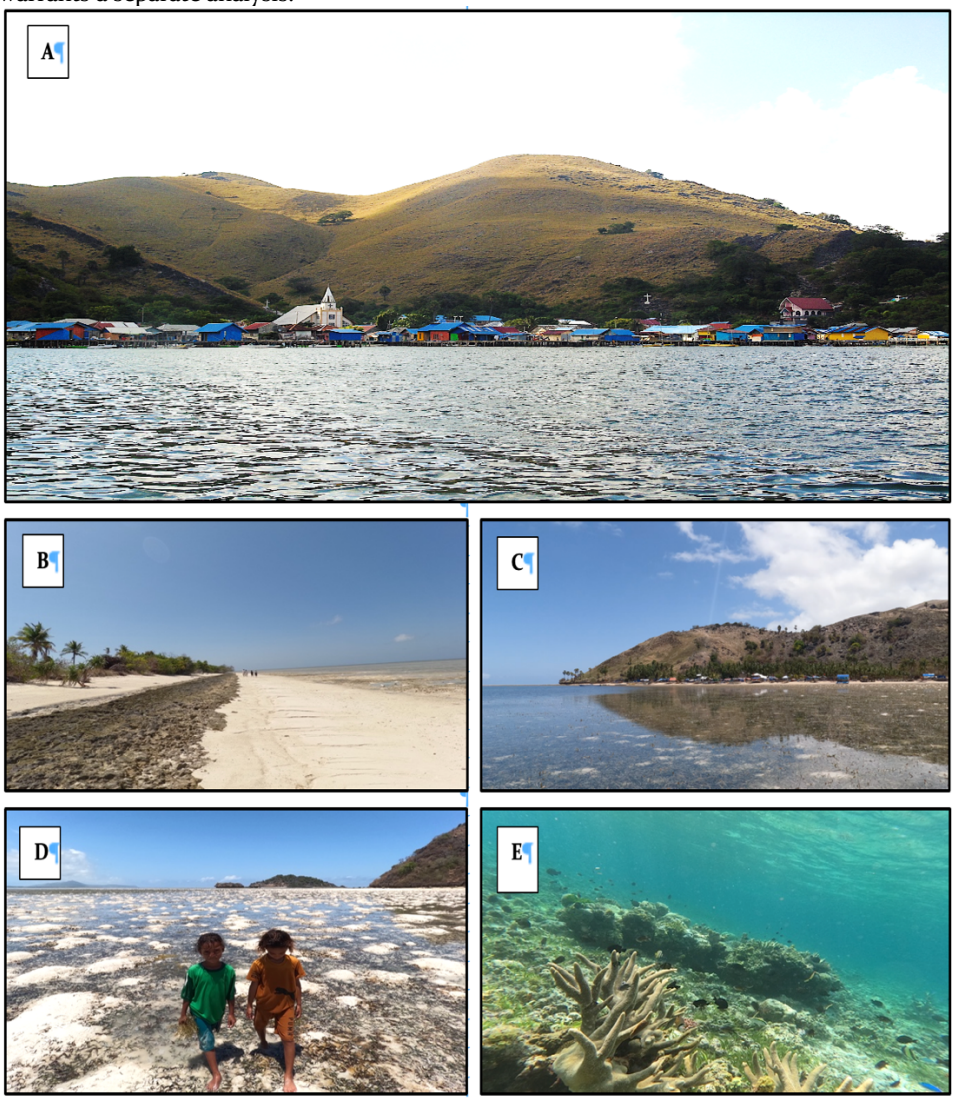

Figure 6 - (A) presents the main coastal settlement area of Luang island, (B) the coastal zone of Metiamarang Island, (C) shows an extensive seagrass (*lamun)* meadow, (D) depicts two children walking across the intertidal area (*meti)* from Upa Srui Island to Viena hamlet, and (E) presents an underwater coral reef ecosystem inhabited by diverse reef fish. (Kissiya, 2023).

From an economic perspective, Laung's community maintains a subsistence-oriented maritime economy, with the sea serving as the primary source of livelihood. Main activities include fishing, coastal resource utilisation and the processing of marine products such as dried fish, sea cucumbers, and seaweed. Economic production is largely oriented toward

household consumption and local distribution, while remaining connected to inter-island exchange networks. Maritime mobility forms an integral part of everyday life, with community members regularly sailing to nearby islands (known as *Petuanan*) (Figure 8), and to other regions for trade and exchange. The presence of traders from outside the region, such as from Wakatobi (Sulawesi), indicates that Luang is also embedded within broader regional economic networks.

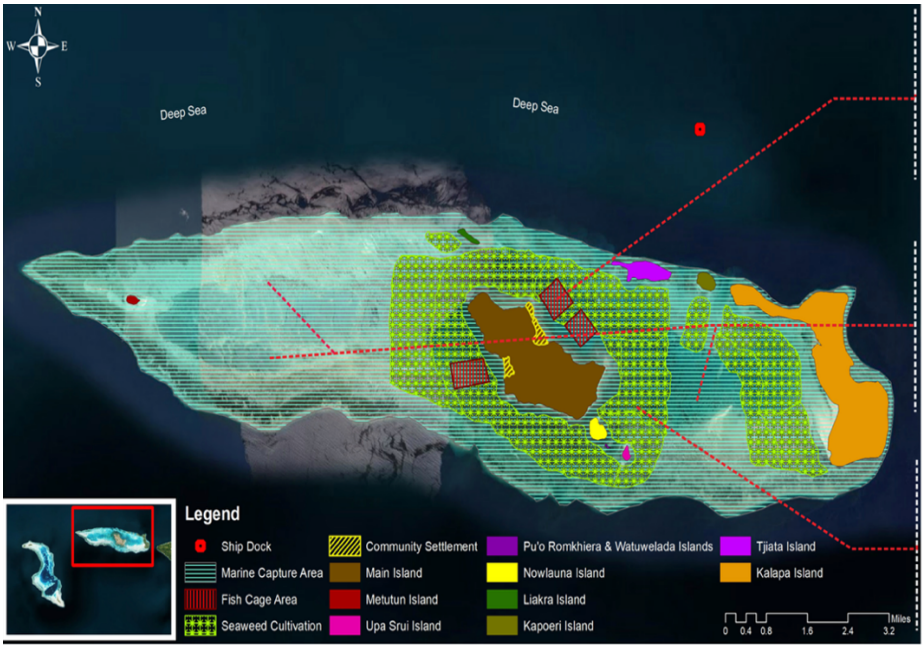

Figure 7 - Map of marine spatial utilisation through maritime practices, with emphasis on shallow water areas (Efilina Kissiya 2023).

In social terms, the presence of educational infrastructure on Luang Island reflects local efforts to develop human resource capacity despite geographical constraints. The island has five elementary schools (SD), two junior high schools (SMP) and one vocational high school (SMK) specialising in fisheries. The existence of this fisheries-focused vocational school reflects the alignment between formal education and the environmental characteristics as well as the marine-based economic orientation of the community. On the other hand, transportation infrastructure remains limited, as Luang Island lacks a permanent harbour. Incoming and outgoing vessels are unable to dock directly on land and must anchor offshore. Passenger embarkation and disembarkation take place at sea using ladders (*tangga monyet*) from ships to small boats below, which then transport people and goods to shore[5] (Figure 8). This condition affects logistical distribution, public service delivery, and the intensity of interaction with administrative centres (Figure 9), all of which are highly dependent on weather and sea conditions.

[5] Direct experience was complemented by observations conducted during embarkation and disembarkation processes.

Figures 8a and 8b - Embarkation and disembarkation activities on the Sabuk Nusantara ship in the waters off Luang (Kissiya, 2023).

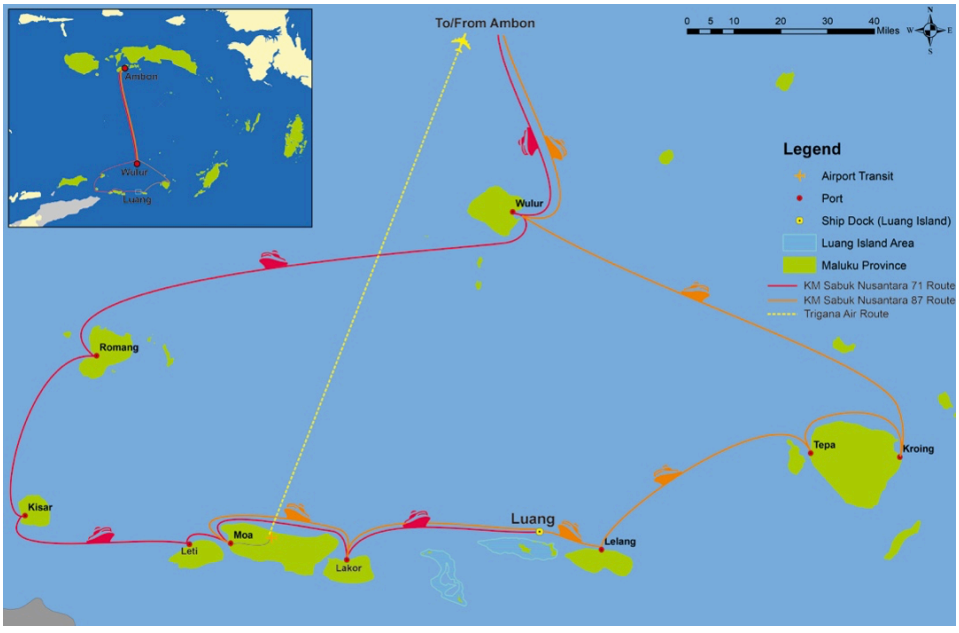

Figure 9 - Transportation connectivity and mobility for Luang (Kissiya, 2023).

Fishing practices and spatial organisation

Drawing on field research conducted on Luang involving participant observation and in-depth interviews with fishers, coastal women and community leaders, it was found that local livelihoods are highly dependent on marine resources as the primary foundation of both economic and social life. The sea functions not only as a source of subsistence but also as a

living space that shapes patterns of mobility, knowledge systems, social organisation and temporality. Field observations indicate that the majority of households on Luang Island are engaged in maritime activities, either as capture fishers or as seaweed farmers. Interviews with informants reveal that maritime skills constitute a fundamental competency possessed by nearly all members of the community. Many informants explained that from a young age they had become accustomed to going to sea with parents or relatives. Consequently, men, women and children alike generally possess the ability to navigate boats and operate boat engines. This finding suggests that marine navigation skills are not confined to specific occupational groups but are embedded within everyday collective knowledge. Such conditions reflect the characteristics of small island communities whose livelihoods are deeply integrated with surrounding marine environments. Beyond technical skills, interviews with local fishers also demonstrate that the community possesses extensive local ecological knowledge regarding marine environmental dynamics. Informants reported that prior to fishing, they consistently observe natural indicators such as wind direction, changes in seawater colour, lunar phases and tidal patterns that are used to determine appropriate fishing times and, thus, daily work and travel schedules.[6]

Based on fishers' accounts, knowledge of marine conditions is not acquired through formal education but rather through long-term experiential learning and intergenerational transmission within families. Children are often taken to sea at an early age, allowing them to gradually learn how to interpret marine conditions. Field findings also reveal a relatively clear spatial division of marine resource use between shallow coastal waters and more distant offshore fishing areas. This spatial differentiation is shaped not only by ecological conditions but also by social organisation and the types of fishing undertaken. Coastal and shallow-water areas are primarily used for small-scale harvesting activities oriented toward household consumption. These activities are typically carried out during low tide, when various marine organisms such as small fish, shellfish and molluscs are more easily accessible. Such activities are predominantly undertaken by women and children, who walk along the shoreline collecting marine resources using simple tools such as buckets or containers.[7] Several female informants explained that these activities form part of their daily routines for meeting household food needs. This practice reflects a close relationship between local knowledge of tidal dynamics and strategies for marine resource utilisation. In contrast, fishing activities in deeper offshore waters are generally conducted by male fishers who use boats to access more distant fishing grounds. Interviews with fishers identified several productive fishing locations, including waters surrounding Wekenau and Metiamarang islands.[8]

Fishers emphasised that knowledge of these fishing grounds is not based solely on geographic distance but also on an understanding of ocean currents, wind patterns, and fish migration behaviour. Such knowledge is transmitted across generations and acquired through direct experience alongside more experienced fishers. One traditional fishing practice that illustrates the social dimension of marine resource use on Luang is *barmaeng tali*. According to interviews with village youth, this activity is typically conducted by groups of young men living in close proximity. In this practice, participants cooperatively sweep

[6] Data were obtained from interviews with fishers in Luang Barat and Luang Timur villages between 16 July and 11 August 2023.

[7] Data comes from interviews with five fishers in Luang Barat and Luang Timur villages between 24 July and 4 August 2023.

[8] Data were gathered from interviews with five coastal women in Luang Barat and Luang Timur villages between 20 and 29 July 2023.

shallow-water areas using nets or simple fishing gear. After the fishing activity is completed, the catch is distributed equally among participants[9]. This distribution system highlights that fishing practices on Luang Island are not solely driven by individual economic motives but are also structured by strong norms of social solidarity within the community.

Field findings also identify the practice of *mensyari*, a form of coastal resource harvesting primarily undertaken by women and children during low tide. Observations in coastal areas indicate that this activity involves exploring shallow waters to collect various marine organisms such as shellfish, small fish, octopus and other species. The tools used are relatively simple, including buckets, gloves, or even bare hands.[10] Interviews with coastal women indicate that the catch obtained through *mensyari* is primarily used for household consumption and is rarely commercialised. Moreover, this activity serves as an important medium for children to learn about marine biodiversity and to understand tidal rhythms. Along with daytime activities, the community of Luang Island also practices nighttime fishing known as *rhulu*. Based on interviews with young fishers, this activity is typically conducted during bright moon phases and low tide conditions. In *rhulu*, fishers use lamps or torches to illuminate fish in the water, making them easier to capture using spears or other traditional fishing tools. Observations indicate that this activity requires specific skills in reading fish movements and understanding nighttime marine conditions. Beyond its economic function, *rhulu* also serves as a space for social interaction among youth, as it is often conducted collectively. Field findings suggest that *mensyari* and *rhulu* exhibit distinct socio-ecological characteristics in terms of actors, timing and spatial use of marine environments, as summarised in Table 1.

Fishing activities conducted by the community target a wide range of fish species inhabiting both shallow coastal waters and deeper marine environments. Some of these species have high economic value and are traded to external buyers, including merchants from China and Hong Kong. Meanwhile, other species are primarily utili*s*ed for local consumption or processed into products such as dried or salted fish.[11] The diversity of fish species captured by Luang fishers reflects the richness of coral reef ecosystems in the area. The variation in species indicates that fishing activities occur across multiple marine ecological zones, ranging from coastal areas to deeper offshore waters. The fish species recorded during field research are presented in Table 2. Overall, the field findings demonstrate that various fishing practices on Luang Island such as *mensyari*, *rhulu* and *barmaeng tali* are shaped through close interactions between the community and the surrounding marine environment. Accordingly, Luang's community can be understood to be premised on an aquapelagic socio-economic-ecological system formed through dynamic relationships among humans, local knowledge and the marine ecosystems that constitute their lived environment.

[9] This study is based on interviews with four young fishers in Luang Barat and Luang Timur villages between 1 and 7 August 2023.

[10] Field observations were conducted and subsequently elaborated through in-depth interviews with four coastal women in Luang Barat and Luang Timur villages (28 July–1 August 2023) who explained Mensyari practices, types of marine organisms collected during low tide, coastal exploration areas and women's roles in meeting household food needs from marine resources.

[11] Interview data were gathered from fishers in Luang Barat and Luang Timur villages between 2 and 21 August 2023.

Aspect	*Mensyari*	*Rhulu*
Implementation Time	When the tide is low, usually in the morning	At night, when the moon is bright and the tide is low
Key Actors	Women and children	Young and adult men
Activity Location	Shallow coastal areas	Near the village, shallow water, a bit far from the settlement
Tools Used	Bucket and gloves	Buckets, simple tools Torches or lamps, spears, and other traditional fishing tools
Type of Catch	Conch, fish, octopus etc. for household consumption	Fish for household consumption o sold in small quantities
Main Functions	For family daily consumption	For daily family consumption
Socio-cultural Values	Intergenerational knowledge transfer, gender roles, ecological education	Strengthening youth solidarity ecological knowledge at night
Ecological Value (TEK)	Local understanding of tides, coastal zoning and marine biota	Understanding fish behaviou seasons, and the right time to catc fish
SES Relevance	Showing socio-ecological interactions that are seasonal and time-based |	Showing seasonal and time-based socio-ecological interactions

Table 1 - *Mensyari* and *rhulu* traditions (based on research results 2023).

Type of Fish	Scientific Name	Economic Purpose
Grouper	*Epinephelus spp., Plectropomus spp.*	Export (buyers from China & Hong Kong) [HK]
Red Snapper	*Lutjanus campechanus, Lutjanus argentimaculatus*	Export (buyers from China & HK
Humphead Wrasse	*Cheilinus undulatus*	Export (buyers from China & HK
Rabbitfish	*Siganus spp.*	Consume, sell and make salted fish (dried fish)
Giant Trevally	*Caranx ignobilis*	Export (buyers from China & HK
Ribbonfish	*Trichiurus lepturus*	Export (buyers from China & HK
Golden Trevally	*Gnathanodon speciosus, Carangoides spp.*	Export (buyers from China & HK
Mangrove Jack	*Lutjanus argentimaculatus*	Consume, sell and make salted fish (dried fish)
Pufferfish	*Tetraodontidae spp.*	Some species are consumed and used as bait
Parrotfish	*Scarinae spp.*	Fairly high value in local markets and culinary tourism
Skipjack Tuna	*Katsuwonus pelamis*	Export (buyers from China & HK
Spanish Mackerel	*Scomberomorus commerson*	Export (buyers from China & HK
Yellowstripe Scad	*Selaroides leptolepis*	Consume, sell and make salted fish (dried fish)
Tuna Tuna	*Thunnus spp.*	Sold to buyers from China & HK who come to Luang Island

Table 2. Fish species caught in shallow and deeper waters around Luang Island (Source: Field interviews and participant observation, 2023).

Discussion: Locating Luang Island: Geographical, historical, socio-economic-ecological and temporal contexts

This discussion argues that Luang cannot be adequately understood through a purely archipelagic lens but is more precisely conceptualised as an aquapelagic socio-economic-ecological space. While archipelagic perspectives highlight regional connectivity, they remain insufficient to explain the lived production of space in location such as Luang. As the preceding study area description established, Luang exhibits characteristics that cannot be reduced to a mere geographical unit at the periphery of the state, but rather appears as a complex, layered space shaped by the interplay of ecological, historical, social and geopolitical relations. Accordingly, this section serves to situate Luang within a broader framework of discussion before engaging with the concept of the island/lagoonscape as an aquapelago. Geographically, Luang's location in the southern Banda Sea and within Indonesia's maritime border region places it within two spatial regimes: a local space of everyday life and as a strategic space of the state. From a geopolitical perspective, outermost small islands such as Luang are often positioned as "sovereignty markers"; however, this approach tends to frame islands as static territorial objects (Baldacchino, 2007; Stratford et al., 2011). Empirical realities, however, reveal that Luang functions as a node within broader networks of mobility and regional interaction, both within the Banda Sea and in its connections with regions such as Timor-Leste and northern Australia. Thus, its geographical position operates not only as a boundary but also as a site of connectivity, underscoring the importance of relational approaches in understanding island space (Hau'ofa, 1994; Steinberg & Peters, 2015).

From a historical perspective, the presence of *negeri lama* and oral narratives such as *Upa Srui* and *Ikan lamadang* provide a history of Luang that is distributed across material landscapes and collective memory rather than simple linear accounts. This aligns with approaches in historical anthropology that emphasise that knowledge of the past in island societies is often articulated through narratives, rituals and spatial markers. From this perspective, oral narratives function not only as memory, but also as epistemological devices that shape how communities understand origins, lived space and their relationships with the sea. In other words, history on Luang can be understood as a lived experience embedded in practices, spaces, and everyday experiences. This historical configuration is closely linked to patterns of settlement transformation. Informants consistently explained that the movement from mountainous settlements to coastal areas occurred gradually and episodically, in response to changing ecological conditions, livelihood strategies, and evolving social dynamics. This relocation of communities from mountainous areas to coastal zones reflects more than a spatial shift; it indicates a broader transformation toward a maritime-oriented way of life. While upland settlements were historically associated with protection and security, coastal settlements enable more direct engagement with marine resources, mobility and inter-island exchange. This transition highlights a reorientation of livelihood and spatial organisation, in which proximity to the sea becomes central to everyday subsistence and social interaction.

From an analytical perspective, this shift can be understood as part of an aquapelagic transition, in which land and sea are increasingly integrated as a unified socio-spatial domain. The coast functions not merely as a physical location but as a critical interface where ecological processes, economic practices and social relations intersect. In this context, maritime activities such as fishing, coastal harvesting and mobility are not only subsistence strategies but also mechanisms through which space is actively produced and

negotiated. Moreover, this transition underscores the importance of local knowledge systems in mediating human–environment relations. As communities settle closer to the sea, knowledge of tides, marine species, seasonal cycles and spatial boundaries becomes increasingly central in organising everyday life (Berkes, 2017a). Thus, the movement from mountain to coast reflects a shift from a predominantly land-oriented spatial logic to an aquapelagic one, where socio-economic and ecological processes are inseparable from the marine environment.

Luang as an aquapelagic socio-economic-ecological space

This study positions itself within a growing body of scholarship that seeks to move beyond territorially bounded and land-oriented approaches in understanding island environments and human–sea relations. Rather than relying on a single theoretical framework, this article intervenes in broader epistemological tendencies within environmental and island research that continue to conceptualise space as a stable entity, precisely mappable, and discretely bounded. Such approaches whether emerging from territorial governance models or system-based environmental analyses tend to assume that human–environment relations can be adequately understood within clearly defined spatial units. However, empirical findings from Luang demonstrate that such assumptions are insufficient to capture the lived realities of island communities. Furthermore, the dominant territorial perspectives in Island Studies cannot be separated from longer histories of knowledge production rooted in colonial and modern nation-state logics. Within this framework, space is reduced to an object that can be mapped and controlled through rigid administrative boundaries. This approach has not only shaped policy practices but has also influenced how archipelagic realities are represented in scientific knowledge, often marginalising lived experiences that are fluid and relational (Steinberg & Peters, 2015). However, in the context of Luang, such a perspective is insufficient. The community's living and livelihood space cannot be understood as centred solely on the main island but rather exists as a relational configuration formed through repeated mobility, everyday practices, and inter-island connectivity (Figure 10). From an aquapelagic perspective, this spatial configuration reflects the integration of land and sea as a unified socio-economic-ecological domain, continuously produced through practice and movement. This is reflected in the regular and intergenerational movements of community members to smaller islands within the customary territory (*petuanan*) such as Metiamarang, Wekenau and others. As expressed by several informants:

> *We have, since the time of our ancestors, been accustomed to traveling to the small islands within the customary territory of Luang Island, such as Metiamarang, Wekenau, Kalapa, Upasrui, Metutun, and others. We usually stay there for about six days, building temporary shelters using local materials such as coconut trunks and* koli *wood for the structure, and coconut and* koli *leaves for the roof and walls. While staying on these islands, we carry out various maritime activities, such as fishing, drying marine products, making salt and cultivating seaweed. Usually, every Saturday afternoon we return to the main island to prepare for Sunday worship, and afterward we return again to the small islands. This practice has been passed down through generations and has become part of the traditional way of life of the Luang community*.[12]

[12]Interview data were generated through fieldwork with 12 informants in Luang Barat and Luang Timur villages between 10 and 30 July 2023.

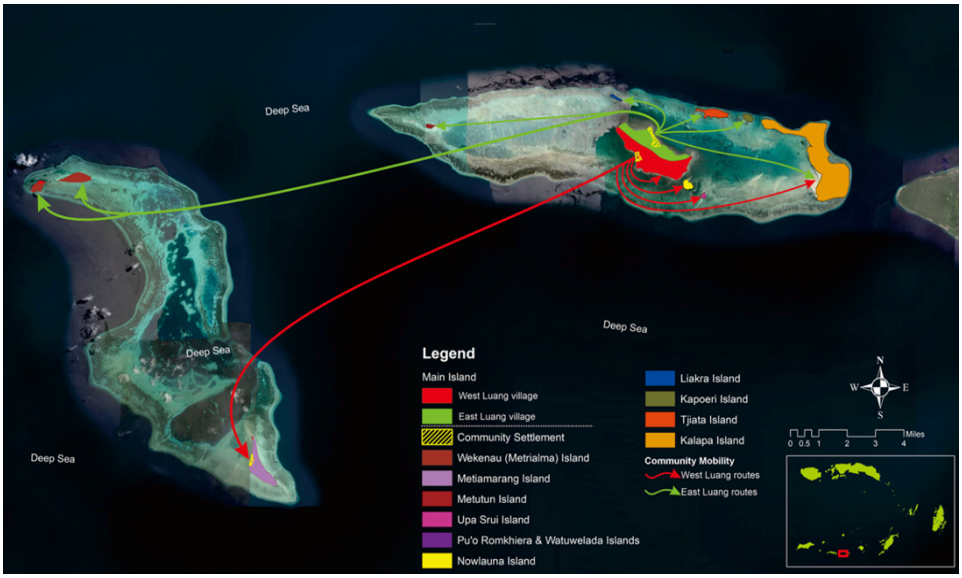

Figure 10 - Map illustrating the movement patterns of Luang Island communities as they travel to surrounding small islands within their customary domain (*petuanan*), following village-based territorial rights and resource access (Efilina Kissiya).

This statement indicates that the community's living space is distributed and not confined to a single fixed location. Periodic mobility, the construction of temporary dwellings and flexible resource use reflect context-specific socio-ecological adaptations grounded in lived experience. In this perspective, space is better understood as emerging through repeated practices (Lefebvre, 1992). Aquapelagic space around Luang is constituted through the interweaving of humans, the sea, and surrounding islands as a living assemblage. The sea is not merely a medium of connectivity, but an integral part of lived space shaping experience, identity, and social practices. This perspective also resonates with the notion of dwelling where human-environment relations are formed through direct engagement in everyday life. The dynamics of Luang's living space extend beyond the local scale into wider regional and transnational networks. This is reflected in maritime journeys to other islands. As expressed by informants:

> *We do not live only on the main island or within the boundaries of our customary territory; we live with other islands. We regularly sail to neighboring islands such as Sermata, Moa, Lakor, Leti, Kisar, Damer, and Babar, and even to Java (Surabaya), Timor-Leste, and Australia using sailing boats, with journeys lasting days, weeks, or even months. During these voyages, we rely on local knowledge for navigation, such as stars, wind direction, and sea conditions. We usually bring processed marine products such as salted fish, dried octopus, sea cucumbers, and salt, which we sell or exchange for agricultural products such as bananas, areca nut, taro, cassava, and vegetables, or use to purchase basic necessities such as sugar, coconut oil, and rice. At destination islands, we are usually welcomed and stay for one or two nights before returning to Luang. From these interactions, the relationships we*

> *build are not only economic but also social, often developing into kinship ties, including inter-island marriages, where some of us settle there or return to Luang with our spouses*.[13]

This evidence demonstrates that the community's spatial experience is multi-scalar and shaped by connectivity that transcends administrative boundaries. Within the aquapelagic perspective, this reflects the idea of a *sea of islands* (Hau'ofa, 1994) where the ocean functions as a connective rather than a separating space. Such mobility forms not only economic linkages but also social and cultural networks, including kinship relations through inter-island marriage. In this sense, Luang operates as a node within an aquapelagic network system, where flows of mobility, exchange, and social relations generate an open and dynamic spatial configuration (Baldacchino, 2007; Grydehøj, 2020).

From a hydrosocial perspective (Linton & Budds, 2014), the sea is not merely a physical space, but one produced through interactions between local knowledge, social practices, and ecological dynamics. The use of stars, wind direction and sea conditions as navigation systems illustrates a co-productive relationship between humans and the environment. However, while relational approaches capture mobility and connectivity, findings from Luang also demonstrate that relationality does not occur under equal conditions. An excessive emphasis on fluidity risks obscuring power relations that shape aquapelagic space. The integration of Luang into regional and global economic networks indicates that marine space is also embedded within global value chains that are not neutral (Béné et al., 2010; Bush et al., 2015). Participation in high-value marine commodity trade introduces asymmetrical relations, where access to markets, resources and benefits is unevenly distributed. Moreover, these findings challenge tendencies within the literature that romanticise local ecological knowledge (TEK) as stable and sustainable systems (Berkes, 1999, 2017b). Empirical evidence suggests that such knowledge is dynamic, vulnerable and continuously negotiated in response to ecological changes and external pressures. Thus, understanding Luang as an aquapelagic socio-ecological space requires not only a relational perspective but also a critical engagement with power, inequality and broader political-economic dynamics. In this context, aquapelagic space is understood as a site where social relations, ecological practices and structures of power interact simultaneously under conditions that are not fully equal.

Taken together, these findings demonstrate that Luang cannot be understood as an isolated territorial unit, but as an aquapelagic socio-ecological space continuously constituted through mobility, practices, and multi-scalar connectivity. The concept developed in this study offers an analytical framework capable of capturing this complexity, while emphasising that relationality in aquapelagic space is always shaped by tensions between connectivity, ecological sustainability and broader structures of power. Building on this understanding, the subsequent section examines how this space is concretely organised in everyday life through fishing practices and spatial organisation as key mechanisms in the production of aquapelagic space.

[13] Interview data were collected from informants in Luang Barat and Luang Timur villages between 5 and 30 August 2023.

Fishing practices, spatial organisation and the production of aquapelagic socio-economic-ecological space and temporality

Luang's aquapelagic space has been represented here as a socio-economic-ecological realm produced through the integration of livelihood practices, ecological processes and market relations (Berkes & Folke, 1998; Hayward, 2016; Hayward & Visentin, 2025). In contrast to the previous section, which emphasised the broader configuration of island space, this section focuses on how aquapelagic space is concretely produced through everyday fishing practices. Rather than treating space as an abstract or pre-given entity, this analysis foregrounds practice as the primary mechanism through which marine space is organised in relational, temporal, and social terms. In this perspective, space is not merely inhabited but continuously enacted through embodied engagement with both terrestrial and marine environments. These discussions are conceptually interconnected. While the previous section demonstrated how island space emerges through mobility, connectivity, and cross-scalar relations, this section shows how such relations are materially realised and reproduced through everyday practices. Fishing practices thus constitute the arena through which aquapelagic space takes form as a lived, experienced, and socially negotiated reality (Ingold, 2021). This shift from abstraction to practice allows for a more grounded understanding of how space and temporality are continuously produced through routine interactions between humans, ecological processes, and material conditions.

Field findings indicate that practices such as *mensyari*, *rhulu*, and *barmaeng tali* produce a differentiated aquapelagic space structured by ecological rhythms, social roles and scales of activity. *Mensyari*, conducted during low tide in shallow coastal areas by women and children, illustrates how coastal space operates simultaneously as a subsistence arena and as a site of ecological learning and intergenerational knowledge transmission. Through repeated engagement, participants develop fine-grained ecological knowledge, including the identification of species, tidal timing, and micro-habitats. In contrast, *rhulu*, conducted at night by adult men in offshore areas, reflects a more mobile, risk-intensive and technically demanding engagement with marine space, requiring navigation skills, environmental interpretation and specialised fishing techniques. The temporal differences in these practices are also significant, requiring social accommodation of distinct work and sleep patterns.

Spatial and temporal differentiations emerge from the interaction between embodied practices, accumulated experience, and socially embedded roles (Berkes, 1999; Ingold, 2022). Beyond these practices, *barmaeng tali* introduces a collective dimension that extends the scale of spatial organisation. This practice involves coordinated group action, role differentiation, and shared labour, thereby positioning marine space as a social arena constituted through cooperation and collective decision-making. In this context, aquapelagic space is produced not only through individual engagement but also through collective mechanisms that structure access, participation, and distribution. Furthermore, aquapelagic space is inherently temporal, as fishing activities are continuously negotiated in relation to ecological rhythms such as tidal cycles, lunar phases, seasonal variation, and species behaviour. Space, therefore, is not fixed but contingent, emerging through the alignment between human practices and ecological time (Folke et al., 1996). This temporality underscores that spatial organisation is inseparable from rhythm and timing, given that success in fishing depends on the ability to interpret and respond to dynamic environmental conditions. These practices function as processes of knowledge production, where ecological understanding is generated through ongoing interaction, observation, and experiential learning (Berkes, 1999; Ingold, 2022).

From a critical perspective, however, the production of aquapelagic space does not occur under neutral conditions. Variations between *mensyari*, *rhulu*, and *barmaeng tali* reveal differentiated access to space, resources, and opportunities, shaped by factors such as gender, age, skill and access to technology. Aquapelagic space thus emerges as a contested and negotiated arena, where access is structured through social relations and power dynamics (Peluso & Lund, 2011). These inequalities are not incidental but are embedded within broader socio-cultural and economic structures that shape participation and control over marine resources. At the same time, fishing practices on Luang Island are increasingly embedded within broader economic networks that extend beyond the local context. High-value species associated with export markets are typically obtained through activities that require greater mobility, capital and technical capacity, often extending into offshore marine spaces. In contrast, subsistence-oriented fishing remains concentrated in coastal zones and is more closely tied to household consumption. This differentiation demonstrates that aquapelagic space is also structured by economic value, which influences not only what species are targeted but also where, how, and by whom fishing activities are conducted. In this context, the sea becomes part of a global production system. Processes of commodification and the expansion of the blue economy reshape patterns of access, reconfigure value distribution, and intensify spatial differentiation (Barbesgaard, 2018; Campling & Colás, 2021). Consequently, fishing practices are not merely adaptive responses to environmental conditions but are embedded within multi-scalar processes that link local livelihoods to global economic structures.

Taken together, these findings demonstrate that aquapelagos are actively and continuously produced through everyday practices that integrate ecological dynamics, social organisation, and economic relations. Rather than being a static or purely geographical entity, the aquapelagic space around Luang is relational, temporal and multi-scalar, shaped through ongoing interactions between livelihood practices, ecological rhythms and broader political-economic processes. This perspective highlights that understanding small island societies requires attention not only to spatial configuration but also to the lived practices through which space is enacted, negotiated, and transformed over time.

Conclusion

This study has demonstrated that aquapelagos such as Luang are fundamentally socio-economic-ecological formations, in which livelihood strategies, ecological rhythms, and social relations are mutually constitutive. The increasing integration of Luang into regional and global economic networks introduces asymmetrical relations, uneven access to resources, and new forms of ecological pressure. Differences in fishing practices, mobility capacity, and access to technology indicate that aquapelago is also shaped by power relations and economic value, which influence patterns of access, participation, and benefit distribution. This study also contributes to ongoing theorisation of the concept of the aquapelago by demonstrating that its space must be understood not only as relational and dynamic, but also as socially differentiated and politically embedded. More broadly, the findings suggest that understanding small island environments requires attention to the lived production of space rather than to fixed spatial configurations. In this context, the concept of the aquapelago emerges as a critical analytical lens for capturing the complexity of human–sea relations in outermost small islands. This has important implications for marine governance, indicating the need for more adaptive, context-sensitive, and locally grounded approaches that recognise the dynamic, relational, and unequal nature of socio-economic-ecological systems.

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