LIFE IN AND WITHIN TRANSITION:

The dynamics of livelihood, identity and governance of Sea Nomads in Southeast Asia

[Received February 26th 2025; accepted July 24th 2025 – DOI: 10.21463/shima.269]

Wengki Ariando

Department of Government, Faculty of Political Science,Chulalongkorn University, Bangkok, Thailand <wengki.a@chula.ac.th>

Narumon Arunotai

Chulalongkorn University Social Research Institute, Bangkok, Thailand <narumon.h@chula.ac.th>

Naruemon Thabchumpon (corresponding author)

Center of Excellence on Migration and Development, Asian Research Center for Migration, Institute of Asian Studies, Chulalongkorn University, Bangkok, Thailand <naruemon.t@chula.ac.th>

ABSTRACT: This ethnographic-based research article explores the intricate transition from nomadic aquapelagic lifestyles to situated marine governance among Southeast Asian Sea Nomads (Sama-Bajau, Orang Suku Laut, Urak Lawoi and Moken). It highlights how, despite physical sedentarisation, a resilient nomadic mindset endures through adaptive practices such as seasonal migration that enable these communities to swiftly navigate socio-ecological challenges. The current situation of Sea Nomads becomes critical when understood in relation to governance and potential conflicts that demand nuanced exploration. On land, Sea Nomads encounter myriad challenges, including discrimination in terms of land access and broader developmental concerns. At sea, the designation of protected marine areas poses challenges to their traditional aquapelagic livelihood patterns, preservation of local wisdom and access to sacred marine spaces. Temporary shelters in the forms of *babaroh*, *bagad* and *saphaw*, which are constructed in littoral areas, create the dynamics of accessibility to both the seascape and landscape. These findings contribute to a deeper understanding of the socio-ecological dynamics and multifaceted dimensions of intricate interplay between traditions and modernity in contemporary Sea Nomads. The article also contributes to the general study of aquapelagic societies by examining their reaction to governmental attempts to standardise the bases of their livelihoods and lifestyles with regard to terrestrial norms.

KEYWORDS: Sea Nomads, Sama-Bajau, Orang Suku Laut, Urak Lawoi, Moken, transition, livelihood, governance

Introduction

Nomadic people have an important role in human history, shaping cultural, social and economic landscapes as they evolve and adapt to new environments and changing circumstances (Dyson-Hudson, 1972). However, with the rise of nation-states, bureaucratic governance and technological advancements, the pace of change for nomadic peoples has begun to accelerate, threatening their way of life. While nomadic peoples were once able to roam freely across vast expanses of land or sea, they now face significant restrictions and limitations on their movement and lifestyles (Arunotai, 2006a; Chou, 2016; D'Andrea, 2006). Despite these challenges, nomadic peoples continue to play an important role in preserving traditional knowledge and ways of life, therefore contributing to the diversity and richness of human culture (Ahmed et al., 2023; Arunotai, 2006b; Stammler & Ivanova, 2020; Tugjamba et al., 2021).

The islands and surrounding seas of Southeast Asia are home to Sea Nomads who rely on the rich coastal and marine resources for their livelihoods. Within the terms of early 21st century Island and Oceanic Studies, the Sea Nomads can be considered as an – and, arguably, *the* – archetypal aquapelagic community on the planet. The concept of 'aquapelago' has emerged, challenging the traditional land-focused views of islands by highlighting the essential relationship between islands, their surrounding waters, and the communities inhabiting them (Hayward, 2025). This theoretical framework underscores the dynamic interactions between land and sea, showing how the marine environment is not just a boundary but an integral part of human life and culture (Hayfield, 2022; Hayward, 2012). Previous studies such as Chou (2013), Suhardiman et al. (2025), and Suzuki (2015) have emphasised how this interconnected reality profoundly shapes the livelihoods, identities, and social structures of the Sea Nomads. Traditionally, the Sea Nomads' homes consist of houseboats or stilt dwellings, blurring the lines between the land and water. Their movements are guided by currents, tides, and the availability of marine life, with culture, language, and spiritual beliefs are intrinsically linked to the aquapelagic landscape. In the perspective of Sea Nomads and the aquapelago theoretical framework, the sea is viewed not merely as a resource but as a living space that shapes identity and everyday life. The Sea Nomads embody the aquapelagic ideal by fully integrating their lives with the sea, demonstrating a continuous celebration of the interconnectedness between islands and their aquatic realms. This research underscores the significance of the fluid and dynamic nature of the aquapelagic landscape in shaping communities and contributes to the aquapelago debate. It will focus on the case of the Sea Nomads in Southeast Asia, contributing to a deeper understanding of their unique way of life and its transition.

Despite various social changes, the Sea Nomads have held on to several aquapelagic practices passed down from generation to generation. While some have adopted the dominant culture of the mainland, such as belief, livelihood, language, or other common habits, others continue to lead a nomadic lifestyle in the region's coastal areas and small islands, persisting in the face of globalisation and other threats from the global system (Arunotai, 2006a). However, Sea Nomads remain vulnerable to coastal development projects and activities, as well as environmental fluxes, including conservation policies and practices impacting their lives (Ariando, Manan, et al., 2023; Clifton & Majors, 2012; Suzuki, 2015). Other threats include climate change, natural disasters, diseases (Arunotai, 2008; Bennett et al., 2014; McDuie-Ra et al., 2013; Wattano et al., 2023), conflict with dominant communities (Ariando, Veda Santiaji, et al., 2023; Cooke & Johari, 2019), degradation of cultural practices (Robinson & Drozdzewski, 2015; Zainuddin, 2023) and settlement initiatives that have resulted in displacement and socio-cultural changes (Chou, 1997; Liu, 2017; Stacey & Allison, 2019).

Based on linguistic studies, the Sea Nomads of Southeast Asia can be classified into three distinct groups: Moken/Moklen, found in Thailand and Myanmar; Urak Lawoi/Orang Laut/Orang Suku Laut, found in Thailand, Malaysia, and Indonesia; and Sama-Bajau, found in the Philippines, Malaysia, and Indonesia. (Lenhart, 1995; Sather, 1995). These three groups generally exhibit distinct mobility patterns, characterised by their exploration of the sea using boats and houseboats, often influenced by seasonal changes (Stacey & Allison, 2019). However, these traditional nomadic aquapelagic patterns are increasingly becoming obsolete due to modern complexities such as national borders, changes in the function of transit areas[1], seasonal patterns, and issues arising from intercultural contact. For Sea Nomads, the sea is their territory, but the land also holds significant meaning for them (Arunotai, 2017; Somiah, 2022). It is not only a place to live, but also a source of life and cultural promises.

Even though the majority of Sea Nomads have now settled on land, they retain limited mobility, and their temporary shelters/settlements can still be found in Southeast Asia. Such remaining cultural practices that stem from a nomadic mentality and drive are facing various structural, cultural, and governance challenges. This nomadic mentality is a complex concept that highlights a deep adaptation to life spent mostly at sea. Exemplifying an aquapelagic orientation and sensibilities, it extends beyond the physical act of movement (Chou, 2013) and encompasses a deeply rooted worldview (Sarlagtay, 2004), a set of values and emotions (Salzman, 1983; Sargar, 2022) and a cognitive framework (Sorenson, 1993) passed down through generations of aquapelagic living. This research examines the complex transition of nomadic sea communities from traditional mobility to settled existences, focusing on the enduring nomadic mentality, resilience, and practices crucial for group identity and their existence in marine governance. Drawing from ethnographic case studies of the Sama-Bajau and Orang Suku Laut in Indonesia (Wakatobi, Lingga) and the Urak Lawoi and Moken in Thailand (Krabi, Ranong), this research presents the nuances of contemporary sea nomadism and its future positionality dealing with constant change.

Unpacking situated marine governance: A framework for understanding the realities of Sea Nomads

The research presented in this article elucidates the intricate socio-ecological dynamics faced by Sea Nomads, thereby enhancing the understanding of a central research problem. The framework adopted effectively connects diverse concepts and ideas within the analysis, guiding the reader through the complex interplay between traditional livelihoods, external pressures and adaptive governance responses. At its foundation, this study draws upon the concept of livelihood transition, emphasising that such transitions are predominantly driven by anthropogenic influences, including commodification, environmental degradation, and coastal squeeze, which collectively exacerbate vulnerability (Fabinyi et al., 2022; Kramer et al., 2017). This theoretical lens is particularly relevant for analysing the context of Sea Nomads, as their historical evolution from highly mobile, aquapelagic lifestyles to increasingly sedentary, land-oriented existence is often a direct consequence of ethnocentric, land-focused biases embedded in external development and governance frameworks. We advance the critical argument that prevailing interpretations of these transitions frequently overlook essential causal relationships. For example, the observed deterioration of traditional ecological knowledge is often examined in isolation (Ariando et

[1] Transit areas or temporary shelters for Sea Nomads have been converted into conservation areas, resorts, and other coastal development projects.

al., 2023) rather than as a direct result of top-down development interventions and centralised governance models that fail to acknowledge or incorporate local wisdom (Agrawal, 1995; Connell, 2018; Scott, 2020). Additionally, the development challenges facing islands and marine areas are frequently intensified by misguided policies that neglect the long-standing presence, unique socio-cultural structures and intrinsic rights of Sea Nomad communities. This disregard has led to their systematic marginalisation and the undermining of their sustainable practices (Ariando & Arunotai, 2022; Clifton & Majors, 2012; Suhardiman et al., 2025).

To robustly substantiate this argument, this research posits the theory of situated marine governance as a highly appropriate conceptual framework for comprehending and embracing the distinct identities of Sea Nomads and their profound connections with marine resources. In the broader context of governance studies, particularly within the marine domain, contemporary discussions frequently fluctuate between state-centric, co-management and community-based approaches (Ban et al., 2009; Berkes, 2006; Pomeroy, 1995). This research positions situated marine governance as a corrective to generalised models, underscoring a bottom-up approach that is intrinsically linked to community-specific knowledge systems and practices (Berkes, 2006; Muhl et al., 2023). In contrast to universal governance prescriptions, situated marine governance acknowledges that effective solutions must be tailored to the unique socio-cultural, ecological and historical contexts of each community (Chuenpagdee, 2011; Peters, 2020; Thrush et al., 2016). While resilience emerges as a recurring theme within discussions of environmental adaptation (Gibbs, 2009; Nelson et al., 2007), this research contends that resilience should not be viewed as an isolated outcome, but rather as an inherent quality cultivated through adaptive, locally informed governance. This stands in stark contrast to top-down interventions, which may inadvertently undermine the adaptive capacities of the community.

Furthermore, situated marine governance facilitates an explicit examination of varying perspectives on marine resource governance (Blythe et al., 2021; Parsons et al., 2021), particularly regarding the tensions between state-centric conservation initiatives and the distinct perceptions and ontologies of different Sea Nomad groups. By examining specific case studies from Indonesia and Thailand, our research aims to demonstrate the necessity of a nuanced, context-specific understanding of governance. We illustrate that, despite certain similarities, governance structures and relationships to land and development vary considerably among Sea Nomads, profoundly influencing their respective aquapelagic nomadic mentalities (Chou, 2010; Hoogervorst, 2012; Sather, 1995) as well as their mobilities and emotional landscapes (Hayfield & Pristed Nielsen, 2022). This research argues that effective marine governance needs to be tailored to the specific context of each community, honouring their unique knowledge and practices rather than depending on broad generalisations or a purely land-based perspective.

Contemporary Sea Nomadic Communities in Southeast Asia

The term Sea Nomads is an academic exonym given to a quintessentially aquapelagic Austronesian group which is intimately bonded to marine environments and depends on coastal and marine resources for their livelihood, socio-economic fulfilment and cultural identity (Stacey et al., 2018). Their nomadism covers an extensive array of situations and ways of mobility (and control of mobility) that have now been diversified into new livelihood outlooks. However, contemporary research has focused on a tightening regulation of them by national governments, especially the pressure to abandon a nomadic existence and settle

on land (Bellina et al., 2021; Suhardiman et al., 2025). After settling along the coasts and small islands in Southeast Asia, Sea Nomads have experienced social-ecological changes from various directions (Ariando, et al., 2023; Arunotai, 2006b; Chou, 2003; Stacey, 2007). This sedentary initiation changed their aquapelagic lifestyle and shifted it to resemble land communities. Indirectly, this affects their cultural identity and poses a potential for conflict with dominant mainland communities (Ariando & Arunotai, 2022; Wongbusarakum, 2007). These socio-ecological changes are influenced by various policies that do not consider the culture and needs of Sea Nomads. This is worsened by environmental damage, citizenship being granted with restrictions, and market-based competition that corners their livelihoods (Liu, 2017; Suzuki, 2015; Tadjuddah et al., 2022). In addition, the lack of established norms and institutionalised collective action puts the Sea Nomads at risk of exclusion and marginalisation. Such social, ecological, and economic dynamics directly impact their transition from spaces of sea to land, affecting their livelihoods.

This study was based on a 5-year, multi-sited ethnographic approach, undertaken between January 2018 and December 2023. The research locations were selected based on extensive fieldwork experience with Sea Nomads in Indonesia and Thailand. The authors established close collaborations with these communities over the years following their sedentarisation, guided by principles of respect and with formal academic ethics approvals.[2] The selected locations exhibit different characters and dynamics of land access for temporary settlements and contemporary mobility during their seasonal fishing rounds. The intricacies of marine resource governance in these communities also differ. The fieldnotes obtained from this research were combined with interview data from 10 key informants in each of the four case studies (see Figure 1), namely with two groups in Indonesia, Sama-Bajau and Orang Laut and with Moken and Urak Lawoi in Thailand. This combined data was then interpreted through narrative descriptive writing.

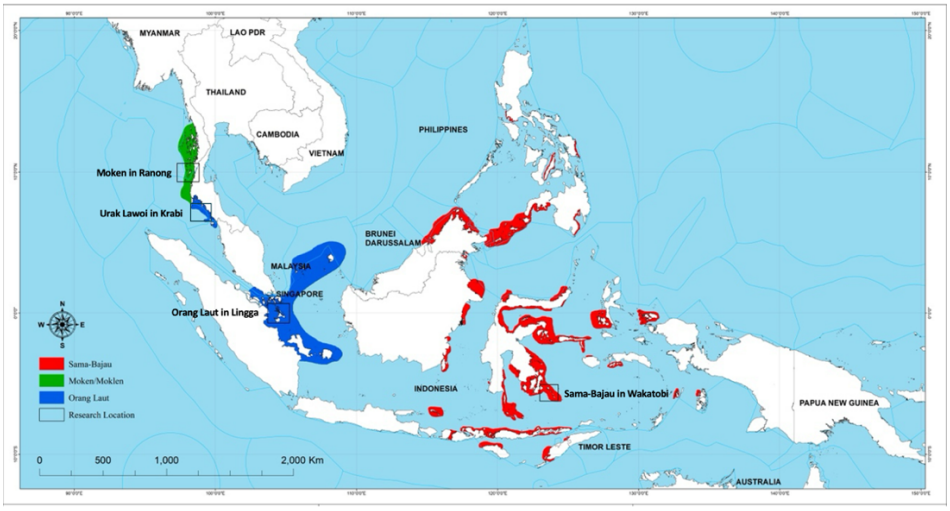

Figure 1 – Map of case study areas.

[2] To ensure that the research was conducted ethically and with due diligence, the institutional research board approved the study in Indonesia (No: 38/KEPK-FK/X/2020) and Thailand (No: 660186/COA-360/66).

Case Study 1 - Sama-Bajau in Wakatobi, Indonesia

The Sama-Bajau, commonly known as Bajau, are a well-known group of Sea Nomads living in Indonesia, Malaysia and the Philippines whose population was estimated as approximately 1,100,430 people in the mid-late 2010s (Nagatsu, 2017). They are notable for have the genetic adaptation of a larger spleen size, which allows them to dive effectively in the littoral area (Ilardo et al., 2018). The Sama-Bajau community resides in the (so-called) Coral Triangle, an area of islands with a high concentration of political marine territories.[3] Despite efforts towards marine resource governance, the agencies working with the Coral Triangle initiative have yet to recognise the Sama-Bajau community as a significant actor capable of contributing to marine resource management and conservation, climate change adaptation and coral ecosystem conservation in the region.

The Sama-Bajau face several challenges, among these are obtaining permits to reside in marine areas, gaining access to land, addressing marine zoning and conservation concerns, and competing with commercial fishing enterprises for fishing grounds. They also face discrimination in accessing their sacred areas on land and sea, for instance their cemetery areas or littoral areas for conducting maritime-oriented ceremonies (Ariando & Arunotai, 2022). However, compared to other nomadic aquapelagic sea groups in Southeast Asia, they have well-developed customary institutions and social network. Historically, their nomadic lifestyle facilitated network connections during specific fishing seasons, with gatherings and annual events marking these occasions. The process of sedentarisation and access to public facilities has transformed the way the Sama-Bajau communities connect and adapt to the impacts of development.

Sama-Bajau communities have to overcome a multitude of challenges concerning social, economic, environmental and infrastructure issues. Social obstacles include marginalisation, statelessness and challenges to cultural identity (Acciaioli et al., 2017; Andal, 2023; Haris et al., 2019), while economic issues include poverty and limited livelihood options. The Sama-Bajau are frequently enmeshed in exploitative trade and fishing chain systems. Due to their seafaring expertise and capitalisation, the Sama-Bajau community established a capital ownership system led by either the mainland group (*Bagai*) or the Sama-Bajau themselves (Marlina et al., 2020; Wianti et al., 2012). Those practices fortified the economic stability of the Sama-Bajau. Environmental challenges include overfishing, climate change and the loss of marine ecosystems (Ahmad Wani & Ariana, 2018; Ariando, et al., 2023). Moreover, limited access to education and healthcare, and top-down conservation practices pose additional infrastructure and essential service challenges (Maglana, 2016; Shepherd & Terry, 2004; Zainuddin, 2023). In addition, land rights and displacement issues include conflicts with authorities and land disputes with dominant communities (Ariando, et al., 2023; Jubilado, 2010; Madlan et al., 2014). As these challenges are interconnected, addressing one aspect often necessitates considering the broader social, economic, and environmental context.

The Wakatobi Regency in Southeast Sulawesi Province is the location with the largest population of Sama-Bajau. Within Wakatobi, there are five villages – Mola, Sampela, Mantigola, Lohoa, and Lamanggau – that are home to 11,939 Sama-Bajau. Wakatobi is an

[3] The Coral Triangle Atlas (2025) describes the triangle as "an area encompassing almost 4 million square miles of ocean and coastal waters in Southeast Asia and the Pacific surrounding Indonesia, Malaysia, Papua New Guinea, the Philippines, Timor Leste, and the Solomon Islands. The Coral Triangle is also home to some 363 million people and encompasses economic zones in which each country has exclusive rights to marine resources."

acronym for Wangi-Wangi (Wa-), Kaledupa (Ka-), Tomia (To-), and Binongko (Bi-) that was established as a regency in 2003 (Ariando & Arunotai, 2022). Prior to its establishment, the area was occupied by the Wakatobi National Park (WNP), which was founded in 1996. In addition to this overlapping institution, four customary law communities, collectively known as the *Masyrakat Hukum Adat* (MHA), have received formal recognition from the government to manage land and sea areas (Ariando, et al., 2023b). Another issue in Wakatobi Regency is the growing extent of sea and shoreline privatisation for resorts and diving sites. The local government sees this as tourism industry development rather than as a challenge to the economic objectives of local communities. In fact, it limits access for the Sama-Bajau to their coastal and marine resources.

WNP, located in the centre of the Coral Triangle, is located on the second-longest atoll in the world. In the Sama-Bajau language, an atoll is referred to as a *sapak*. *Sapak* locations are the primary fishing grounds for Sama-Bajau communities in and outside Wakatobi. There are several *sapak* in WNP, and the three biggest are Kapota, Kaledupa and Tomia. The distance between *sapaks* and Sama-Bajau villages varies but is, on average, slightly more than 13 nautical miles. Previously when the Sama-Bajau were still living in boathouses (*soppe'*), they would gather on the *sapak* in the calm season (*pamamiaan*). The activities carried out during this season, from August to December, are called *pongko'* and include collecting sea animals (*nuba'*), spearfishing or catching various kinds of fish with large nets. Currently, the Sama-Bajau livelihood in Wakatobi depends entirely on the *pongko'* in the *pamamiaan*, but since *soppe'* are no longer there, the Sama-Bajau build temporary stilt houses (*babaroh*) during *pongko'* for sleeping, to keep their belongings and store their catch.

Figure 2 - Sama-Bajau from Lohoa in Wakatobi conducting *pongko'* on a *sapak'* (authors' photo, March 29 2021, at Tomia Atoll, Wakatobi Regency, Southeast Sulawesi Province, Indonesia).

The number of *babaroh* is increasing due to better catches in the atoll area compared to fishing around the village. However, the *babaroh* have become a concern for WNP because they were considered a potential threat to marine biodiversity. Due to new security regulations at WNP, the Sama-Bajau are no longer permitted to bring their families to stay in babaroh. Previously, entire families would participate in the *pongko'*, but now these trips are primarily undertaken by men, with only a small number of women joining them on occasion.

Figure 3 – A *sapa'* with Sama-Bajau *babaroh* in Wakatobi during *pongko'* (authors' photo, April 25 2021 at Kaledupa Atoll, Wakatobi Regency, Southeast Sulawesi Province, Indonesia.)

Case Study 2: Orang Suku Laut in Lingga, Indonesia

Orang Suku Laut (literally, the 'Sea People Tribe') are scattered in Thailand, Malaysia and Indonesia. They are also known as 'boat people' who used to live move though marine areas nomadically (Chou, 2003). The exonyms of this group are diverse. They are also known as *Urak Lawoi* (Sea People) in Thailand. In Malaysia, they are called *Orang Laut*, with several subgroups. In Indonesia, the *Orang Suku Laut* are known as *Orang Laut*, *Orang Rakit, Orang Sampan, Orang Duano, Orang Selat, Orang Sekak* and other local names. These exonyms are based on the dominant language group in their respective regions. This research uses Orang Suku Laut as it is their familiar name in the research field.

The Orang Suku Laut is often viewed as a second-class community, unfairly stereotyped as practitioners of black magic, impoverished, uneducated and characterised by dark skin and unpleasant odours (Chou, 2003). Their relationship with the dominant Malay community was not only based on trade needs, but during the Lingga-Johor Sultanate (1824-1911) they were also considered a group that contributed to protecting the sea (Andaya, 2019; Lapian, 2009). Nowadays, the nature of this relationship has shifted. The Orang Suku Laut are presently treated unfairly by other islanders.

During the New Order era of Indonesia (1966-1998), the government forced the Orang Suku Laut and other nomadic communities to cease their nomadic lives and settle down on land in houses provided by the government. This initiative created new social, environmental and economic development problems and they gradually lost the local aquapelagic knowledge that had enabled them to adapt to the changing marine environment due to climate change (Ariando & Limjirakan, 2019; Firdaus et al., 2019). This situation causes them to be socially and culturally vulnerable.

The Lingga Regency of the Riau Islands Province is Southeast Asia's most populated Orang Suku Laut location. In this regency, there are 30 villages of Orang Laut comprised of around 4,000 people whose settlement patterns include living in the seas and on islands and coasts, while some groups still live in boathouses (*sampan kajang*). Currently, only one Orang Suku

Laut group with less than ten families still lives in *sampan kajang*. While this group has a stilt house provided by the government, it adheres to a nomadic mentality and continues traditional practices that follow the seasons.

The marine ecology within Lingga Regency is characterised by a scattering of small islands, primarily distinguished by dense mangrove forests and coastlines composed of sandy and muddy substrates. The Orang Suku Laut typically navigate and inhabit the intricate network of straits and waterways that permeate these mangrove ecosystems. Beyond their direct reliance on marine resources, mangrove forests hold profound significance for the Orang Suku Laut's livelihoods, serving as a crucial interface between their sea-based culture and the terrestrial environment. Historically, ancestral accounts emphasise the role of mangrove areas as traditional gathering grounds and as vital sanctuaries, offering protection from both threats posed by island-dwelling communities and the hazards of hydrometeorological disasters (Ariando, 2018). In the Lingga Regency, there are no protected marine areas or other protected zones. The limited production forest area[4] (*Hutan Produksi Terbatas – HPT)* mainly consists of a few mangrove forest areas, such as those in the Selat Kongki and Tajur Biru Orang Suku Laut villages. Additionally, there are about 13 locations in the Lingga Regency where charcoal (known as *dapur arang*) is produced using mangrove wood, with Orang Suku Laut employed as labourers. Sporadic conflicts between the local government and the dominant community occur for primarily for economic reasons. As part of their efforts to promote community empowerment for the Orang Suku Laut, the Lingga Regency issued Regent Decree No. 44/2021. Budget allocations were added to this law then scaled up into Regional Decree No. 4/2022. One of their initiatives within this decree is to allow settlements from January 2023 on. This is the first example of recognising the rights of Sea Nomads within a legal framework in Southeast Asia.

Similar to the Sama-Bajau people, the Orang Suku Laut construct temporary houses in order to engage in seasonal fishing. These are known as *saphaw* and comprise a dismantlable stilt house constructed over bodies of water or sea shores that serve as a storage space for their catch, dried fish, cooking equipment and other essential items. It also provides shelter for families with young children and expectant mothers. During the dry season or eastern monsoon from March to August, the Orang Suku Laut reside in the *saphaw* from one to three months before dismantling and relocating them. Suitably in terms of climate change adaptation, the design of a *saphaw* is designed with reference to traditional ecological knowledge to withstand natural disasters such as storm surges, rising sea levels and coastal erosion (Ariando & Limjirakan, 2019). The materials used to construct a *saphaw*, such as wood and *kajang* leaves (from the pandanus - *Benstonea atrocarpa*), make it easy to dismantle when a storm surge occurs. During dry and hot season, the *kajang* leaves allow sunlight to penetrate, keeping the temperature inside the house low.

The Orang Suku Laut have a tradition known as *bakelam*, where they venture out to sea for one to two weeks during a calm period, often bringing their families and traveling in groups. In the past, this activity was carried out using the *sampan kajang*. However, only a few members of the Orang Suku Laut still practice *bakelam* in the Lingga Regency, so it has evolved into a small kinship group of two to five boats. In addition to the *sampan kajang*, *bakelam* can also be accomplished by constructing a *saphaw* house. The primary goal of *bakelam* is to maintain a close connection with the sea and the Orang Suku Laut rely on aquapelagic livelihoods. *Bakelam* might reflect a potential adaptation practice from the

[4] In Indonesia, the term *Hutan Produksi Terbatas* refers to a forest area where timber extraction is permitted under strict limitations and with a focus on sustainable practices.

Orang Suku Laut to tackle climate change through their nomadic mobility while maintaining their nomadic mentality.

Figure 4 - Orang Suku Laut *saphaw* (authors' photo, November 24 2018 in Penaah Islands, Lingga Regency, Riau Islands Province, Indonesia).

Figure 5 - Orang Suku Laut in Lingga during *bakelam* (authors' photo, December 13 2018 in Pasir Panjang Islands, Lingga Regency, Riau Islands Province, Indonesia).

Case Study 3: Urak Lawoi in Krabi, Thailand

The Urak Lawoi are a distinctive ethnic group that is sometimes characterised as *Chao Lay* (meaning 'Sea People' in Thai). They are known for their rich maritime heritage and are considered skilled seafarers and guardians of the sea. Their cultural identity is deeply rooted

in their oceanic surroundings and they have established themselves as custodians of a unique aquapelagic heritage that has withstood the tests of time. The Urak Lawoi population in Thailand is estimated to comprise around 7,000 people along the west coast of Thailand and on the islands of the Andaman Sea (Arunotai et al., 2008). The Urak Lawoi and Moken communities in Thailand demonstrated remarkable resilience during the 2004 tsunami disaster due to their extensive local knowledge and understanding of environmental cues (Arunotai, 2017; Gregg et al., 2006).

The Urak Lawoi traditionally lived a semi-nomadic lifestyle and built semi-permanent houses using locally sourced materials. During the dry season, they would travel throughout the different islands to search for food and marine products for trade. The duration of these trips varied from a few days to several months, depending on factors such as distance from home, weather conditions and harvested materials. It was common for entire families to travel together during short-distance trips. In the past, the Urak Lawoi used rowing and sailing boats known as *perahu* and age-old techniques to navigate the Andaman Sea, attuned to the seasonal rhythms of marine life. Today, however, they have transitioned to using motorised long-tail boats like dominant coastal Thai communities.

Historically, the Urak Lawoi were renowned for their adeptness in traditional fishing practices. Their rituals and ceremonies were intricately connected to the sea, seeking protection and blessings for successful fishing expeditions. The Urak Lawoi continue to celebrate a boat floating ceremony called the *Loy Rua*, which lasts for three days and three nights during the full moon on the 6th and 11th of the solunar calendar, a period known as *Ari Pajak*. This approach to spirituality underscores the deep interdependence between the Urak Lawoi and the marine environment they inhabit. Fishing remains a core aspect of their livelihoods, although changes in regulations and the encroachment of modernity challenge their time-honoured traditions and way of life.

Currently, Urak Lawoi communities inhabit permanent settlements along the coastline and on small islands in the Andaman archipelago. These settlements are strategically positioned to maximise accessibility to the sea, reflecting the centrality of marine resources to their daily existence. The architectural styles of their homes often showcase a practical design adapted to the coastal environment, with materials such as bamboo and thatch being commonly used due to the ease of dismantling them. This situation is similar to Orang Suku Laut in Indonesia.

The Urak Lawoi in Thailand sustain themselves through a subsistence and trading lifestyle, relying on semi-nomadic foraging practices in coastal and island areas. Interestingly, resources are shared among the community without a restriction of ownership. During the dry season, the Urak Lawoi would travel to different sites on extended foraging trips known as *bagad*. While on *bagad*, they would construct simple shelters on the beaches to protect themselves from strong winds and return to their homes along the shore during rainy season (Wongbusarakum, 2007). Contemporary challenges, including environmental changes, governmental regulations, and the impact of tourism, have necessitated adaptations within Urak Lawoi communities. While some have embraced waged work in tourism as a means of economic sustenance, others grapple with the delicate balance between preserving their traditions and engaging with external influences.

Figure 6 - Urak Lawoi *bagad* dwellings on the west coast of the Phi Phi Islands (authors' photo, November 15 2023, Krabi Province, Thailand).

The traditional practice of *bagad* faces various problems in our modern era when both tourism development and conservation regulations dominate the Andaman seascape. The Phi Phi Islands, a world-renown tourism site that boasts stunning white-sand beaches, coral reefs, crystal-clear waters, and limestone karts that attract divers and snorkelers, are a case in point. Over 40 years ago, the Phi Phi Islands were a haven for the Urak Lawoi communities who found the rich resources in forests, coasts and sea to be ideal sources of sustenance. Nowadays, the population of Urak Lawoi among these islands is approximately 120 people in 35 households. In addition to gathering natural resources, they even cultivated rice in the hilly areas. They had *bagad* sites all over the islands depending on the weather and availability of resources.

Bagad sites in the Phi Phi Islands are not only used by the Urak Lawoi from the Phi Phi Islands, but also for the Urak Lawoi from neighbouring islands. These days, the Urak Lawoi from Jum Island have three *bagad* sites on the Phi Phi Islands; in the Lok Lana Bay (west coast), Rantee Bay (east coast) and Phak Nam Bay. In recent years, *bagad* sites have gradually become larger and now consist of 20-30 households due to the higher earnings obtained from the sale of seafood such as tiger shrimp (*Penaeus monodon*). During the peak tourist season on the Phi Phi Islands, *bagad* sites are populated by Urak Lawoi families who temporarily reside there to catch and sell their fresh seafood.

Figure 7 – An Urak Lawoi *bagad* (photo by Sittichai Khongsri, 2 September 2 2021 at Loh Lana Bay, Phi Phi Islands).

Authorities have felt threatened by the development of *bagad* sites because they might create a new settlement area for the Urak Lawoi. On one hand, the tension between the National Park and the Urak Lawoi continues. On the other hand, the rapid development of tourism and privatisation of the islands for upmarket resorts also threatens the Urak Lawoi's *bagad*, sacred sites, cemeteries and former rice farming areas.

Case Study 4 - Moken in Ranong, Thailand

The Moken people are a group of Sea Nomads who inhabit the small islands of the Andaman Sea in Thailand and the Myeik archipelago in Myanmar. According to estimates, the Moken population in Thailand is approximately 1,000 and around 2,000 in Myanmar (Arunotai, 2017). The Moken people primarily live in the Phang-Nga and Ranong provinces in Thailand, with a smaller group in the province of Phuket. Even though they have settled on islands and coastal areas, some families seek opportunities that require traveling across borders for socio-economic purposes. In 2004, the devastating Boxing Day Tsunami significantly impacted Moken villages in Thailand, particularly Surin Island in Phang-Nga Province (Arunotai, 2006a). However, all Moken in Thailand survived, largely due to their familiarity with a traditional oral story about *laboon* (the wave that 'eats people') and the knowledge of how to escape its impact.[5]

Unfortunately, as explained below, policies on marine tourism development and protected area conservation in Thailand have increased the Moken's vulnerability to losing their means of livelihood, to claims of land ownership and the influence of organisational interests that have shaped their identities. Moken seafaring culture has experienced significant changes over time and has been influenced by several factors, such as the growth of mainstream

[5] See United Nations Office for Disaster Risk Reduction (2011).

tourism, the religious interests of organisations, the post-tsunami housing construction initiatives and the patron-client system of the market-based economy (Cheva-Isarakul & Sperfeldt, 2023; McDuie-Ra et al., 2013).

According to Robinson and Drozdzewski (2015), the traditional understanding of Moken identity, rooted in their historical role as aquapelagic nomadic hunter-gatherers traversing small islands, no longer fully encapsulates their contemporary self-conception. While historically their identity was intrinsically linked to a migratory existence centred on subsistence fishing, present-day Moken have forged a new identity that retains their nomadic inclinations, even as they adapt to modern realities. This evolving identity remains deeply intertwined with their migratory lifestyle, specifically their life aboard houseboats (*kabang)* and their seasonal movements correlating with monsoons in the Andaman Sea. Their aquapelagic livelihood primarily involves fishing, free-diving for marine resources and gathering. However, increasing pressures are leading many Moken people to settle in fixed locations due to government policies, land scarcity and the depletion of marine resources (Arunotai, 2006a; Liu, 2017). While fishing remains important, many are now pursuing new jobs in tourism, industrial fishing, or construction, which challenges their traditional nomadic identity (Arunotai, 2017; Suzuki, 2015).

The Muaeng Ranong district's Moken villages were chosen for the study due to the intricate governance of marine resources and their current semi-nomadic livelihood. The Moken villages in Ranong were hit by the 2004 tsunami, but no lives were lost as they had local knowledge about tsunamis (Arunotai, 2006a; McDuie-Ra et al., 2013). Presently, the Moken in Ranong reside in Lao Island (208 people), Chang Island (300 people) and Phyam Island (152 people). Their fishing and foraging grounds also cover the Ranong Biosphere Reserve, Laem Son National Park and the Mu Ko Ranong National Park. Additionally, these areas are in close proximity to the marine border between Thailand and Myanmar, which further influences the transformation of the Moken's lifestyle, culture, and fishing territory.

Figure 8 - The Moken of Phyam Island stay in temporary shelters on the eastern side of the island (Authors' photo, 29 July 2023, Phyam Island, Muaeng Ranong District, Ranong Province, Thailand).

In the past, the Moken in Ranong heavily depended on *tawkay*/*tauke* (patrons) for their economic life, where the owners of the capital controlled the commodity and market for the Moken's fishing catch. Despite a traditional inclination towards avoiding unnecessary risks in their daily subsistence, this very dependency and their marginalised position made it easier to restrict their access to legitimate land and marine resources and led them to novel livelihood strategies. In borderlands, smuggling and related illegal activities were very profitable, and the Moken were often hired and exploited as workers in fish bombing, catching and smuggling of marine animals. They went into Myanmar's waters as far as the Nicobar Islands in India. Some Moken men were arrested and imprisoned by Myanmar and Indian authorities, and some died from fish bombing or diving accidents.

More often than not, agencies involved in marine resource governance in Ranong neglected the Moken community due to their reputation as smugglers and their association with unsustainable fishing practices. However, it is essential to note that, despite this, the Moken communities' worldviews are often informed by their traditions and practices grounded in what can be said to be a nomadic mentality based on "management and conversation" principles (Arunotai, 2006a). The poverty and vulnerability of the Moken community can be attributed to the impact of market forces, development schemes and conservation pressure. Poverty within the Moken community in Ranong is understood not merely as a deficit of monetary income, but critically, as a multidimensional deprivation encompassing limited access to citizenship, education, healthcare and secure livelihoods (Cheva-Isarakul & Sperfeldt, 2023; Robinson & Drozdzewski, 2015; Wattano et al., 2023). This perception highlights how both their statelessness and the erosion of access to traditional marine resource contribute to their socio-economic vulnerability, often forcing engagement in precarious informal labour. These drivers have created challenges for the sustainable management of marine resources and have significantly impacted the socio-economic well-being of the Moken.

Following the 2004 tsunami, the Moken in Ranong were fortunate to receive motorised boats and fishing nets as donations, enabling them to modernise their fishing methods and expand their catch to include crabs, shrimp and squid. While some families still engage in traditional fish trapping and shellfish collection, their fishing efforts are limited to a range of 1.6 to 2 nautical miles. Unfortunately, the Moken face ongoing social conflicts due to territory overlap with commercial fishing areas, restrictions on protected species and limited access to marine protected areas. Land ownership disputes further compound these challenges, and regional and national development plans have only intensified the conflicts.

Even though they have settled down, about 20 Moken families from Phyam Island still practice their semi-nomadic activities during the monsoon season with motorised long-tail boats. These families make temporary huts near Ao Hin Khao (White Rock Bay) on the eastern side of the island. The Thai landowner allows them to stay there as there is no plan to develop it yet. Because of the close distance to their permanent settlement, the Moken usually return home within a few weeks to check the goods and assets they have left behind. A few Moken families from Chang Island also live on longtail boats closer to their current fishing areas but they have to anchor their boats further away from the beach where there are rows of upmarket resorts.

Figure 9 - A few Moken families from Chang Island and Lao Island live on their long-tailed boats as it is more convenient to travel and make a living (authors' photo, 31 July 2023 (Phyam Island, Muaeng Ranong District, Ranong Province, Thailand).

Discussion

This study argued that Sea Nomads often find themselves at odds with state-centric conservation efforts. Marine national parks or protected areas, while necessary for biodiversity conservation, can inadvertently marginalise these groups. Their traditional practices, such as fishing and gathering, are often viewed as threats to ecological balance rather than as forms of sustainable resource management. This discrepancy arises from the differing perspectives on marine resource governance. This study contributes to ongoing debates about the prevailing paradigm in marine governance, which often relies on fixed boundaries, clearly defined property rights and a separation between humans and the environment. This land-based framework frequently overlooks the dynamic nature of marine ecosystems and the interconnectedness of human societies with these environments.

While state-centric approaches prioritise top-down management and conservation, Sea Nomads often rely on community-based and customary practices. The tension between state-led governance and community-based practice has led to conflicts and misunderstandings. For instance, the selected case studies identified that activities such as selective fishing and sustainable resource harvesting are often overlooked or undervalued. For example, the sacred areas of the Sama-Bajau, which could be included in conservation efforts, have been displaced by tourism development in Indonesia. Similarly, the traditional knowledge of the Moken and Urak Lawoi people in Thailand regarding tsunami preparedness has been largely overlooked in the context of disaster reduction. This research argues that such key elements of the aquapelagic nomadic mentality and knowledge (re)production of Sea Nomads can provide valuable guidance for contemporary marine governance. These components include community-centred, rights-based resource governance and the essential role of traditional ecological knowledge in the adaptive and situated marine governance approach. By integrating traditional knowledge with modern

scientific approaches, this combined work can foster more resilient and sustainable Sea Nomads.

The transition to a settled way of life presents significant challenges in effectively managing resources, particularly regarding adaptation to maritime nomadic territories. Historically, Sea Nomads existed as a free hunter-gather group. They are knowledgeable and capable of exploring the vast seas without concern for state borders. Their practice of seasonal closure reflects a flexible understanding of fluid territory; they undertake trips and construct temporary shelters during specific seasons rather than remaining in one place year-round. This approach necessitates precise estimates and management systems, as they must leave resources for the upcoming season. However, when transitioning to a settled lifestyle or limited by existing marine governance structures, the Sea Nomads are forced to inhabit a single area for survival. This situation often leads to overexploitation and resource depletion around their settlement areas. In the context of the Sama-Bajau, resource management is also intertwined with political ecology and the dynamics of intercultural relations with dominant communities, such as the *Masyarakat Hukum Adat* (*MHA* – 'Customary Law Society'). The *MHA* believes that marine resources ought not to be managed by those without land rights. In Indonesia, governance often favours the *MHA*, marginalising the Sama-Bajau in the marine resource governance. Another interesting example is the relationship between Orang Suku Laut and mangrove forests. The community holds a deep spiritual connection to the mangroves, however, due to economic pressure, the Orang Suku Laut now turn to cutting mangroves amid rising demand from the charcoal industry. The continued operation of 13 charcoal production sites in the Lingga Regency (despite a halt in mangrove harvesting permits), strongly suggests the persistence of illegal resource extraction. This illicit activity directly undermines marine resource management efforts by causing significant mangrove deforestation in areas that are vital nursery grounds for fish and crustaceans, coastal protection and for carbon sequestration. Consequently, it exacerbates ecological degradation and threatens the long-term sustainability of coastal ecosystems and the livelihoods of communities dependent on this critical marine resource governance.

The transition of Sea Nomads to more sedentary lifestyles has introduced challenges in accessing and managing natural resources. As they are becoming increasingly integrated into broader societies, they often encounter competition for resources from various groups, including local islanders, commercial entities and government agencies. Such competition over fishing grounds, sacred areas, foraging sites and access to other vital resources can lead to tensions and disputes between different groups or individuals. Addressing these social relations requires a nuanced exploration of situated resource governance for Sea Nomads. The issues arise from a lack of distributional justice in accessing common resources across different locations (Ariando, et al., 2023; Arunotai, 2017; Lowe, 2003). In this context, justice ensures fairness and equity for these communities concerning their culture, beliefs and practices. A prime example of this issue is the privatisation of coastal lands and the development of tourism infrastructure in Wakatobi and Krabi, which can restrict Sea Nomads' access to vital resources such as firewood, freshwater, and materials for temporary shelters. As traditional livelihoods become increasingly unsustainable, these communities are compelled to pursue alternative livelihoods, such as wage labour, small-scale enterprises or destructive fishing practices. However, these new livelihood opportunities often require substantial investments, skills or even education that may not be readily available to them. Moreover, the marginalisation of Sea Nomads in the post-sedentarisation is further exacerbated by the prioritisation of economic development over their cultural and environmental needs. Essential sites, both on land and at sea, that are crucial to their way of

life, such as cemeteries, fishing grounds, and sacred areas, are often targeted for tourism development and other economic activities. This prioritisation of economic interests over the rights and livelihoods of Sea Nomads can lead to displacement, dispossession, identity loss and cultural degradation. For instance, coastal development projects, such as resort construction and port expansion can encroach on traditional fishing grounds and sacred sites, limiting access to resources and disrupting their cultural practices.

Another example of marginalisation occurs in Indonesia. Despite being formally recognised under Indonesian Regional Law Number 4/2022 on community empowerment, the Orang Suku Laut in the Lingga Regency continue to face significant marginalisation. This is partly due to negative stereotypes perpetuated by dominant Malay communities, which contribute to a perception of the Orang Suku Laut as second-class citizens. As a result, they have been systematically left out of important development planning and trade initiatives since the implementation of this regional legislation, undermining their legal recognition and hindering their involvement in community empowerment efforts. This issue illustrates a critical conflict within development goals, economic integration and the need for cultural preservation: a challenge faced by many Sea Nomads worldwide. Despite international human rights principles that support indigenous rights, the Orang Suku Laut struggle to protect their traditional ways of life, whether on land or at sea.

An intriguing finding highlights that the marginalisation of the Moken and Orang Suku Laut communities is significantly intensified by their integration into the broader market economy, which creates economic dependencies. These Sea Nomad groups possess a social structure characterised by patron-client relationships that often limit their agency and hinder access to diverse livelihood opportunities. On land, these communities face considerable challenges related to land access and broader developmental issues, typically navigated through existing patronage systems. Meanwhile, at sea, the expansion of marine protected areas poses a direct threat to their traditional livelihoods, restricts access to culturally significant marine zones and undermines the preservation of their invaluable ecological knowledge. Despite the expressed intentions of governments and environmental organisations to establish co-management frameworks, the practical implementation of such initiatives frequently reinforces the complex dynamics of these entrenched patron-client relationships, thereby continuing the marginalisation of Sea Nomads.

Next, the ecological dynamics, such as semi-nomadic lifestyles during certain seasons, reflect the Sea Nomad's ability to adapt to change. The practice of constructing temporary shelters, such as *babaroh*, *bagad* and *saphaw*, is a testament from their cultural practice to embrace a development era even though they face many challenges. The construction and use of these temporary shelters are deeply ingrained in their cultural heritage and reflect their nomadic lifestyle. These shelters serve as a gathering place for the Sea Nomads, fostering social bonds and cultural exchange. This situation poses a significant challenge for national park officials, particularly in the cases of the Sama-Bajau and Urak Lawoi, and for landowners such as the Moken and Orang Suku Laut. In all instances, Sea Nomads are compelled to concede their position. It is essential to conduct a local review and gather empirical data to facilitate a balanced discussion that considers two perspectives: one reflecting power and politics and the other encompassing culture as a way of life for this landless community.

The practices of *bakelam* and *pongko'* are vital components of the cultural identity, sustainable livelihoods and ecological knowledge of Sea Nomads. The mentality and knowledge involving frequent movement between islands can be perceived as disruptive to conservation efforts (from the perspective of a land-based governance system), even though

the Sea Nomads have developed intricate systems for managing marine resources. The nomadic practices of *bakelam-pongko'*, or the temporary settlement in nomadic territory *babaroh-bagad-saphaw*, disassemble the ethnocentric understanding of the coastal and sea commons from the point of view of Sea Nomads and underline their integrated aquapelagic existence. Practically, these traditions involve seasonal migrations to specific locations for fishing, foraging, and other activities, representing one of the last surviving aquapelagic nomadic practices today. Developing conservation and marine governance in Indonesia and Thailand fails to engage the Sea Nomads in its development. In addressing the disparities in community engagement, it is crucial to recognise that working with Sea Nomads presents unique challenges and practices that do not necessarily apply to land-based communities or small-scale fisheries. Each group has distinct cultural, social and economic contexts that must be understood and respected in any collaborative effort. To effectively address the needs and priorities of Sea Nomads, tailored approaches that consider their specific lifestyle and traditional practices are essential. This nuanced understanding allows for more effective and respectful engagement, contributing to sustainable practices and improved livelihoods within these communities.

Lastly, many contemporary Sea Nomads face cultural erosion and identity crises as they confront market competition and socio-ecological challenges that alter their traditional relationship with the sea. Once a cultural, ecological and spiritual space, the sea has transitioned to being an economically determined one. This shift is not solely attributed to one factor, but rather to multifaceted and intersectional ones. Sea Nomads also face the decline of their traditional knowledge. This knowledge is essential for effectively navigating marine environments, mastering fishing and foraging techniques, comprehending weather patterns, and, importantly, reinforcing their cultural identity. As these communities increasingly depend on modern technologies and formal education, there is a heightened risk of losing this traditional aquapelagic knowledge. Additionally, sea nomads may encounter a loss of autonomy and self-governance. Government policies and regulations can restrict their access to resources, limit mobility and impose new lifestyle norms, undermining their cultural identity and decision-making authority regarding their futures.

Conclusion

Sea Nomads possess a wealth of traditional knowledge regarding survival, navigation, resource management and adaptation to different environments that is imperative for comprehending sustainable practices and preserving ecological balance. They have historically played a vital role in cultural exchange and trade routes, enriching Southeast Asia's maritime culture. However, the pressures of modernisation and environmental change have forced the Sama-Bajau, Orang Suku Laut, Urak Lawoi and Moken in Indonesia and Thailand to navigate the complexities of contemporary life. As Sea Nomads transition onward as a sedentarised group, they exhibit resilience by preserving key elements of their aquapelagic nomadic mentality and customary practices. Unfortunately, this persistence often conflicts with state-centric conservation frameworks (e.g., marine national parks, no-take zones/areas, etc.) that overlook the sustainability of traditional resource management. The study has highlighted a disconnect between top-down governance and community practices, marginalising Sea Nomad ecological knowledge within marine governance.

As sedentarisation progresses, challenges such as resource overuse and exploitation, intercultural tensions with land-based communities and issues of distributional justice arise.

Sea Nomads face cultural erosion, identity crises and diminished autonomy as economic development and globalisation undermine traditional livelihoods and spiritual ties to the sea. This underscores the need for a paradigm shift in marine governance that prioritises culturally sensitive, rights-based and participatory approaches. Integrating traditional ecological knowledge and adaptive strategies into contemporary conservation is essential for promoting resilient and sustainable futures for both sea nomad communities and their marine environments.

Our research has investigated how the nomadic mentality of Sea Nomads can be differentiated from how they interpret strong ties beyond their seasonal fishing movements or temporary shelters after settling onshore. The spiritual bond with the sea based on knowledge and values that remain in the settled generation shows that their aquapelagic identity is still incorporated in this contemporary world. It is just that the form is different, with various transition challenges and is mainly considered as a threat by land-based oriented marine governance. In the broader context, this nomadic mentality is pivotal within the broader dynamics of livelihood, identity, fluid territory and governance. It is a critical resource in navigating livelihood metamorphoses, qualifying adaptability and resourcefulness in response to economic and environmental changes. Livelihood (co)creation based on those practices, skills, and knowledge related to marine resources for sea nomads can be adapted to many contemporary development forms such as tourism, community-based conservation models, or other co-management possibilities from their traditional ecological knowledge.

This nomadic mentality, while central to their cultural identity, can impede adaptation to sedentary economies. The inherent self-sufficiency and fluid perception of time characteristic of nomadic communities often clash with the rigid structures of wage labour and the values of consumer-driven societies. This economic friction can lead Sea Nomads to prioritise immediate-gratification economic drives, potentially subordinating their efforts to assert rights and integrate traditional knowledge into existing governance systems. Identity transformations arise as reliance on nomadic practices diminishes, raising questions about maintaining distinct cultural identities amidst sedentarisation. Lastly, existing marine governance structures often inadequately accommodate nomadic practices in all forms, necessitating a reassessment of policies to effectively support the Sea Nomads during transitions. It is also necessary to explore further how Sea Nomads view the justification of sea commons within maritime cultural contexts that are distinct from land commons in order to enhance the situated marine governance framework.

Acknowledgments

Research for this article was supported by The Research Unit on Indigenous Peoples and Development Alternatives, Chulalongkorn University Social Research Institute for NA and WA, and the Center of Excellence on Migration and Development, Asian Research Center for Migration, The Institute of Asian Studies and The Second Century Fund (C2F), Chulalongkorn University for the post-doctoral fellowship for WA and NT. The authors wish to thank all the key informants from nomadic sea communities in Indonesia (Orang Suku Laut and Sama-Bajau) and Thailand (Urak Lawoi and Moken) for providing valuable information in this research.

REFERENCES

Acciaioli, G., Brunt, H. & Clifton, J. (2017). Foreigners everywhere, nationals nowhere: Exclusion, irregularity, and invisibility of stateless Bajau Laut in Eastern Sabah, Malaysia. *Journal of Immigrant and Refugee Studies*, *15*(3), 232-249.

Agrawal, A. (1995). Dismantling the divide between Indigenous and scientific knowledge. *Development and Change*, *26*(3), 413-439.

Ahmad Wani, K. & Ariana, L. (2018). Impact of climate change on indigenous people and adaptive capacity of Bajo Tribe, Indonesia. *Environmental Claims Journal*, *30*(4), 302-313.

Ahmed, S., Iqbal, Z. & Antahal, P.C. (2023). Impact of climate change on nomadic herders' livelihoods: Evidence from Bakarwal community in the Western Himalayas in India. *Environmental Development*, *48*.

Andal, A. G. (2023). Nomadic boat-dwelling children of Southeast Asia: Discourses on the Sama-Bajau children and implications on decentring child migration studies. *Children and Society 39* (3), 652-658.

Andaya, B. W. (2019). Recording the past of "peoples without history": Southeast Asia's sea nomads. *Asian Review*, *32*(1), 5-33.

Ariando, W. (2018). *Traditional ecological knowledge of indigenous peoples on climate change adaptation: A case study of sea nomads Orang Suku Laut, Lingga Regency, Riau Islands Province, Indonesia.* Chulalongkorn University (Thesis), Bangkok.

Ariando, W. & Arunotai, N. (2022). The Bajau as a left-behind group in the context of coastal and marine co-management system in Indonesia. *Journal of Marine and Island Cultures*, *11*(1).

Ariando, W. & Limjirakan, S. (2019). Traditional ecological knowledge of Indonesian Sea Nomads "Orang Suku Laut" on climate change adaptation. *Natural Resource Management* 5th EnvironmentAsia International Conference, Chiang Mai, Thailand.

Ariando, W., Manan, A., Coulson, J. & Arunotai, N. (2023). Institutional complexity around locally managed marine area: A situation analysis of 'the bajau' sea oriented communities in Wakatobi. *International Journal of Conservation Science*, *14*(2), 731-752.

Ariando, W., Veda Santiaji, I.W. & Arunotai, N. (2023). The transition of co-management practices in a marine protected area: A view from the Bajau seafaring nomadic community in Indonesia. *Ecology, Environment and Conservation*, *29*(01), 17-23.

Arunotai, N. (2006a). Moken traditional knowledge: An unrecognised form of natural resources management and conservation. *International Social Science Journal*, *58*(187), 139-150.

Arunotai, N. (2006b). Traditional Knowledge as a cultural heritage that can contribute to future risk management strategies - Some remarks from the Moken community of the Surin Islands, Phang-nga Province, Thailand. International Disaster Reduction Conference, Davos, Switzerland.

Arunotai, N. (2008). Saved by an old legend and a keen observation: The case of Moken Sea Nomads in Thailand. *Indigenous Knowledge for Disaster Risk Reduction: Good Practices and Lessons Learned from Experiences in the Asia-Pacific Region*. UN/ISDR Asia Pacific, 73-78.

Arunotai, N. (2017). "Hopeless at sea, landless on shore": Contextualising the Sea Nomads' dilemma in Thailand. In A. Gingrich & G. Hazod (Eds.), *AAS Working Papers in Social Anthropology, 31*, 1-27.

Arunotai, N., Pombejra, P.N. & Buntowtook, J. (2008). Additional and alternative occupations for the Urak Lawoi Sea Nomads of Phuket, Thailand. In Obura, D.,

Tamelander, J. & Linden, O. (Eds.), *Coastal oceans research and revelopment in the Indian Ocean/Sida-SAREC* (pp. 357-359). CORDIO Status Report: Bangkok.

Ban, N.C., Picard, C.R., & Vincent, A.C. (2009). Comparing and integrating community-based and science-based approaches to prioritizing marine areas for protection. *Conservation Biology*, *23*(4), 899-910.

Bellina, B., Blench, R. & Galipaud, J.-C. (2021). Sea Nomadism from the past to the present. In B. Bellina, R. Blench, & J.-C. Galipaud (Eds.), *Sea Nomads of Southeast Asia: From the Past to the Present* (pp. 1-27). National University of Singapore Press.

Bennett, N.J., Dearden, P., Murray, G. & Kadfak, A. (2014). The capacity to adapt?: Communities in a changing climate, environment, and economy on the northern Andaman coast of Thailand. *Ecology and Society*, *19*(2).

Berkes, F. (2006). From community-based resource management to complex systems: The scale issue and marine commons. *Ecology and Society*, *11*(1).

Blythe, J. L., Armitage, D., Bennett, N.J. et al, (2021). The politics of ocean governance transformations. *Frontiers in Marine Science*, *8*, 634718.

Cheva-Isarakul, J. & Sperfeldt, C. (2023). Citizenship and statelessness among mobile maritime populations: The case of the Moken in Thailand. *Citizenship Studies*, *27*(4), 530-547.

Chou, C. (1997). Contesting the tenure of territoriality: The Orang Suku Laut. *Bijdragen tot de Taal-, Land- en Volkenkunde*, *153*(4), 605-629.

Chou, C. (2003). *Indonesian Sea Nomads: Money magic, and fear of the Orang Suku Laut*. Routledge Curzon.

Chou, C. (2010). *The Orang Suku Laut of Riau, Indonesia: The inalienable gift of territory*. Routledge.

Chou, C. (2013). Space, movement and place: The sea nomads. In S. Chandra & H. P. Ray (Eds.), *The sea, identity and history: From the Bay of Bengal to the South China Sea* (pp. 41-66). Manohar.

Chou, C. (2016). The water world of the Orang Suku Laut in Southeast Asia. *TRaNS: Trans - Regional and -National Studies of Southeast Asia*, *4*(2), 265-282.

Chuenpagdee, R. (2011). Interactive governance for marine conservation: An illustration. *Bulletin of Marine Science*, *87*(2), 197-211.

Clifton, J. & Majors, C. (2012). Culture, conservation, and conflict: Perspectives on marine protection among the Bajau of Southeast Asia. *Society and Natural Resources*, *25*(7), 716-725.

Connell, J. (2018). Islands: Balancing development and sustainability? *Environmental Conservation*, *45*(2), 111-124.

Coral Triangle Atlas. (2025). The Coral Triangle. http://ctatlas.coraltriangleinitiative.org/About

D'Andrea, A. (2006). Neo-Nomadism: A theory of post-identitarian mobility in the global age. *Mobilities*, *1*(1), 95-119.

Dyson-Hudson, N. (1972). The study of nomads. *Journal of Asian and African studies*, *7*(1-2), 2-29.

Fabinyi, M., Belton, B., Dressler, W.H. et al. (2022). Coastal transitions: Small-scale fisheries, livelihoods, and maritime zone developments in Southeast Asia. *Journal of Rural Studies*, *91*, 184-194.

Firdaus, L.N., Ma'ruf, R., Elmustian, E. et al. (2019). Traditional ecological knowledge on mangrove ecosystem utilization: Learning from Orang Suku Laut Kongky Strait, Lingga. *Journal of Educational Sciences*, *3*(3), 328-339

Gibbs, M. T. (2009). Resilience: What is it and what does it mean for marine policymakers? *Marine Policy*, *33*(2), 322-331.

Gregg, C.E., Houghton, B.F., Paton, D. et al (2006). Natural warning signs of tsunamis: Human sensory experience and response to the 2004 Great Sumatra Earthquake and Tsunami in Thailand. *Earthquake Spectra*, *22*(3), 671-691.

Haris, O. K., Syahbudin, S., & Yunus, A. (2019). Legal existence of local wisdom for Bajo Fishery Tribe on Indonesian maritime border. *Hasanuddin Law Review*, *5*(1), 41-54.

Hayfield, E.A., & Pristed Nielsen, H. (2022). Belonging in an aquapelago: Island mobilities and emotions. *Island Studies Journal*, *17*(2), 192-213.

Hayward, P. (2012). Aquapelagos and aquapelagic assemblages. *Shima: The International Journal of Research into Island Cultures*, *6*(1), 1-11.

Hayward, P. (2025). Aquapelagos: An ontology of integrated aquatic and terrestrial assemblages. In P. Hayward, & M. Joseph (Eds), *Aquapelagos* (pp. 1-21). Routledge.

Hoogervorst, T.G. (2012). Ethnicity and aquatic lifestyles: Exploring Southeast Asia's past and present seascapes. *Water History*, *4*(3), 245-265.

Ilardo, M.A., Moltke, I., Korneliussen, T. S et al. (2018). Physiological and genetic adaptations to diving in sea nomads. *Cell*, *173*(3), 569-580.

Jubilado, R.C. (2010). On cultural fluidity: The Sama-Bajau of the Sulu-Sulawesi Seas. *Kunapipi*, *32*(1), 89-101.

Kramer, D.B., Stevens, K., Williams, N.E. et al. (2017). Coastal livelihood transitions under globalization with implications for trans-ecosystem interactions. *PLoS One*, *12*(10), e0186683

Lapian, A. B. (2009). *Orang Laut, Bajak Laut, Raja Laut: Sejarah Kawasan Laut Sulawesi Abad XIX*. Komunitas Bambu.

Lenhart, L. (1995). Recent research on Southeast Asian sea nomads. *Nomadic Peoples*, *36*(37), 245-260.

Lenhart, L. (1997). Orang Suku Laut ethnicity and acculturation. *Bijdragen tot de Taal-, Land- en Volkenkunde*, *153*(4), 577-604.

Liu, H. (2017). The right to be nomadic? Freedom of movement in the aspect of Mokens. *Assumption University Law Journal*, *8*(1), 107-122.

Lowe, C. (2003). The magic of place: Sama at sea and on land in Sulawesi, Indonesia. *Bijdragen tot de Taal-, Land- en Volkenkunde*, *159*(1), 25.

Madlan, L.B., Seok, C.B., Mutang, J.A. et al. (2014). The prejudice of Bajau: From own and others ethnic perspective: A preliminary study in Sabah. *International Journal of Information and Education Technology*, *4*(3), 244-248.

Maglana, M. C. (2016). Understanding identity and diaspora: The case of the Sama-Bajau of maritime Southeast Asia. *Jurnal Sejarah Citra Lekha*, *1*(2), 71-80.

Cooke, F, M. & Johari, S. (2019). Positioning of Murut and Bajau identities in state forest reserves and marine parks in Sabah, East Malaysia. *Journal of Southeast Asian Studies*, 50(1), 129-149.

Marlina, M., Sumarmi, S., Astina, I.K., & Susilo, S. (2020). Social-economic adaptation strategies of Bajo Mola fishers in Wakatobi National Park. *GeoJournal of Tourism and Geosites*, *34*(1), 14-19.

McDuie-Ra, D., Robinson, D. & Kaewmahanin, J. (2013). Spatial dysfunction in post-tsunami Baan Lion: Taking the Moken beyond vulnerability and tradition. *Geoforum*, *48*, 145-155.

Muhl, E.-K., Armitage, D., Anderson, K. et al. (2023). Transitioning toward "deep" knowledge co-production in coastal and marine systems: examining the interplay among governance, power, and knowledge. *Ecology and Society*, *28*(4), 1-18.

Nagatsu, K. (2017). Maritime diaspora and creolization: Genealogy of the Sama-Bajau in Insular Southeast Asia. *Senri Ethnological Studies 95*, 11, 35-64.

Nelson, D.R., Adger, W.N. & Brown, K. (2007). Adaptation to environmental change: Contributions of a resilience framework. *Annual Review of Environment and Resources*, *32*(1), 395-419.

Parsons, M., Taylor, L. & Crease, R. (2021). Indigenous environmental justice within marine ecosystems: A systematic review of the literature on Indigenous peoples' involvement in marine governance and management. *Sustainability*, *13*(8), 4217.

Peters, K. (2020). The territories of governance: Unpacking the ontologies and geophilosophies of fixed to flexible ocean management, and beyond. *Philosophical Transactions of the Royal Society of London B*, *375* (1814), 20190458.

Pomeroy, R.S. (1995). Community-based and co-management institutions for sustainable coastal fisheries management in Southeast Asia. *Ocean and Coastal Management*, *27*(3), 143-162.

Robinson, D.F. & Drozdzewski, D. (2015). Hybrid identities: Juxtaposing multiple identities against the 'authentic' Moken. *Identities*, *23*(5), 536-554.

Salzman, P. C. (1983). The psychology of nomads. *Nomadic Peoples*, *12*, 48-55.

Sargar, S. (2022). Movement and mentality: Exploring the Lives of nomadic tribes. In D. Mishra & S.R. Samanta (Eds.) *Digitalization of culture through technology* (pp. 303-309). Routledge.

Sarlagtay, M.O. (2004). Mongolia: Managing the transition from nomadic to settled culture. In J.G Rolfe (Eds.) *The Asia-Pacific: A region in transition* (pp. 323-334). Asia-Pacific Center for Security Studies.

Sather, C. (1995). Sea nomads and rainforest hunter-gatherers: Foraging adaptations in the Indo-Malaysian archipelago. In P. Bellwood, J.J. Fox, & D. Tryon (Eds.), *The Austronesians: Historical and comparative perspectives* (pp. 245-285). Australian National University Press.

Scott, J. C. (2020). *Seeing like a state: How certain schemes to improve the human condition have failed*. Yale University Press:

Shepherd, S. & Terry, A. (2004). The role of indigenous communities in natural resource management: The Bajau of the Tukangbesi Archipelago, Indonesia. *Geography*, *89*(3), 204-213.

Somiah, V. (2022). The sea is Indigenous 'land' too: Negotiating presence and rights of Indigenous maritime communities in Sabah, Malaysia. *Journal of Social Issues in Southeast Asia*, *37*(1), 85-112.

Sopher, D. E. (1977). *The sea nomads : a study of the maritime boat people of Southeast Asia*. National Museum of Singapore.

Sorenson, E. R. (1993). Sensuality and consciousness: Psychosexual transformation in the Eastern Andaman. *Anthropology of Consciousness*, *4*(4), 1-9.

Stacey, N. (2007). *Boats to burn: Bajo fishing activity in the Australian fishing zone*. Australian National University Press.

Stacey, N. & Allison, E. H. (2019). Sea Nomads: Sama-Bajau mobility, livelihoods, and marine conservation in Southeast Asia. In T. J. King & G. Robinson (Eds.), *At home on the waves: Human habitation of the sea from the Mesolithic to today.* (pp. 309-331). Berghahn Books.

Stacey, N., Steenbergen, D.J., Clifton, J. & Acciaioli, G. (2018). Understanding social wellbeing and values of small-scale fisheries amongst the Sama-Bajau of archipelagic Southeast Asia. In D.s. Johnson, T.G. Acott, S. Stacey & Urquhart, J. (Eds.) *Social Wellbeing and the Values of Small-scale Fisheries: MARE Publication Series 17* (pp. 97-123). Springer Nature.

Stammler, F.M. & Ivanova, A. (2020). From spirits to conspiracy? Nomadic perceptions of climate change, pandemics and disease. *Anthropology Today*, *36*(4), 8-12.

Suhardiman, D., Ariando, W., Adhuri, D. S. & Indrabudi, T. (2025). Bakelam: Sea nomads' knowledge systems and potential building block for living with change. *Political Geography* (*119)*, 103335.

Suzuki, Y. (2015). Finding and creating spaces to dive: Livelihood strategies of the Moken in Thailand's Marine National Park. *Journal of Social Research, 38*(1), 35-87.

Tadjuddah, M., Wianti, N.I., La Ola, T. (2022). Structural modeling of Sama Bajo fishers social resilience in a marine national park. *Modeling Earth Systems and Environment, 9(1),* 1051-1067.

Thrush, S.F., Lewis, N., Le Heron, R. et al. (2016). Addressing surprise and uncertain futures in marine science, marine governance, and society. *Ecology and Society*, *21*(2) 44.

Tugjamba, N., Walkerden, G. & Miller, F. (2021). Adaptation strategies of nomadic herders in northeast Mongolia: Climate, globalisation and traditional knowledge. *Local Environment*, *26*(4), 411-430.

United Nations Office for Disaster Risk Reduction (2011, August 9). The wave that eats people: The value of Indigenous knowledge for disaster risk reduction. https://www.undrr.org/news/wave-eats-people-value-indigenous-knowledge-disaster-risk-reduction

Wattano, S., Kerdpunya, K., Keawphanuk, P. et al. (2023). An epidemiological survey of intestinal parasitic infection and the socioeconomic status of the ethnic minority people of Moken and Orang Laut. *Tropical Medicine and Infectious Dis*orders *8-3*(161), 1-15.

Wianti, N. I., Dharmawan, A. H. & Kinseng, R. (2012). Kapitalisme Lokal Suku Bajo] *Sodality: Jurnal Sosiologi Pedesaan*, *6*(1), 35-56.

Wongbusarakum, S. (2007). *The Urak Lawoi' of the Adang Archipelago, Thailand*. UNESCO.

Zainuddin, M.F. (2023). When tradition meets modernity: The adaptation of Bajau community in Malaysia amidst sociocultural transformation. *Journal of Contemporary Rituals and Traditions*, *1*(1), 1-10.