Bakelam: sea nomads' knowledge systems and potential building block for living with change

Suhardiman, D.; Ariando, W.; Adhuri, D.S.; Indrabudi, T.

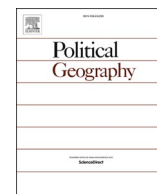**Note:** To cite this publication please use the final published version (if applicable).

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Bakelam: Sea nomads' knowledge systems and potential building block for living with change

Diana Suhardiman [a,*], Wengki Ariando [b] , Dedi Adhuri Supriadi [b] , Terry Indrabudi [b]

[a] *KITLV/Royal Netherlands Institute of Southeast Asian and Caribbean Studies, Natural Resource Governance, Climate and Equity, Leiden University, the Netherlands*
[b] *Research Center for Society and Culture, National Research and Innovation Agency (BRIN), Jakarta, Indonesia*

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ABSTRACT

This paper looks at one of the sea nomads groups, namely Orang Suku Laut (OSL), focusing on their knowledge systems, cultural values, and agency, manifested in the *Bakelam* nomadic tradition. It highlights how *Bakelam* serves as both a cultural continuum and space for knowledge (re)production for OSL's livelihood (re)making. Taking the Lingga Archipelago in Riau Islands Province, Indonesia, as a case study, the paper centrally puts *Bakelam* as key foundation for OSL's knowledge systems and potential building block for coping and living with changes. Building on existing concepts and scholarly work on territoriality and placing this within the broader context of indigenous movements and marine resource governance, we present the conceptualization of fluid territory as a resemblance of OSL's life philosophy, governing structure, and rules shaping, while navigating through the seascapes and landscapes. We argue that understanding the (re)shaping of these fluid territories is crucial for rethinking existing approaches to marine governance.

1. Introduction

Marine ecosystems and governance in the Anthropocene have been characterized by a rapid decline in marine resources due to overfishing, environmental degradation caused by extractive industries including mining, global fishing industries, and (mass) tourism (Aswani et al., 2017; Butcher, 2004; Gattuso et al., 2015; Hoegh-Guldberg et al., 2007; Richmond et al., 2007). Scholars have brought to light various elements impeding past and present efforts for sustainable marine resource governance, ranging from coastal grabbing, sectoral egoism, to elite capture, and how these are embedded in the developmentalist state's interest and view of seascapes as something that needs to be modernized and developed to contribute to the country's economic growth, and thus as part of its national development projects (Adhuri, 2013; Levine et al., 2015). For Indonesia, Talib et al. (2022) highlight how path dependence of contemporary marine governance institutions helps facilitate the practice of resource capture in Indonesia, as these institutions continue to support extractive land-based economic activities, later translated into overexploitation of marine resources.

Marine resource governance policy agenda is driven by national/global policymakers and neoliberalism development agenda setting, often without connection to grassroots actors and multiple realities on the ground, leading to further marginalization of local communities and ineffective conservation efforts (Clifton et al., 2014; Song et al., 2020). This scalar disconnect (Suhardiman et al., 2012) is most apparent from how current discourse on marine resource governance centers on two key external drivers of change: 1) the state's development interest to expropriate marine resources for national economic development (Bennett et al., 2015; Rochwulaningsih et al., 2019) and 2) conservation and nature protection efforts to preserve marine resources, often framed in isolation from local communities' livelihoods (Acciaioli et al., 2017; Ferse et al., 2010). In Indonesia and elsewhere in Southeast Asia and the Global South, marine protected areas have been established without involving local communities in meaningful ways. Local communities' views and perceptions on how protected areas would mean in relation to their livelihoods are hardly incorporated in decision-making processes (Stacey & Allison, 2019). In the context of Orang Suku Laut (OSL) and sea nomads more generally, marine protected areas have impacted their ability to move at sea, limiting their spaces for movements and access to resources at sea and land, if not impeding their livelihoods altogether (Acciaioli et al., 2017; Chatty & Colchester, 2002; Lele et al., 2010; Tagliacozzo, 2009).

This paper looks at marine resource governance from the perspective of indigenous movements and territories of life (Martinez-Alier, 2002; Martinez-Alier et al., 2014; Scholsberg, 2007). For centuries, the sea nomads (OSL) have moved and navigated through their territories (Chou, 2003, 2010, 2016), making the seascapes their ancestral domains (Andaya, 1975; Bérénice et al., 2019; Sopher, 1977). Nonetheless, in the context of present-day nation state political landscape and power configuration, they are often excluded from the state's policy making and are incapacitated to exercise their territorial customary rights to object on development projects that would negatively impact their livelihoods. We argue that recentering the role of sea nomads in marine resource governance is pertinent. Understanding OSL's movements, livelihood pathways, and how they navigate the seascapes and landscapes is crucial for marine resource governance (Agrawal & Gibson, 1999; Horstmann & Wadley, 2006; West, Igoe, & Brockington, 2006). We argue that these movements and livelihood pathways represent the sheer embodiment of indigenous people's knowledge, culture, and agency as one of the building blocks if not key foundation for marine resource governance. Moreover, such movements show how sea nomads' livelihood options and strategies form an integral part of marine resource governance. Focusing on the OSL's knowledge systems and cultural values, manifested in *Bakelam* nomadic tradition, the paper positions the role of *Bakelam*[1] as OSL's cultural continuum, networks-based arena for knowledge (re)production and livelihood (re)making. It also underscores the significance of place-based knowledge in OSL's strategies for adapting to changes (Chou, 2024).

Bakelam or *Bekelam* is an hereditary nomadic tradition rooted in long-established historical network (Rohmatunisa, 2022), where OSL would travel together in a group (so-called *Sampan Kajang* group) based on kinship relations with duration ranging from a couple of days to several weeks and months. In its literal definition, *Bakelam* is a combination of two words: "Ba-" meaning to -do something, and "-*Kelam*" referring to -overnight fishing. "*Kelam*" is a general Malay word recognized in the Great Dictionary of the Indonesian Language,[2] which translates to -*rather dark*; *less bright*; *gloomy*-. The local Malay community in Riau Islands uses the term *Bakelam* to describe an activity that involves spending the night searching for marine products, such as fishing and netting. This practice is typically temporary and often requires traveling a considerable distance from their homes, sometimes crossing the sea, necessitating an overnight stay.

In the context of the OSL today, *Bakelam* extends beyond its literal meaning in the general Malay community. There are three understanding associated with *Bakelam* for OSL. The *first* is as a livelihood; through *Bakelam*, they can earn varying incomes and gain insight into market prices for their catches. The *second* meaning pertains to cultural activities. As a community of former nomadic seafarers, their culture is expressed through their activities and the spaces they visit and inhabit. The *Bakelam* routes are intertwined with the knowledge they possess at each waypoint, which is specific to their kinship group. The *third* meaning involves the relationship between humans and non-humans. Engaging in *Bakelam* serves as a time for stress relief, freedom, family gatherings, recreational activity, reflection on maritime spirits, and an educational experience for their young generation. Participating in *Bakelam* symbolizes their return to an infinite world that sharpens their survival skills and situated traditional knowledge. The interplay of these three philosophies manifests in the preparations made before, during, and after *Bakelam*. OSL carefully consider the areas they will visit and allows 'space' for adjustments. They believe that if their ancestors at sea

have a plan, then they cannot dictate the course of *Bakelam* themselves. It was shown in the case of delivering baby during *Bakelam*[3] as well. Each *Bakelam* process is seen as a journey that showcases their culture, spirit, and adaptability to changes, positioning them as having a peripheral role in their environment.

Furthermore, *Bakelam* can be understood in multiple ways: as a governing system, a social institution, a socio-spiritual-physical territory, but most importantly a cultural continuum, a way of life, a life philosophy, and a space for knowledge sharing, exchanges, and (re) production. Unlike formal fishing territory, *Bakelam* routes do not have fixed boundaries. *Bakelam* is highly dynamic, reflecting the complexity of the seascapes, their connection with the landscapes, and integrating indigenous ecological knowledge, livelihood pathways, and OSL's agency to continuously adapt and living with internal and external drivers of change.

Positioning and conceptualizing *Bakelam* as 'territories of life', a *Bakelam* territory may contain several different segments of livelihood routes, including fishing routes along areas of good fishing grounds, areas where income generating activities such as charcoal production (*Dapur Arang*[4]) is located, places to find shelter (e.g. mangroves and straits), and places where OSL would collect other resources (e.g. wood to build their *Sampan Kajang*[5] and *Saphaw*,[6] plants for herbal medicine, freshwater). While on *Bakelam*, a *Sampan Kajang* group would move from one place to another, while (re)making their livelihoods. Each group would follow their *Bakelam* routes, inherited from their ancestors. While a *Sampan Kajang* group can be connected to another *Sampan Kajang* group through inter-kinship marriages, each group would usually stick to the routes the group inherit. *Bakelam* route comprises also a spiritual territory and spiritual relations, from whom the person wishing to exploit the area (fishing ground or hunting area) must ask permission of the spirits that live in the areas through a series of rituals.

This paper investigates the evolving meanings and transformations of the term *Bakelam*, particularly in relation to the nomadic activities and life philosophy of the OSL. It examines how interpretations and usages of the term *Bakelam* have become increasingly integrated with its literal significance within the broader Malay context. In addition, there

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[1] Also referred to as *Bekajang*, it involves using *Sampan Kajang* (traditional boat) for a nomadic tradition. The term *Bekajang* is an exonym used by islanders.

[2] Great Dictionary of the Indonesian Language - *Kamus Besar Bahasa Indonsia* (KBBI). Retrieved from https://kbbi.web.id/kelam. In KBBI the *Kelam* also mean that -*everything that is less bright must be investigated carefully*-"

[3] In December 2018, the second author documented *Bakelam's* activities for three weeks and witnessed a woman giving birth on a boat during *Bakelam*. According to the group leader of *Bakelam* (Poase), giving birth during *Bakelam* is a way of directly introducing the baby to the sea and land spirit. If the spirits bless the baby, the baby will grow strong enough to participate in *Bakelam* and become a stronger OSL descendant. However, if the baby is not strong enough (dies), the spirit may take it. The OSL parent must leave (bury) the baby in the nearest land area during *Bakelam*. According to Mak Edi, 80 years old women elder and midwife, Kongki Strait (Interview, June 2024) "*nearly all OSL children born after 1980 were delivered on a sampan, either during Bakelam or after the families had settled*". In several areas of the OSL village, this practice of giving birth during *Bakelam* has evolved to occur on a *Sampan Kajang* located beneath their stilt houses above the sea. However, this tradition is now declining due to restrictions and opposition from health workers who advocate for births to take place in homes.

[4] *Dapur Arang* literally translates as Kitchen (*dapur*) and Charcoal (*arang*), or in the local Malay language, it is called *Panglong*. *Dapur Arang* is a construction for burning logwood to become charcoal, and it is shaped like a semicircular mound. This industry entered the Lingga Archipelagos in 1953 and stopped due to the land use moratorium in 2007. In Lingga Regency, this charcoal kitchen business came back after receiving special permit from local government to operate in 2009 and was under the management of a formal Cooperative. This cooperative houses 27 *Dapur Arang* sites, of which 15 are located in and around the OSL village. The operation of this *Dapur Arang* formally re-stopped in 2023 by central government, and until fieldwork in June 2024, the cooperative's permit had not been continued.

[5] *Sampan Kajang* is the traditional boathouse of the OSL.

[6] *Saphaw* is a temporary stilt house of the OSL used for storage their fishing stuffs and overstay during specific seasons when sea conditions are not suited for fishing.

are no historical records that specifically detail the OSL term related to their nomadic activities, as these practices have traditionally been a fundamental aspect of their identity. However, some Indonesian scholars mentioned the practice of *Bakelam* in their contemporary studies such as Azhari et al. (2020), Yati et al. (2022), and Haria et al. (2024). During our fieldwork in Lingga, OSL refer to their semi-nomadic practices during specific seasons as *Bakelam*. Using the justification of *Bakelam* from the past to the present, we highlight the theoretical significance of connecting their nomadic roots to the remnants of seasonal nomadism, with *Bakelam* being the most prominent manifestation of their maritime heritage and adaptive management.

Building on existing concepts and scholarly work on territoriality and placing this within the broader context of indigenous movements, we present fluid territory as a concept that embodies OSL's livelihood strategies to navigate the seascapes while (re)making livelihoods. It illustrates and analyzes how *Bakelam* functions and serves as a networks-based platform and arena for OSL to (re)produce knowledge, both individually within a kinship-based group and collectively, through knowledge exchanges between the different but related kinship groups. During the *Bakelam*, OSL would (re)produce their knowledge about the seascapes (Chou, 2010), including areas for good fishing grounds, area where they could find shelter in time of bad weathers, area that provides them with jobs for additional income, among others. From a policy perspective, the paper puts central the role of place-based knowledge and its manifestations in *Bakelam* as a nomadic tradition and potential building block for rethinking current approaches to marine resource governance including coping with the climate crisis, in particular in the context of sea level rise and small island adaptations.

We conducted in-depth case study research (Yin, 1994) in Lingga Archipelago, Riau Islands province, Indonesia in June 2024. Our research focuses on how local communities shaped and reshaped their *Bakelam* tradition, its implications for the (re)making of their fishing territories, while coping with external drivers of change such as industrial fishing, government's housing program, and sea water level rise. To understand how local communities applied their place-based knowledge systems, how these are manifested in their application of fluid territory, and how these are embedded in their cultural practices, we conducted a series of focus group discussions, followed with group interviews, and in-depth interviews with OSL from Straits of Kongki, Kojong Island, Air Bingkai - Tajur Biru, Kampung Baru – Tajur Biru, Senanggai Pancur, Lipan Island, and Kampung Baru - Sungai Buluh. During this period, we also visited several sites that are incorporated in one *Sampan Kajang* group's *Bakelam* route. To provide another solid foundation for our research, we incorporated ethnographic data from the second author, who has been working on these issues since 2017 until now. The second author has experienced documenting the entire *Bakelam* route from the same group in December 2018. Through our fieldwork and this experience, we have a better grasp of the natural environments, small islands connections and passages, how various households within one group interact and divide their tasks, and how inter-group dynamics unfold when one *Sampan Kajang* group meet other groups.

2. Orang Suku Laut in Lingga Archipelago, Riau Islands Province

The OSL reside across the archipelagos of Indonesia, Malaysia, and Thailand. They are maritime hunters and gatherers who traditionally lived on boats as nomads. Referred to by various exonyms, in Thailand, they are known as *Urak Lawoi* (Sea People); in Malaysia, they are also called 'Orang Laut' which several subgroups such as *Orang Selatar, Orang Duano* and *Orang Kanaq*. The Orang Laut are part of the 'Orang Asli' (Indigenous peoples) of peninsular Malaysia, where they are now included in discussions regarding customary rights. In Indonesia, the OSL are considered landless and have no 'land-based' ancestral domain. They are known by various names, such as *Orang Laut, Orang Akit, Orang Kuala, Orang Selat, Orang Sekak*, and *Wong Laut*, among others, with these exonyms influenced by the dominant language groups

surrounding them.

There are five provinces in Indonesia where the OSL community is located: Riau, Riau Islands, Jambi, Bangka Belitung, and South Sumatera. Although the specific population of the OSL in Indonesia is not officially recorded, it is estimated to be around 30,000 individuals. The OSL lead a nomadic lifestyle characterized by frequent nomadic lifestyle and a deep cultural connection to the sea (Azhari et al., 2020; Chou, 2010). The OSL do not lay claim to specific land territories within the legal framework, but their sense of belonging is deeply tied to coastal regions and waterways (Somiah, 2022). They engage in hunting and gathering activities at sea and on islands, collecting a wide variety of marine resources. On land, they engage in boar and wild animals hunting, tree cutting for boat construction, gathering materials for traditional medicinal purposes and vernacular architecture, and maintaining oral traditions that reflect their deep connection to the land. While the OSL do *Bakelam*, they live in kinship-based families and retain their own ancestral territory and relation to the local communities along their journey.

Despite their historical role in maritime activities dating back to the time of the Malacca and Johor Sultanates and even the Srivijaya Kingdom era, their present relationship with the dominant Malay community has become unequal and exploitative, resembling a patron-client dynamic (Andaya, 2019; Barnard, 2007; Lapian, 2009). During the late of New Order era in Indonesia (1990s), the OSL were coerced by the government to abandon their nomadic way of life and settle in provided housing through the Remote Indigenous Community Development Program – *Program Pemberdayaan Komunitas Adat Terpencil* (PPKAT). Unfortunately, this sedentarization has brought various social, environmental, and economic challenges for the OSL. As they grapple with the loss of traditional knowledge and experience environmental fluxes, the OSL face social and cultural vulnerability, even though they have demonstrated their ability to adapt and utilize their remaining local knowledge to address climate change concerns (Ariando & Limjirakan, 2019; Firdaus et al., 2019).

Lingga Regency, Riau Islands Province, is Southeast Asia's most widespread OSL location. In this regency, there are 32 villages of the OSL (see Fig. 1) of around 4000 people (Ariando & Limjirakan, 2019) with settlement patterns living in the waters, on islands and coasts, and groups still living in *Sampan Kajang*. While this research was conducted, only one *Bakelam* group of OSL lived in boathouses, more or less ten households. This group already has stilt houses provided by the government. Still, they are willful, have a nomadic mentality, and practice transhumance activities following the seasons. During their *Bakelam*, they still actively hunt and gather the resources in the sea, coastal islands, and forest resources. The marine ecology of Lingga Regency consists of small islands primarily covered with dense mangroves and coastlines composed of sand and mud. Currently, the OSL typically inhabit small islands and navigate through the straits between the mangrove forests in the Lingga Islands. Besides the sea, the mangrove forest plays a vital role for OSL as it serves as an environmental buffer and a source of fishing grounds. According to their OSL ancestors, the sea is a playground and a safe place from the threats posed by islanders and hydro-meteorological disasters.

3. Fluid territory (re)shaping sea nomads' knowledge systems

Scholars on territoriality have shown how territories (re)shaping cannot be discussed and analyzed in isolation from socio-political construction of scales (Agnew, 1993; Cox, 1998; Marston, 2000). Scale is central in the (re)shaping of political discourse and arenas for contestations ranging from grassroots strategic alliances shaping to state territorialization strategies (Vandergeest & Peluso, 1995; Lestrelin et al., 2012). As stated by Delaney and Leitner (1997: 93): *"Geographic scale is conceptualized as socially constructed rather than ontologically pre-given, and that the geographic scales constructed are themselves implicated in the constitution of social, economic, and political processes"*. Viewing scale as a
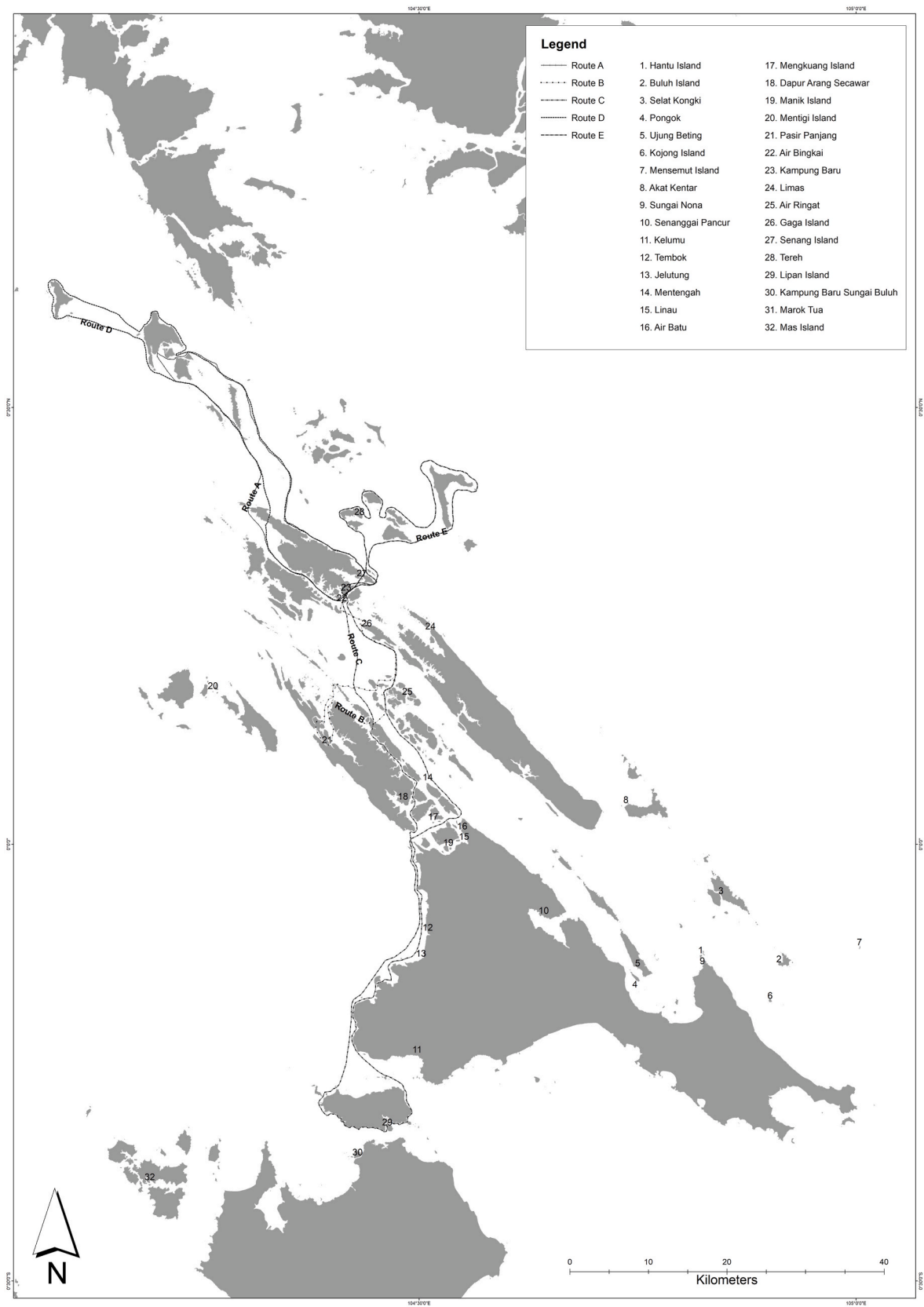
Fig. 1. OSL sites in Lingga Archipelago, Riau Islands Province, Indonesia.

socio-political construct, Harvey (2004) distinguishes three kinds of space: absolute, relative and relational. Absolute space involves what Lefebvre (2009: 171) calls *'material planning'*, or *'quantifiable and measurable'* geographical indicators of distance. Relative space defines sites, situations, routes and regions, illustrating individual movement and mapping spatial relations (Lenhart, 2008). In the context of OSL, relative space is rooted in their *Bakelam* route, embodied by various sites within the route, and their movements at sea. This relative space turns into relational space when OSL relate this route, sites, and movement psychologically, culturally, and spiritually (Kirksey & Helmreich, 2010). Space is therefore, *'neither absolute, relative or relational in itself, but [something that] can become one or all simultaneously depending on the circumstances'* (Harvey, 2004, p. 3). These circumstances involve subject positions, or actors, who *'permeate'* and *'support'* (Lefebvre, 2009, p. 186) the spatial constructs that designate social interactions.

Placing this idea of relational space in the context of marine resource governance and building on Chou's concept of *'inalienably gift of territory'* (2010), we present the idea of fluid territory as one of the key building blocks to understand OSL's knowledge systems (Suryantini et al., 2022) and use this as a basis for rethinking current approaches in marine resource governance.

According to Chou (2010: 61; 76): *"Territories need not be demarcated by borders or boundaries. Ownership of a territory is expressed and conceived of as a spiritual bond. A territory is not passive. It is imbued with magical, religious and spiritual forces"*. This maritime cosmological perspective is embodied in the way OSL (re)shape their fishing territories, manifested in kinship-based inherited *Bakelam* routes. Created and applied as OSL's livelihood strategies, *Bakelam* routes incorporate key socio-ecological conditions of the seascapes and related landscapes for fishing and livelihood (re)making (e.g. employment opportunities in *Dapur Arang*) and how they change over time.

OSL move around from one place to another while at sea, searching for better fishing grounds and opportunities to improve their livelihoods. While doing this, they do not claim any fishing ground or islands as their fixed territories. On the contrary, OSL will move from one fishing ground to another, marking the route as their fluid territory. Such territory is fluid because: 1) it does not have fixed boundaries, but rather boundaries that are adjustable according to both the group's needs and changing socio-ecological conditions; 2) it changes regarding its chronological orders, duration of stay, frequency of visits; 3) it does not represent fixed and exclusive claim of one group on top of the others; and 4) its boundaries and claims are rooted in informal agreements between all parties involved rather than physical boundaries per se. Here, territory (re)shaping brings to light a new dimension in our understanding of borders and boundaries, as something that is not fixed, but rather fluid as they are co-constructed socio-politically and spiritually. Unlike in the context of swidden agriculture, where communities would rotate from one plot to another plot, before returning to its original plot, for soil regeneration purposes, OSL's territory (re)shaping in *Bakelam* changes this conception of plot from something which is fixed (e.g. it has exact size and location, albeit negotiable in terms of its boundaries), to something that can appear and disappear, dependent on time and various forms of fishing activities. For example, two *Sampan Kajang* groups could fish in the same site, as this site, in this context a large coral, is incorporated in their respective *Bakelam* route. *Sampan Kajang* group A would fish on the site, targeting mostly certain fish species that will stay around the coral. *Sampan Kajang* group B would also fish on the site, by using the coral as part of their fishing cage installation (e.g. to catch squids and lobsters). The fact that both fishing activities could occur at the same time on the same site changes the conception of territory that is absolute, quantifiable, and does not overlap.

Consequently, OSL's fishing territory is not determined by the area one could/not enter, fishing activities one could/not join, but most importantly by one's agreement of the applied rules. Fluid territory refers to series of possible options of fishing routes (as in *Bakelam*) and

possibly overlapping fishing grounds among various *Sampan Kajang* groups connected through inter-kinship marriage relations. It also resembles the solid, yet flexible rules, procedures, and fishing practice embedded in OSL's cultural and belief system. The sea belongs to no one. Hence, everyone should be able to fish at sea serves as the basic key rule in OSL's territories shaping. Here, multiple territories co-exist and form an integral part of the seascape (Boutry et al., 2024). In the context of *Bakelam*, fluid (fishing) territory works among OSL for sharing, adjusting, complying with their respective fishing grounds. These fishing grounds can be overlapping location wise but are informally regulated in terms of duration of fishing and distance or proximity of one fishing ground to another. Fluid territories thus exist as a *'porous network of social relations'* (Massey, 1994, pp. 1–9, p. 21), where one *Sampan Kajang* group's decision-making power and authority to temporarily claim the actual space, they inhabit relate with the way other groups view and use that same place. Here, territory (re)shaping occurs through reinvention of specific space (e.g. a large coral, a fishing ground). This echoes Scott's (2009) work on space and ungovernability, illustrating how spatial relations can be (re)shaped through socio-political negotiations and interactions and how they could serve as entry point to (un)make territory. In the context of the OSL, spatial relations are (re)shaped by socio-political-spiritual relations, in this particular context between various *Sampan Kajang* groups. Moreover, fluid fishing territory is not limited to setting up territory for fishing purposes, but also to integrate various forms of OSL livelihood options and activities. Hence, the conceptualization of territory here refers not only to fishing ground, but also to territory of life in the context of OSL's livelihood pathways. Linking fluid territory with tenure relations, it shows how OSL materialize the conception of bundle of rights through their focus on right of access rather than right of exclusion (Hall, Hirsch, & Li, 2011; Li, 2014; Ribot & Peluso, 2003).

The paper contributes to the wider literature and discourse on territoriality, territories (re)shaping and marine governance in two ways. First, it brings to light the close interlinkages between movements, livelihoods (re)making and territories (re)shaping. Scholars have shown how territories could be created and claimed including when actors jump scales (Glassman, 2002; Swyngedouw, 1997) to exercise their agency in the context of social movements. Here, territoriality is identical with power struggles, as territories shaping is rooted in the act to claim, contest, and reclaim. As in *Bakelam*, territories are viewed and understood beyond arena of contestation, but rather as an integral part of OSL's cultural values and belief system rooted in their way of living while navigating the seascapes. Here, fluid territories serve as cultural continuum and platform for knowledge (re)production and exchanges for livelihood (re)making. OSL's territory shaping resembles their relations with their ancestors, hence their reference to the seascapes as their ancestral territory, among themselves, and the environment at large. The way OSL view territories as fluid, dynamic, ever changing depending on socio-ecological conditions and kinship relations reveals indigenous' ontological framework which places human-nonhuman-environment relations beyond human-nature divide, as an integral part of the seascapes. Second, linking the concept of fluid territory with 'territory of life' (Pimbert & Borrini-Feyerabend, 2019), and placing this within the broader context of environmental governance and social justice movements, it recenters the role of OSL and sea nomads in general as agents of change in marine governance.

4. Unpacking knowledge, culture, and agency in *Bakelam*: an ancient nomadic tradition under threats

Bakelam, as a nomadic tradition serves as one of the key foundations for OSL's knowledge system, cultural continuum and livelihoods (re) making. As shared by Sipir (Lipan Island): *"The origin of Orang Suku Laut is rooted in the Bakelam"* (Interview, June 2024). *Bakelam,* as a cultural heritage, livelihood strategies, and space for knowledge (re)production forms an integral part of OSL's life philosophy. It also reveals and

reflects their massive place-based knowledge while moving from one place to another at the seascapes. Organizationally, it shows how OSL organize themselves mainly through kinship and while relying on collective action within a *Sampan Kajang* group and among multiple groups related by kinships. In the following sub-sections, we will look at *Bakelam* as an integral part of OSL's knowledge systems. This is most apparent from the positioning of: 1) *Bakelam* routes as livelihood pathways; 2) *Bakelam* as a space for knowledge (re)production processes; and 3) *Bakelam* as a way of life, a cultural continuum, upon which their agency is embedded.

4.1. Bakelam routes as OSL's ancestral territories

While moving from one place to another at seascapes, OSL rely on sea routes they inherited from their ancestors. Fishing and livelihood territories of OSL could be considered as ancestral territories, as they inherit information and knowledge about these areas, routes, and place-based characteristics from their ancestors, passed through generations. As a child, every OSL would learn, experience, and memorize these routes, as they went along for a *Bakelam* tradition with their parents and grandparents. Through this experience, they know which places have good fishing grounds, where they could collect some materials from the land (e.g. leaves, woods, herbs, fruits, etcetera) to build their sampan/ boat, for cooking, medicines, among others, where they could find shelters when the sea is choppy, where they could find clean fresh water, where they could hunt for wild pigs and other animals, and where sacred places are located at sea. In brief, these various routes are ingrained in OSL's mental maps, developed through childhood experiences through their adult life. *Bakelam* serves as OSL's knowledge systems in the sense of combining and integrating the different knowledge, skills, insights, and experiences. Here, one gains the knowledge not only through strict sense of learning, but also through experiencing, seeing, and feeling. Rohmatunisa (2022) illustrates how OSL children learn through games based on fishing and other activities they see and experienced while on *Bakelam*. *Bakelam* serves as a space for learning and cross learning inter-generationally, while *Bakelam* routes form an integral part of OSL's knowledge systems.

One of our interview respondents Poase (Tajur Biru) shares five *Bakelam* routes that he uses. These are as follow. The first route is from Tajur Biru to Pulau Abang (where he will stay for 3–4 months while working in *Dapur Arang*) and returns to Tajur Biru. The second route is from Tajur Biru to Pasir Panjang (where he will work for bird nests for 4 months up to 1 year) and returns to Tajur Biru. The third route is from Tajur Biru to Tanjung Kelit (where he will stay for 1–2 days) and continues to Penuba (and stay there for 1 week) before continuing to Kuala Daik and return to Tajur Biru via Tanjung Kelit. The fourth route is from Tajur Biru to Selat Mi (in Petong area) or where he would fish a lot because the area is a good fishing ground and continue to Pulau Abang and return to Tajur Biru. The fifth route is from Tajur Biru to Mensana in Medang Island and continues to Duyung Island and Baru Island before returning to Tajur Biru. Fig. 2 shows various routes belong to Poase's *Sampan Kajang* group.

The first and second routes focus on working opportunities on land to earn additional income from *Dapur* Arang and bird nest works. This shows OSL's connection with the land through working activities with probably Chinese Middlemen or *Towkay*. The fourth route is used when OSL want to focus on fishing and use the products both for home consumption and selling. In the third route, Tanjung Kelit serves as a stopping point where they could rest before they continue their journey to the destination (in this case Penuba) where they will stay longer (1

week) for fishing activities. Each year, Poase's *Sampan Kajang* group would select a different or the same *Bakelam* route depending on what they need (fish, work). Sometimes they need fish to eat and sell but if the weather does not permit, this forces them to find job opportunities elsewhere to generate income to buy their food and other needs instead of generating income from their fishing.[7] These routes are divided into route for working (mostly land-based job) and route for fishing only after OSL resided in Tajur Biru. Prior to this, or when they still roam around the sea continuously with their *Sampan Kajang* group, they would connect these routes one after another, depending on the needs and context. These five routes have Tajur Biru as a starting point and end destination. In the past, however, this starting point and end destinations did not really exist, as they would move from one route to another route while combining various routes when these routes included some common destination point(s).

These various routes should not be seen in isolation from one another, but rather as an interconnected if not all-encompassing knowledge systems about the seascapes and the connected landscapes. Each route serves as an alternative pathway to (re)connect with other routes depending on the needs that arise. Here, the knowledge system is not fixed or limited to the routes alone but more broadly to places that are connected through the different routes. These include trading points as well as places where OSL could find temporary jobs (e.g. in *Dapur Arang*). Put differently, when OSL use a particular route and connect it with another route, they are in fact making and remaking their fishing and livelihood territory while on *Bakelam*. In this way, their fishing and livelihood territories could appear and disappear depending on their decision to take which route(s) through connecting various routes, or continuing in one route, or cutting short one route, etcetera. This process of route remaking occurs during each *Bakelam*. Hence, the *Bakelam* serves as a key element in the knowledge systems because it offers the opportunities to revisit, reconnect, explore for possible new connections in various existing routes, and at the same time, monitor key changes in the existing places and routes (e.g. fish decline, coral conditions, presence of trading places, *Towkay*'s price, resources availability on land, among others). The more OSL do *Bakelam*, the more opportunities they would have to refresh, recharge, and rejuvenate their knowledge about existing routes, place characteristics, and seasonality, through direct updates, information sharing, and exchanges among OSL related through kinships, while also being aware of changes occurring in each of these places dotted in various routes (e.g. fish decline, external interferences such as mining and shrimp farming, abrasion due to sea water level rise, emergence of trading places elsewhere).

When this knowledge system is continuously updated and refreshed, this would serve not only as OSL's reliable point of references (mental encyclopedia of seascapes and the way they experience and travel), but also as comprehensive knowledge maps in terms of alternative routes, pathways where to go to achieve various objectives while also encountering multiple problems and challenges including adapting to climate and other external drivers of change. For example, OSL have place-based knowledge on micrometeorology regarding the movement of sea and ocean currents, wind directions and strengths, and fish movements in specific localities, both historically and at present. This knowledge is key not only for navigating through the seascapes for livelihood (re)making but also for living and coping with hydrometeorological disasters such as sea storms. We argue that OSL's ability to read natural signs and phenomena, such as irregular movements of waves, plays an important role in selecting their *Bakelam* routes, thus bringing to light the element of disaster prevention measures embedded in the *Bakelam*.

Depending on kinship relations, each *Sampan Kajang* group would

Legend

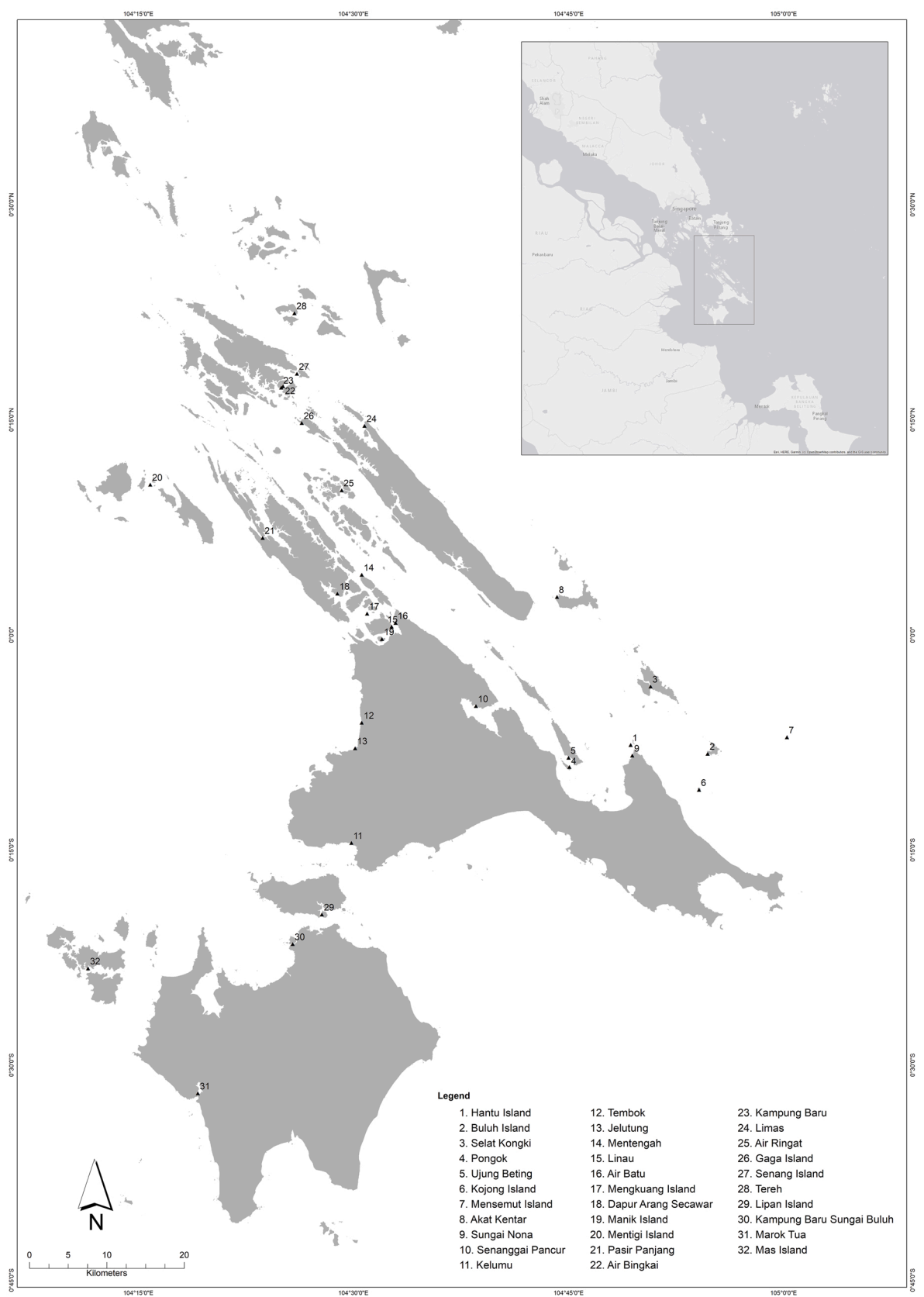|		
1. Hantu Island	12. Tembok	23. Kampung Baru
2. Buluh Island	13. Jelutung	24. Limas
3. Selat Kongki	14. Mentengah	25. Air Ringat
4. Pongok	15. Linau	26. Gaga Island
5. Ujong Beting	16. Air Batu	27. Senang Island
6. Kojong Island	17. Mengkuang Island	28. Tereh
7. Mensemut Island	18. Dapur Arang Secawar	29. Lipan Island
8. Akat Kentar	19. Manik Island	30. Kampung Baru Sungai Buluh
9. Sungai Nona	20. Mentigi Island	31. Marok Tua
10. Senanggai Pancur	21. Pasir Panjang	32. Mas Island
11. Kelumu	22. Air Bingkai	

Fig. 2. Five *Bakelam* routes from Poase's *Sampan Kajang* group.

share some common routes while others will go elsewhere, thus having a different route. For example, Poase's group will often go to Abang Island and Baru Island because these places are excellent fishing grounds. Abang Island has also good source for freshwater. Other OSL from Senang Island and Pasir Gaga will also visit these two places. Here, the two places serve as common area in each group's respective *Bakelam* routes, thus revealing how OSL's ancestral territories are overlapping and partially interconnected with one another. Saleh's *Sampan Kajang* group, on the other hand, would always go to the Dapur Enam Area. When various groups meet in a common place during their *Bakelam*, they will use the place to search for fish and other resources. They will search without determining any boundary for each group. They will keep their *Sampan Kajang* in one part of the area, while searching together in other parts in the same area. During dinner and lunchtime, however, they will return to their respective group. OSL share their ancestral territories with one another, as a place to fish, survive and adapt. They do not apply territory in a strict sense with fixed boundaries, but rather fluid and ever-changing, depending on the context and circumstances, including when they will meet other groups to share or when they would keep the place for their group only, albeit through informal agreement with other groups.

Territories in the context of *Bakelam* routes could appear and disappear depending on kinship relations and networks each *Sampan Kajang* group possessed. Here, fluid territory also resembles how the scope and coverage of the *Bakelam* routes could expand and narrow depending on the decision taken by the group to broaden their *Bakelam* route to incorporate new places and connect the existing routes with the new routes or to shorten or to stick with the existing route, to limit the risks of giving up their access to existing *Bakelam* routes to others who would overpopulate it. For Poase's group, this alternative route and points of destination are merely additional places they could visit due to social relations (e.g. inter-marriage family gatherings). For other groups, this could also serve as alternative routes in the context of severe weather, fish declines, impacts from mining and climatic change, among other challenges the group might face while they are on their own *Bakelam* route. Route connections serve as key foundation in OSL's knowledge systems. Inter-marriages across various kinships could in theory expand *Bakelam* routes and in so doing serves to reduce pressure on particular *Bakelam* route(s).

4.2. Bakelam tradition and practice as cultural continuum for knowledge (re)production

During *Bakelam*, OSL strengthen their knowledge and skills about the seascapes, including their navigation (e.g. the use of *Prapat*[8]) and fishing techniques (e.g. *Nombak*,[9] *Merawai*[10], *Bubu*[11]), extensive knowledge of fish varieties and other sea creatures, among others. As said by Poase: *"Bakelam is an essential part of our life and our livelihood. If you are going on* Bakelam, *this means that you will return with fish and you can then feed your families"* (Interview, June 2024). During *Bakelam*, they would visit other families and relatives. They would share information about the

newest fishing techniques, fishing ground conditions, specific problems related to their residential area (e.g. coastal erosion) as well as about the Chinese *Towkay* networks. Thus, *Bakelam* serves as arena and platform for knowledge sharing and exchanges, where OSL strengthen and update their knowledge about the sea and its surroundings. *Bakelam* is also a space and arena where OSL (re)produce their knowledge within a *Sampan Kajang* group and in relation to other groups, thus both vertically or inter-generationally and horizontally.

Poase's extensive knowledge on various *Sampan Kajang* groups reveal how OSL's knowledge systems comprise of knowledge networks. Such knowledge networks would enable OSL to share, disseminate, and spread information about good or less good fishing grounds, employment opportunities elsewhere (like in the case of *Dapur Arang*), bad or good weather in specific localities, and external threats from extractive fishing industries, mining, and aquaculture (e.g. shrimp farming). Similarly, the same knowledge networks would enable OSL to locate a healer's position and/or people or group who would need the healer's healing service.

OSL's fluid fishing territories incorporated in their *Bakelam* routes serve as a livelihood strategy and mechanism to preserve the seascapes environment. While on *Bakelam*, OSL assess, monitor, define which areas they could return to fish and where not, depending on the socio-ecological conditions of specific corals and fishing grounds. OSL depend on the sea for their livelihoods. Hence, the importance to preserve the sea sustainably by ensuring ecosystem regeneration and reproduction. Preservation in this context differs from conservation and nature protection often promoted by international NGOs and conservation communities in the West in the way that it does not distinguish OSL livelihood as something that takes place outside the realm of conservation efforts. In contrast, from the perspective of OSL, livelihood, conservation and nature protection go hand in hand in their quest to balance the different elements.

Bakelam also serves as cultural continuum for knowledge (re)production processes. During *Bakelam* OSL renew their relations with the seascapes (e.g. fishing ground, corals, small islands, mangrove forests, and sacred places). This is most apparent from how they practice their knowledge while strengthening their relations with certain fish species (e.g. dugong, kamejan fish, among others).

OSL have special relations with certain kind of fish, depending on knowledge they inherited from their ancestors. In order to catch specific fish species, OSL would have to know the behavior and characteristics of the fish very well. Edi knows when Kamejan Fish (*Rhinobatidae* sp.) will come, where, and when is the best time to catch them. As shared by Edi (Kongki Strait): *"Kamejan Fish will come to Bedare Island in March, between the 8*th *and 13*th *day of the month. I know when and where they will come because I know their habits very well. They love to play in the corals and when they are tired from playing, I know where to catch them when they are resting or asleep"* (Interview, June 2024). Similarly, Dugong does not live everywhere. They usually live in places where there are a lot of sea grass because that is dugong's food. These places include Marodong, Tanjung Kemudi, and Tanjung Nyang. dugong will travel at sea, while searching for area with a lot of sea grass. Here, OSL fluid fishing territory implies that such territory is not fixed but ever changing in relation to fish or species movement, in this case dugong.

Most importantly, OSL's fluid fishing territory considers socio-ecological conditions such as coral restoration stages for optimal fish catch and for ecosystem preservation. As shared by Edi: *"If we take good care of the sea, the sea will provide us with what we need"* (Interview, June 2024). Fluid fishing territory takes the sea as its scope and conceptualization of territory, with the objective to explore, identify, and fish in healthy and productive fishing grounds, based on fish or species movements, weather conditions, currents movements (ebb and flow). Conceptually, fluid fishing territory incorporates the sea in its entirety as indicators and parameters to identify good fishing grounds. This way, OSL's fishing is not limited to a certain predefined fixed boundary but takes a different approach to fish only in areas where fish like to play and

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[8] *Prapat* is one of the traditional ecological knowledge of OSL. *Prapat* resembles how OSL internalize their vast spatial knowledge into traditional geographical tool to navigate and locate specific object or area at sea. As experienced navigators, OSL hold detailed mental maps of their cruising grounds, including routes, distances, times, hazards, and safe anchorages. While modern tools like global positioning system and motorized boats are increasingly used, *Prapat* remains significant for cultural maritime identity. It is still practiced, particularly by older generations or in specific contexts of OSL, such as when deciding the routes, docking their boat, or marking the fishing ground.

[9] *Nombak* is spear fishing using the spear (*Tombak*) with various types of gears.

[10] *Merawai* is longline fishing using multiple hooks in one line.

[11] *Bubu* is traditional fishing traps, it is made from bamboo or currently the OSL use wire to make Bubu.

come (e.g. healthy corals) in healthy ecosystem. Thus, rather than seeing sea as an area that can be divided into different fishing areas belong to various groups, fluid fishing territory as a concept and practice provide a new layer to look at sea and fishing, from the perspective of *Sampan Kajang* networks, the respective group's movements while bearing in mind specific coral conditions, fish and species movements, and ecosystem conditions.

OSL's knowledge systems of the seascapes is rooted in their deep connection with the sea. For OSL, fishing is not just an occupation, but a way of life rooted in their belief system and relational view of the sea, as a fishing ground, a cultural continuum, and spiritual space. This is most apparent from the way OSL fish dugong. Catching dugong involves a lengthy preparation starting with cleaning the boat, bathing, and performing certain ritual prior to embark on a journey to spot the dugong. As shared by Nodi: *"Before one goes to catch and kill a dugong, one must clean the sampan with freshwater. One must clean oneself too (e.g. taking a bath with certain herbs such as kulit kayu and some leaves). Once we depart from our home, we will find a place at sea to perform a ritual. Through this ritual we will seek entrance, guidance, and protection from the sea spirits. This is to make sure that we do not offend sea spirits"* (Interview, June 2024). This shows not only OSL's deep connection with dugong, but it also shows how they respect their ancestral (sea) spirits and position the latter as their protector while navigating and (re)making livelihoods at sea. For OSL, fishing does not stand in isolation from their relations with the sea and their ancestral spirits (Elsera et al., 2024; Hill, 1989; Kohn, 2013; Lenhart, 2001). Here, fluid territory emerges from cultural and spiritual connections between OSL and the sea, manifested in specific places and geographies (e.g. fishing grounds, sacred places).

OSL's deep connection with the seascapes is also embedded in various folktales passed through generations through oral tradition. One such folktale is the story about the origin of Lingga Islands. As shared by Poase: *"In the past, there were a husband and wife with their newborn baby (about 2-3 weeks old). At that time, Lingga Islands were not like today, surrounded by many small islands, forming small archipelagos, but rather comprises just only one stone called Bideng Stone. The couple live in their Sampan Kajang near the stone. One day, the wife complained to her husband that life is so boring, because there is nothing she can see or do in the area. It is only her, him and the baby. In her complaints, the wife said the island/stone is so barren, with no forests. Responding to her complaints, the husband took the baby away from her while she was sleeping. He put a spell on the baby and started to chop the baby in many small pieces and spread these pieces away, which later would become Lingga Islands. After he did this, he joined his wife's nap. After they woke up, the wife see the islands and she is happy"* (Interview, June 2024).

This folktale shows how OSL do not distinguish human, non-human, and environment as a separate entity, but rather an integrated whole (Choy et al., 2009; Haraway, 2008; Kohn, 2013; Mullin & Cassidy, 2007). The mother does not miss the baby or feeling sad for losing the baby because in this story the baby is not only transformed into Lingga Archipelago but is embodied in the latter altogether. From this perspective, the mother never lost her baby. On the contrary, the mother is happy because she has her baby in a different but more useful and powerful form, which is Lingga Archipelago. This shows how OSL perceive no difference between themselves (human) and natural landscape they live in. Viewing seascape as a manifestation of knowledge, power relations embedded in cultural and spiritual realms, OSL position themselves as equal towards other non-human (sea creatures, ancestral spirits) and environment (e.g. wind seasons, currents, coral) living in and (re)shaping seascape across spatial temporal scales. In more concrete terms, the folktale reveals the close relations between OSL and Lingga Islands because they consider the latter as their children or coming from their child. Some piece of them is human and now become the islands. Here, the human-nonhuman-environment relations are embedded in the story of the origin and creation of Lingga Islands. The folktale could also be viewed as OSL's way to tell the world and their children that they are one with the sea and the place they live.

Another folktale is a story about a husband and wife, who quarrel and during this quarrel, the wife turned into a dugong. The quarrel started when the wife asked her husband to collect *Setu* Fruit.[12] The husband ignored her, so she went by herself to the water to get the fruit. Before she went, she said to the husband that she would never return because she was angry for being neglected. Once she touched the water, she transformed into a dugong. The way dugong catchers must clean himself and his sampan relate to the folktale of the origin of the Dugong (a woman). Hence, to get attention of the dugong, OSL must clean themselves, so that the dugong (the woman) would recognize them as a man she once related to. Dugong catcher cleans the boat and himself before hunting symbolizes the requirement of a man/husband wanting to catch back a woman/his wife in the form of a dugong. He must make the woman recognize and attracted to him (hence the separation between cleaning the boat with freshwater). He must clean himself too, to be likeable to the woman. And three days after killing a dugong, the man is not allowed to have any relation with women. If he breaks this rule, he will not be able to catch the next dugong. This shows their commitment, albeit brief, to the dugong. OSL perform this ritual and apply the rule in relation to catching dugong as such because they respect the dugong and see it also as their relatives (human being). Nonetheless, this does not stop him from killing the dugong for livelihood purposes. This shows how OSL does not distinct human, non-human, environment as isolated entities but rather as an integrated whole. Here, the boundaries between human and non-human are not distinct but rather blurred as revealed in the folktales of dugong's origins.

4.3. Present-day Bakelam: Coping and living with change

While we are looking at OSL's knowledge system rooted in *Bakelam* and the latter's positioning as a key foundation for the knowledge system in question, it is important to note here that in the past, OSL is always on the move, or on constant *Bakelam*. At present, after they reside initially in their *Saphaw* on some islands, and later in houses, this changes their *Bakelam* practice quite significantly as well. *Firstly*, unlike in the past, their present *Bakelam* has a fixed starting and end point, which is the place they reside. *Secondly*, unlike in the past, their duration and scope of *Bakelam* is presumably shorter and smaller, because their point of reference now is the place they reside, rather than the various points in existing routes of *Bakelam*. *Thirdly*, unlike in the past, because they could go back and forth to the place they reside, they could cut the *Bakelam* routes in different pieces such as one route to focus on fishing and another to focus on other job opportunities (e.g. *Dapur Arang*, bird nest works). Fourthly, unlike in the past, processes of knowledge (re) production are now limited to *Bakelam* period and duration, instead of the whole year long. Consequently, when the period and scope of *Bakelam* is reduced, this also reduces the overall process of knowledge (re)production. For example, when they use to do constant *Bakelam*, they could learn and experience the knowledge about the sea and its surroundings, for example in relation to all different seasons of the year. At present, however, OSL disaggregate these different seasons in various *Bakelam* routes, without necessarily connecting these routes to each other, thus indirectly disintegrating their knowledge systems. Fifthly, unlike in the past, the decision to take which *Bakelam* route is defined by the distance of these places from their places of resident, the price of the specific fish, and religious influences. For example, in the past, as they are in constant movement, they would not mind visiting to fishing ground A instead of fishing ground B, if the first has more or less the same number of fish. At present, if fishing ground A is farther away from home, they might decide to visit fishing ground B instead. Over time, this might result in fishing ground B deteriorating quicker than fishing

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[12] *Setu* refers to seagrass in the OSL and Malay language in Lingga. The types include *Thalassia hemprichii* and *Enhalus acoroides*. The type that OSL eat the fruits of is *Enhalus acoroides*.

ground A. Similarly, their conversion to Christianity obliges them to stay at their residential place during Christmas celebration for example, or even not to be able to do *Bakelam* like before because they are expected to attend the mass.

While present conditions are not altogether conducive for OSL to continue with *Bakelam* as their nomadic tradition, many continue this tradition, albeit with shorter duration and lesser scope of coverage. This continuation is rooted in their cultural values and agency to live freely while exercising their freedom to wander around and in charge for their own life and livelihoods. As shared by one woman (Kongki Strait) *"While on Bakelam, we can be freer, to wander and explore places we have (not) been before, meeting other sampan groups while having closer connection with the nature and the sea"* (Interview, June 2024). Socially and culturally, *Bakelam* practices bring every member of the same sampan group closer to one another, knowing that they would rely on one another, thus strengthening their bonds and affinity for collective action.

In the past, and until now, Poase continues to do *Bakelam* together with his group. However, he complaints that these days, it is hard to go together as many in his group could not go as long as they want, due to some restriction from the Church, Christian priest. In the past, before OSL become Christian, they would go for months on *Bakelam* together with his group (kinship). At present, they must report this to the priest and if they went for a too long period of time, the priest would mention this in the Church meeting. Hence, as it stands now, he could only go to fish in nearby locations, maximum 2 h' drive by boat. His sampan group comprises of four to five *Sampan Kajang*, with five people (including children) in each sampan. In the past, they would go from one place to another, revisiting places they know, and exploring new places, to Tujuh Island, Batam, even Malaysia. At present, they could not go far, mostly visiting Abang Island in Cempa, stayed there for two to three days. He stopped doing long distance *Bakelam* in the past two years. He felt bad if some of the group members (*Anak Buah*) would tell him that they could not go too long because they need to pray in the Church. He does not feel right to force them. This illustration shows how the nomadic tradition of *Bakelam* is under pressure due to external influences, in this context their conversion to Christianity. As OSL are forced to reduce the duration and scope of their *Bakelam*, this will also impact their ability to (re)produce knowledge about the sea, its surroundings and how it matters for their livelihoods.

The OSL contends that the introduction of Christianity in the village occurred only after the post-New Order period in Indonesia. The religious groups consistently support the community, and the presence of a priest/pastor, who offers daily assistance, enhances the OSL's sense of social security. This situation mirrors that of Islam, which had a prior presence in OSL communities. Currently, Islam is the predominant faith among OSL in the Lingga Regency and is associated with the local government's religious framework (Malay Muslim community). During the forced settlement initiative (PPKAT), which included an update of population data process, the local government compelled OSL to identify as a Muslim community, as obtaining the national ID-card required selecting one of the officially recognized religions. This process was executed without their consent, and the low literacy levels among OSL left them with little ability to object. The concepts of religion and its practices are still relatively new to them; for many OSL currently, identifying as Muslim individuals facilitates quicker acceptance within the predominantly Malay islanders. The introduction of officially recognized religions and their influence on mobility has contributed to the decline of the *Bakelam* practice over generations. In several OSL villages, Muslim OSL communities have generally been the first to abandon the *Bakelam* practice.

Unlike in the past, OSL's ancestral fishing territories are under threat from industrial fishing and development projects such as mining, resort building, and shrimp farming. When external actors enter their fishing territories, OSL lack bargaining power to represent their interest as fluid fishing territory does not technically equip them with measures and

principles to exclude others from entering the area in the first place. On the contrary, the fluid fishing territory is rooted in a common understanding among OSL that the sea does not belong to anyone or any group but is a place where everyone could fish. Here, we can see how the collective element conceptualized in fluid fishing territory puts OSL in a disadvantageous position vis-à-vis external actors who come and claim the area as their fishing grounds. Technically and in practice, OSL could ask external actors to move away, when their fishing practices negatively impact OSL's fishing activities. However, unlike among OSL themselves, who might comply with the principle of inclusion and common understanding to adjust and share fishing grounds, external actors do not have to take OSL's concerns into consideration in their fishing activities. This is because they are not part of OSL communities and sometimes have backup from higher up in the government structure. For the latter, they know they could pursue their claim even when any legal rule or collective agreement between all parties involved does not support such a claim. Consequently, a decline of fish catch is already widely experienced, and OSL is being cornered in this discourse. Even when they fish less, this does not mean the coral and fishing ground would regenerate. Here, we can see how OSL lost their decision-making authority and autonomy to govern the sea and marine ecosystem they live in, when more powerful external actors came in and claim the space.

Technically, everyone from Kojong Island can fish wherever they like as long as these areas are not located too closely with the areas where they would like to catch calamari. As shared by Yusup (Kojong Island): *"Once, fisherman from Bintan Island came and fish here. He went together with us to a place that is good for fishing. Later, we found out that this person put the coordinates of the place and put it in his GPS[13] tracker and later share it with everyone. Consequently, the place becomes overcrowded by fishermen from elsewhere and this affects OSL's fish catch"* (Interview, June 2024). This illustration shows how OSL apply fluid territory concept regarding their fishing territory, while keeping the access to the fishing ground open to others, thus applying inclusion rather than exclusion principle. It also shows how the shaping of fluid territory is prone to being misused by outsider when the inclusion principle not only make it impossible for OSL to block access to outsider, but also to enforce its rules, procedures, and practices as per agreement within and among the *Sampan Kajang* group.

Industrial fishing through *Kelong*[14] installation and *Pukat*[15] boat have significantly reduced OSL's fish catch and impacted their movements at sea. As said by Koas (Kojong Island): *"In the past, we could get plenty of fish without having to spend a lot of time fishing. At present, even when we sail for hours at sea, our catch is less. This is because big boats and Kelong installation across the seascapes"* (Interview, June 2024). During our stay in Penaah Village, we witnessed a number of big boats entering the area for fishing. Similarly, throughout our journey in Lingga Archipelago, we see a lot of *Kelong* installation at sea.

Above illustrations show how the shaping of fluid territory is prone to collapse when conflict occurs due to non-application of the commonly agreed rules among OSL themselves. When external actors do not comply with these rules, OSL have little to no mechanisms and proceedings to push for compliance. While informing external actors what they can/not do can be seen as OSL's strategy to enforce the agreed rules, they lack bargaining power to practice such enforcement for at least two reasons. *Firstly*, OSL lack formal legal political back up to enforce such rule effectively in case of violation by external actors who do not live in the area and do not have to comply with cultural and belief systems applied by the OSL. *Secondly*, external actors' connection with powerful actors guarantees not only their access to the fishing ground regardless of whether they follow OSL's commonly agreed rules, but also

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[13] Global Positioning System.
[14] *Kelong* is fixed/floating fishing platform with guide net and lights to catch small fishes in the evening.
[15] *Pukat* is saine net.

their ability to secure this access even when OSL apply possible measures to contest and remove them from it. This reveals existing power asymmetry between OSL and external actors claiming the first's fishing territories. Despite the inter-generational knowledge, cultural relations, fluid fishing territory does not conceptually equipped OSL with the claim they could exercise for sustaining, defending, and (re)producing their fishing territory. Here, the fluid element that makes it possible for various *Sampan Kajang* groups to share their territory disadvantage OSL's position and ability to protect their fishing territory from external actors' interventions and claims.

Bakelam practice as a nomadic tradition plays an important for the sustenance and practice of fluid fishing territory, with the sea as the territory, and thus indirectly influence the scope and degree upon which sustainable fishing could be applied. This highlights the role of fluid fishing territory in sustaining marine ecosystems in the past, and how the latter is now under threat due to internal (conversion of OSL to Islam and Christianity, government's housing program, both resulting in reduced scope and duration of *Bakelam*) and external changes (e.g. arrival of external actors with more intensive fishing equipment and larger boat). At present, however, OSL's ancestral territories are under threat due to uncontrollable industrial fishing, mining, resettlement issues. Similarly, *Bakelam* practices are under threat of extinction as well, with less people doing it, less area coverage, and shorter duration.

5. Rethinking current approaches in marine governance?

Bakelam is not only considered a means of fulfilling subsistence needs but also a method for the OSL to preserve historical traditions, uphold maritime knowledge and skills and foster social connections from the past to the present. The concept of *Bakelam* within the OSL community offers a unique perspective for understanding territory (re)making and reevaluating current marine governance approaches. Commonly known as OSL, *Bakelam* signifies a deep connection to the marine environment and embodies a sustainable way of life that has evolved over centuries. The *Bakelam* system, marked by decentralized decision-making, collective resource management, and strong social bonds, contrasts the top-down, state-centric governance models often utilized in coastal and marine governance. While *Bakelam* safeguards the OSL's freedom to move through space and geographies, through the (re)shaping of spatial relations to (un)make territories, it could also serve as key building block to counterforce state territorialization strategies (Scott, 2009).

Key elements of the *Bakelam* system that can guide contemporary marine governance include: 1) community-centered, rights-based resource governance; 2) central positioning of traditional ecological knowledge as key building block for marine governance; and 3) adaptive governance. In light of the escalating vulnerabilities of small island states to climate change and other global challenges, the *Bakelam* model provides valuable insights for formulating adaptation strategies. Integrating traditional knowledge with modern scientific approaches can cultivate more resilient and sustainable coastal communities.

The *Bakelam* model can specifically contribute to small island adaptation in several ways. Firstly, drawing upon *Bakelam's* expertise in navigating challenging marine conditions can enhance early warning systems and disaster response plans. For example, OSL's knowledge on micro meteorology could contribute to early identification of upcoming disasters. Secondly, advocating for the sustainable use of marine resources, the *Bakelam* model can foster the growth of the blue economy while preserving ecosystems. Unlike industrial fishing, which focuses on increasing fish catch for the purpose of profit, *Bakelam* route emphasizes the need to rotate and move around to sustain healthy fishing grounds in various sites within the route. Thirdly, integrating traditional knowledge about weather patterns, ocean currents, and marine ecosystems can strengthen climate change adaptation strategies. In the context of sea water level rise, for example, OSL would rely on their knowledge from Bakelam to identify places that are prone to floods and select other safer places protected by mangrove. While the *Bakelam* model provides

valuable insights, it is also essential to acknowledge the difficulties of implementing it in contemporary contexts. Factors such as population growth, globalized market economy, top-down government policies, and climate change have significantly altered the marine environment and the livelihoods of coastal communities. While the importance of *Bakelam* as OSL's knowledge system rests upon OSL's ability to preserve their traditions, this urges the need to rethink current approaches in marine governance towards centrally positioning of OSL as agent of change and key actors holding the knowledge over the seascapes as their ancestral territories.

Furthermore, this research contributed to the current debates about the dominant paradigm in marine governance which often relies on fixed boundaries, clearly defined property rights, and a separation between humans and nature. This land-based framework frequently overlooks the dynamic nature of marine ecosystems and the interconnectedness of human societies with these environments. The OSL's relationship with the sea starkly contrasts this paradigm. Their nomadic seafaring lifestyle and resource management practices demonstrate a deep understanding of complex marine dynamics, including seasonal variations, marine creature migration patterns, and the intricate web of ecological relationships. This knowledge, acquired through direct interaction and observation, is embedded within their cultural practices and social structures. It is theoretical and practical, informing their daily activities and ensuring long-term sustainability.

Through *Bakelam*, we unpack the concept of fluid territory of OSL, highlights the limitations of static spatial definitions in governing mobile and dynamic marine environment and governance. The *Bakelam* practices, which involve moving across a wide maritime area, following resources, and adapting to changing conditions, are often criminalized or rendered invisible by (top down) governance systems based on fixed boundaries and exclusive economic zones. The fluid of a private ownership system among the OSL challenges the assumption that resource management requires clearly defined property rights. The OSL communal resource utilization practices, based on shared understanding and customary rules, demonstrate alternative models of marine resource governance that can be both effective and equitable. It could be beneficial to study further how the OSL perceives the sea commons to complete the situated marine governance framework, which differs from the land commons.

CRediT authorship contribution statement

Diana Suhardiman: Writing – original draft, Methodology, Investigation, Formal analysis, Conceptualization. **Wengki Ariando:** Writing – original draft, Project administration, Methodology, Investigation, Data curation. **Dedi Adhuri Supriadi:** Validation, Data curation. **Terry Indrabudi:** Visualization, Investigation, Data curation.

Declaration of competing interest

On behalf of my co-authors, I hereby declare that the information presented in the paper is correct and that no other situation of real, potential or apparent conflict of interest is known to me.

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