

We need to Listen and Watch! Indigenous Knowledge of Living in Concert with the Sea

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ABSTRACT

The topic of this paper hopes to anticipate the discussion about the integration of traditions and sciences to ensure the tangible and intangible cultural heritage of the sea in the sustainable development dialogue now and in the future. In light of the ‘Ocean Decade’, this paper is to realise the potential of indigenous knowledge as an opportunity for ocean literacy and to identify some issues revolving around the risk of losing such ability. There is a wealth of indigenous knowledge we can benefit from. For a long time, Western principles of science have dominated modern society and policy based on their observability, testability, quantifiability and generalisation. There exists a tension between Western epistemology and indigenous worldview. A question is therefore asked: How does indigenous knowledge help create the ocean we want?

Coastal zones are vulnerable to natural disasters, including tsunamis, coastal erosions, storm surges, sea-level rise, and sudden floods. The current international ambition for sustainable marine resource development and improving coastal living quality has unavoidable effects on indigenous living. On several occasions, traditional knowledge has been proven efficient for friendly living with nature and risk reduction. The ability is, however, on the brink of fading away due to external forces (i.e. mass tourism, laws prohibiting the harvesting of forest resources, and an unsupported educational system). No one knows the sea better than those who have lived with and relied upon it.

Keywords: Indigenous Knowledge, Thailand, Ocean Decade

List of Abbreviations

UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
UNESCO	United Nations Educational, Scientific and Cultural Organization

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OUR OCEANS

To celebrate the ‘Ocean Decade’ as an integral part of the UN Sustainable Development Goals (2021-2030), countries and individuals have engaged in schematic discussions worldwide to strengthen international recognition of the ocean's essential importance (Stacy Aguilera-Peterson, Clea Harrelson, and Howe-Kerr 2022). The promotion of the ocean-focused campaign intends to raise a serious concern about the global climate change that has been severely affected by human-induced activities for the past centuries. The ocean is the key component in relieving climate hazards. Ocean science gains priority to facilitate and support the restoration of oceans’ well-being and the resume of a healthy ecosystem. This paper aims to present another side of the coin of ocean science that should be broadly interpreted. H.E. Peter Thomson, the UN Secretary General’s Special Envoy on the Ocean, has drawn our attention to the ‘Indigenous knowledge involved in those ancestral voyages is deeply humbling to those who came after’ (UNESCO 2021). Simultaneously, ‘Marine Cultural Heritage is not simply about archaeology, history, ecology, geography, natural science, coastal management or climate change; it is about all of these

aspects and how societies can come together, negotiate and mediate these different approaches into real solutions' (Henderson 2019).

As learnt from field research in the south of Thailand, it is apparent that the traditional knowledge of shipbuilding, navigation, and sea-dependent living is deep-seated in people's way of living as is transforming (Komoot 2021). It is a fortunate opportunity for the initiative of Ocean Decade to valorise the knowledge and give more significant support to the knowledge holders. The people-centred approach ensures that individual needs are addressed and fulfilled. By this means, it is to protect human rights at the core.

Fundamental Practice of Ocean Exploitation and Protection

The way we use and exploit the ocean today has conceptually developed chiefly by the modern perception of the sea. *Mare Liberum* was proposed by Hugo Grotius, the well-known Dutch naturalist lawyer, in defending the sea lane over the Portuguese in the 17th century (Borschberg 2006). He believed that the sea was so vast that there was no way anyone could claim sovereignty over it. Therefore, the sea should be navigated and exploited freely. However, at the founding stage of the concept, it was contested by the local rulers of Sulawesi and Maluku over the colonial manipulation of the spice routes (Andaya 1981; Stott 2017). The contestation among the colonial powers was also visible. The British lawyers proposed the idea of *Mare Clausum* (closed sea), as opposed to Grotius', to allow the extension of sovereignty during the emergence of the British Empire (e.g. the case of the Bremen fishing negotiation) (Edmond 1995; Grewe 2000). In the 17th century, it was beyond imagination that marine and nautical technologies could advance to our current stage. Today, Grotius' conception of the freedom of the sea is at a crossroads. The wrestling of such concepts is presented even more widely today in international legal discourses.

The UN Law of the Seas 1982 (UNCLOS) inherited the 17th-century concept of the sea and transformed it into a modern legal tool for settling disputes at sea and asserting rights to resource use. It integrates power and economic rationality. In the zones beyond national claims, the Area and the High Seas are free of sovereignty and free to deep-seabed operation, but the maritime community is concerned with the technological exclusiveness of some states that allows unequal exploitation of shared natural resources of humankind (Lothian 2021; Mickelson 2019). The environmental dimension of heritage is a vibrant and decade-long debate by multilateral partners, as resulted in the recent international agreement of the High Sea Treaty. Back in the previous century, there appeared to be little question that the cultural heritage of humankind should be protected and by what legal instrument. UNCLOS provides a vague acknowledgement of cultural heritage in Articles 149 and 303. Still, the implementation needs to be more specific and applicable for a complicated issue when rights are conflicting and commercial exploitation of such heritage is allowed. In 2001, a specialised international Convention Concerning the Protection of Underwater Cultural Heritage was codified and launched by UNESCO. Instead of settling the correct issues over the cultural materials in the UNCLOS, the 2001 Convention aims to combat commercial exploitation, notably 'treasure hunting' (Forrest 2002). The 2001 Convention sets scientific guidelines as standard practice to preserve material culture *in situ* (Manders 2008) and non-negotiable trade of the artefacts. By this law, tangible heritage is a stronghold.

Due to such standards, science focuses more on 'things' than 'peoples'. Indigenous maritime knowledge is not the focus of any of these legal tools. The 2003 Intangible Cultural Heritage Convention provides general guidelines to ensure the maintenance and continuation of traditional knowledge and that indigenous people are recognisable. Nonetheless, all six UNESCO cultural conventions are supervised by different departments, which are not always connected. The operational system of international laws is based on normative practice, often challenging the consensus.

The sphere of cultural heritage is always far more complicated than implementing the 'one size fits all' policy. Indigenous knowledge regarding living with the sea is diverse due to their adaptability to their

nature. The extent of the participation of the maritime community interconnected with the sea deserves case-by-case attention and specific consideration.

Quite similar to Grotius' *mare liberum*, the sea tribes do not assert rights to control land and water. They believe an individual or single community should not own natural resources but instead communally share and care. Some of the above elements are transferable to engage modern living and reduce natural disaster risks. The philosophical mindset of the maritime tribal group has not been well incorporated and taught in the formal setting.

We need to be mindful, though, that the indigenous living with the ocean and the scientific agenda will be complex and challenging conversations in order to navigate the changes we want. Before we realise what needs to change, it is interesting to note that the culture, indigenous knowledge, and participation are not solely for an outside agenda, Frances Koya noted at the [UN meeting \(Majick 2019\)](#).

Living in Concert with the Sea

After the Tsunami hit the coast of the Indian Ocean in 2004, indigenous knowledge about disastrous warnings at sea became visible in modern mentality. Sea nomads like Moken and Urak Lawoi dwelling in the Andaman Seas were among the Tsunami survivors due to their ability to observe and understand the unusuality of the natural phenomenon. The deep-time story of the monstrous waves handed down from generation to generation informed them of the ancestral experience of the catastrophic incident. In minimising risks from the loss in natural disasters, many examples demonstrate the indigenous people's resourcefulness, such as, by observation, the movement of surface waves, a floating pattern of mangrove hypocotyl (seeding stem) or debris flows and changing the behaviour of fish schooling near shore.

The indigenous people accumulate an ultimate body of knowledge from their ancestors. Nevertheless, living in concert with the sea requires sophisticated and advanced skills to decode and read nature. The case studies under consideration are the following information gained from Urak Lawoi in Krabi and Phuket and fishers on Samui island (all in Thailand) in 2022 and previous studies of other indigenous seafarers by anthropologists. Field data were collected by observation and informal interviews to contextualise the interaction between people, their surroundings, and their living ways from the indigenous perspective. The focus groups are the local fishermen.



Figure 1 Fishing devices and techniques employed by indigenous and local fishermen in the South of Thailand. (A) fish trap, (B) squid trap, (C) beach seine, and (D) crab basket trap (photos by the author)

Modern geopolitical speaking, the south of Thailand covers most of the peninsula that shares a border with Malaysia. The land is paralleled by the Andaman Sea on the west and the Gulf of Thailand on the other. Natural marine resources and seasons are relatively different between the two sides. The Andaman side is open to the Indian Ocean. It has deep water and strong currents. The Gulf of Thailand is a semi-enclosed basin. Water inflow from rivers draining into the Gulf creates a high rate of sedimentation and, at the same time, increases fertility. As a result, there is more marine catch on this side (Fisheries 2022).

Fishermen in Samui have a nostalgic experience of easy fishing in the Gulf of Thailand. There were enough fish near the shore. What they needed were small boats and simple fishing gear. They never had to leave home for longer than one night and returned with a bunch of fish to feed the whole family for several days or even weeks. However, small-scale fishing is decreasing. The situation is much different today, with the significantly declining amount of fish due to climate change and over-exploitation. The change in the abundance of resources and modern living style discourages the younger generation from continuing traditional fisheries and carrying on life like the generations before them. It risks the disappearance of indigenous knowledge. Traditional living is more visible on the Andaman side, but a decrease in small-scale fishers is no better.



Figure 2 Types of indigenous fishing vessels. (A) Rue Jaew or indigenous rowing boat, and (B) Hua Tong motorised boat (photos by the author)

RESULTS

From the survey, characteristics of indigenous knowledge on the coast of southern Thailand can be collectively summarised as follows:

Indigenous fisheries are embedded in many societies around the world. It requires specific skills suitable for the area and local ecosystem. Urak Lawoi, the indigenous group on the Andaman coast, are efficient fishermen and sea readers. Fish species positively relate to the technology of fish traps and fishers' ability to observe nature. Various fishing gear is being made and used on the coast for small to medium-scale fishing (Figure 1). An indigenous device is designed to trap a specific fish species. It causes less environmental damage because it generates less bycatch than industrial trawling. The technological diversity of boatbuilding demonstrates the dedication to sea voyages, which is the core of the indigenous economy thousands of years ago. *Rue Jaew*, the indigenous rowing boats are, *per se*, environmental-comfort and sustainable forms of mobility using winds and human power before using the motorised Hua Tong boats (Figure 2).

By observing the natural phenomenon, the indigenous people learn to utilise winds and currents concerning navigation and weather prediction. The east and west winds are mainly used, and two propulsion modes would be employed in the past – reversed rowing or sailing. In the dry season, the east wind blows in the morning, and the west is in the afternoon. Based on the propulsion technique, the west wind is suitable for sailing, while the east wind is good for rowing. Rowing is not recommended when the current or wind is too strong.

Efficient fishermen should also have the essential skills of identifying the position of traps they laid by reading the surroundings and nature without any assistance from electronic equipment. They capture seascapes using either two or three-point coordination techniques to locate their fish traps. Rock piles and coral reefs are ideal for fish habitats Field (Somboonsuke, Prapruit, and Nissapa 2014). Running current provides an expectation of fish abundance. The flock of sea birds is indicative of a considerable fish accumulation.

On the other side of the peninsula, the interview was carried on with the group of fishermen on Samui Island. A Chinese-descendant fisherman started his fishing career at a young age. Instead of following the North Star, he learnt astronavigation by observing the Crux constellation, a common navigational technique in southern Thailand. However, Venus is a reliable tool for celestial navigation used by the Moken group on the Andaman side (Arunotai et al. 2014 [2557])

In terms of maritime knowledge in modern times, another fisherman told us that Samui fishers use traditional skills and the capacity of new technology such as radio and radar. All of them still have basic knowledge of natural reading such as rain clouds, winds, fish behaviours and harvesting seasons, although being aided by modern equipment.

Besides making a living, natural calamity observation is also a practical skill. For example, indigenous fishermen have the ability to predict storms and unusuality derived from their ancestral knowledge. They observe white-tip waves, murky sea horizons, and changing fish behaviours and characteristics of seawater from the normal situation. This knowledge was proven efficient when the monstrous waves of the Tsunami hit the Andaman shore in 2004.

An advantage of living close to nature is that the indigenous people are first-hand learners of the ecological system. Their lives rely heavily on climatic conditions. They learn to use nature and remain harmonious with the environment. More than just a practice, respect for nature is a mindset that develops through generations and is deeply rooted in society. Concerning a healthy ecosystem, sea people in the past moved around during the dry season to allow spawning and rehabilitation. During the monsoon season, if winds and currents were too strong on one side of the island, they would move and seek supplies on the wind-protected side. Urak Lawoi develops an essential strategy of foraging trips or *bagad* suitable to the area and considers appropriately taking what nature can give. The resting season is as indispensable as the foraging season. It is in the way of natural resource management.

With the slightest concern for cultural impact, the government forces them to make settlements permanently and implicitly live a modern lifestyle. An administrative policy of the national parks affected the livelihood of the indigenous coastal inhabitants in the south of Thailand. The communities have been transformed from semi-nomadic to settled communities. Indigenous housing made of local, natural materials such as bamboo, rattan and solid wood has been replaced by permanent buildings such as concrete or non-local material houses.

After a long debate and negotiation with authority, at the very least, Urak Lawoi can maintain a part of their semi-nomadic lifestyle and conservation of ecological well-being. *Bagad* nowadays is performed as capacity-building to pass on knowledge to the younger generations. It is common that the whole family travels together to teach the young sea-living skills. The activities include freshwater searching, crab fishing, tide observing, coastal camping, and other necessary skills. The young children will have a chance to experience living on a simple bamboo hut and platform. They will learn to live a simple life without electricity and modern facilities (Figure 3).

The indigenous people pay homage to their ancestors and have the highest respect for nature as their sacred environment. They perform the 'Plajak' festival or 'Loy Rue' twice a year. It is a floating ceremony of a decorative, symbolic boat built from 'salak' wood and carrying offerings to pay respect to their ancestors and to gain prosperity. The indigenous people keep themselves very close to the ancestral spirits. Figure 4 illustrates another meaningful ceremony known as 'Tang Pleo', or cleaning

the graveyard, where families, even from distant villages and cities, gather to commemorate the dead relatives.



Figure 3 Bagad sites in the chain of islands in Krabi and Trang Provinces. (A) freshwater well, (B) bagad living ground, and (C) sacred rock (photos by the author)

The relationship between the indigenous people and the sea is complex and delicate. Unplanned changes cause a lot of social problems and worries. Land ownership disputes, fast-growing tourism and infrastructure put severe pressure on the livelihood of the indigenous people and society and risk of knowledge disappearing. A scattering of shipwrecks from the early centuries proves the long history of the continental coast as a prevailing destination for seafarers and local sea people. In fact, indigenous knowledge is an excellent source of ocean literacy and understanding of ocean living and conservation.

From the observer's point of view, this research offers practical indigenous knowledge that can educate us about ocean literacy and harmonious living. It is about the integration of the indigenous maritime knowledge that dominates the coastal society and scientific knowledge that is important for generating general policy and mechanisms (Shaw *et al.* 2008). Such integration will be an appropriate application to increase the resilience of coastal communities, but it needs to develop a way to communicate with both government and local people. No change can be achieved without genuinely understanding the relationship between people and their social beliefs.



Figure 4 Scenes of grave cleaning ceremony or Tang Pleo at Sungka-U village, Lanta Island, Krabi Province (photos by author)

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