Islands of Meaning: Reconceptualising Coastal Wellbeing Through Identity and Tourism Dynamics in Mediterranean and Southeast Asian Contexts

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Abstract. Coastal and island cities are most often analysed by considering the lens of tourism growth, resilience, and environmental risk, without paying attention to how these places generate meaning and wellbeing for the people who live in them, use them, and move through them. This paper introduces the idea of islands of meaning to reinterpret coastal environments as socio-spatial systems where water-based identity, tourism, and everyday practices interact to shape coastal wellbeing. Rather than treating wellbeing as an individual condition or as a by-product of economic success, the paper understands it as a relational outcome emerging from the way these dimensions come together in practice. The originality of this work lies in introducing the *Islands of Meaning* framework which shifts the focus from individual or economic metrics to a relational understanding of wellbeing, emerging from the practical interaction of these dimensions. The framework is organised around three main domains, water-based identity, tourism intensity, and everyday practices, considered in relation to governance and environmental conditions. Drawing on a comparative reading of Mediterranean and Southeast Asian contexts, the paper highlights the threshold effects of tourism pressure, the role of accessibility and environmental comfort, and the uneven distribution of the benefits associated with blue amenities. The paper also introduces an Operational Layer Assessment Model (OLAM), an analytical tool, as a first step for assessing the conditions under which coastal contexts are able to sustain, weaken, or fragment coastal wellbeing.

Keywords: Coastal wellbeing · islands of meaning · water-based identity · tourism intensity · public space · coastal urbanism · coastal tourism · Southeast Asia · Mediterranean contexts

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1 Introduction

Coastal and island urban regions have historically been interpreted through growth-oriented and risk-based paradigms, producing a consolidated literature that has clarified their spatial and functional dynamics [1, 2]. However, these perspectives have focused primarily on quantitative indicators (arrivals, capital investment, land-use change) [3], not considering one of the most important, but also difficult to measure, dimensions of the social life of these places: the production of meaning and coastal wellbeing, understood as lived or experiential wellbeing. Such an imbalance necessitates a reframing of analytical concerns that can interweave economic, spatial, cultural, and experiential dimensions into a crosscutting interpretative framework. For that reason, that the authors introduce the concept of "*islands of meaning"*, as a theoretical construct that progressively emerges from the recognition of coastal urban regions as socio-spatial systems in which water, identity, and tourism practices interact in the co-production of lived experience.

The introduction of this concept requires a shift from static and sectoral interpretations of coastal space towards a relational perspective, in which coastal environments are inherently defined by the interaction between land and water, by considering a particular condition that produces both physical and symbolic effects. Water shapes the spatial configuration of the city by considering edges, horizons, and environmental conditions, and, at the same time, it also acts as a powerful cultural medium, embedding narratives of memory, heritage, and identity. These elements are not fixed but are constantly being reinterpreted by everyday actions and by socio-economic transformations; when tourism dynamics are added to this already complicated system, they introduce more layers of interaction, changing how people use, access, and understand these specific places. In this context, islands of meaning can be perceived as environments where wellbeing arises from the congruence (or incongruence) between spatial affordances (conceptualised here in a Gibsonian framework as action possibilities shaped by morphology and accessibility [4–7]), symbolic recognition, and quotidian practices, rather than solely from economic performance.

Indeed, this perspective addresses the common idea that the development of coastal tourism improves the quality of life and it is due by considering tourism a key driver of economic growth, especially in coastal regions, in which its social, cultural and spatial effects go far beyond the economy. In Mediterranean contexts, for example, tourism often builds on strong heritage systems, where coastal landscapes, architectural continuity, and maritime identities support a cohesive sense of place. However, redevelopment can redistribute access and redefine the criteria for legitimate the use of waterfront spaces [8] and at the same time changes in public-space layout may also affect both use and belonging [9]. The key issue is therefore not tourism itself, but the threshold at which use shifts into consumption, reducing the capacity of space to support everyday practices and activities.

In Southeast Asian coastal regions, similar pressures emerge within faster processes of urbanisation and global tourism integration. In these contexts, the relationship with water is often more dynamic and adaptive, shaped by changing livelihoods, infrastructural development, and environmental conditions. Hu and Chen [10] contend that coastal identity is continuously redefined in reaction to these pressures, resulting in hybrid configurations that combine traditional practices with contemporary forms of urbanisation.

However, this fluidity should not be romanticised, because it often indicates infrastructural pressure and uneven access. New waterfront developments can redefine the symbolic and functional role of water through globalised design models, sometimes making local differences less visible rather than more evident [11]. These processes can provide economic opportunities and/or can improve infrastructure, but they can also cause displacement, inequalities, and can destroy meanings that are important to the local community.

In light of the above, the relation between coastal developments and wellbeing is made even more complicated in both Mediterranean and Southeast Asian contexts by also considering environmental risks. Climate change adds uncertainties in the forms of sea-level rise, coastal erosion and extreme weather events, which threaten to destroy physical infrastructures while disrupting the symbolic and experiential aspects of coastal life. In this sense, environmental vulnerability is both a physical condition and a socio-cultural one, affecting how individuals and communities relate to their environment and experience wellbeing.

Within this perspective, coastal wellbeing is approached in this paper through the notion of coastal happiness, understood as the lived and perceived dimension of wellbeing in coastal environments. The two terms are therefore used as closely related, and as conceptually overlapping, insofar as coastal happiness makes explicit the affective, experiential and place-based qualities through which wellbeing is produced and recognised along the coast. Namely, coastal happiness is conceptualised as an individual psychological state, a by-product of economic prosperity, as well as an emergent property of socio-spatial systems, produced through the interaction between accessibility, environmental quality, social interaction, and symbolic attachment. Studies such as Shiiba et al. [12] highlight the importance of environmental comfort and spatial design in supporting positive experiences in waterfront areas; Linh and Son [13] emphasise the role of inclusive and accessible public spaces in sustaining everyday practices and social cohesion. There is a common understanding in which wellbeing in coastal settings relies on the ability of urban systems to reconcile multiple and sometimes competing, demands such as tourism development, environmental preservation, and social inclusion.

The above observations raise the key question of how coastal and island urban regions can be conceptualised and managed as islands of meaning in a way that can be possible to foster inclusive but sustainable modalities of coastal wellbeing, by considering persistent pressures from tourism and environmental change. This question reflects the need to go beyond dichotomous solutions which are manifesting only either growth or resilience independently, and to establish a relational, dynamic and integrated coastal urbanism framework grounded in social-ecological systems.

To meet this need, this paper is organised as follows: in Sect. 2, the conceptual and analytical framework of islands of meaning is developed. Water-based identity and symbolic attachment and tourism intensity and socio-spatial transformation are analysed respectively in Sect. 3 and 4. In Sect. 5, the everyday dimension of life at the land-water interface is analysed, considering issues such as mobility, leisure rhythms, environmental comfort, and the inclusiveness of public space. The conclusions are in Sect. 6 in which are integrated the findings, discussing policy implications, and reflecting on how coastal

urban regions can be planned and governed as islands of meaning capable of sustaining wellbeing over time.

2 Conceptual Framework: Islands of Meaning as a Relational System

The conceptualisation of coastal and island urban regions as *islands of meaning* requires clarification of its operative mechanisms within the framework. If, as established in the previous section, coastal environments are understood as socio-spatial systems where water, identity, and tourism practices co-produce coastal wellbeing, the focus shifts to how these dimensions interact, under which conditions they reinforce each other, and when they instead generate tensions or imbalances. Accordingly, this section presents islands of meaning as a relational system structured around three core domains (water-based identity, tourism intensity, and everyday practices) whose interaction is shaped by governance and environmental conditions. This relational structure is synthesised in Fig. 1, which represents the framework as a system of interdependent components and not a linear process.

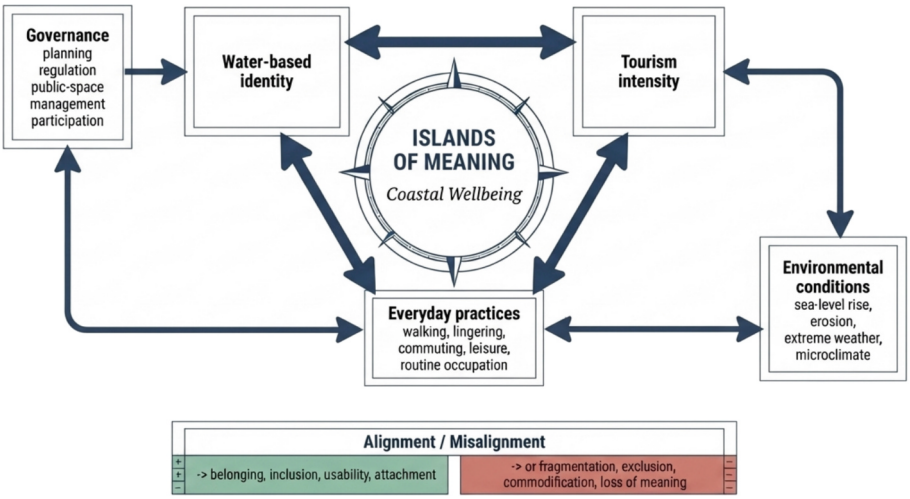

Fig. 1. Relational structure of the *Islands of Meaning* framework (Source: Authors elaboration)

Figure 1 positions *Islands of Meaning* at the centre as an emergent condition, generated through the continuous interaction between the three core domains that are represented as mutually connected elements linked by bidirectional relationships, indicating that their interaction is recursive, not unidirectional. Water-based identity and tourism intensity influence each other, as cultural meanings attract tourism while tourism simultaneously reshapes and selectively amplifies those meanings. Both domains converge on everyday practices, which represent the most immediate and observable dimension of how coastal space is lived, while everyday practices in turn feed back into identity

construction and tourism dynamics over time. Coastal space therefore operates as a performative environment where meaning is produced through use; water functions both as a morphological driver and as a symbolic medium through which identity is constructed and communicated; coastal environments offer distinct perceptual conditions shaping experience that contribute to the formation of distinctive experiential qualities. These qualities affect perception, orientation, and the likelihood of repeated use, thereby structuring attachment over time. Spatial affordances (as underlined before, intended in this paper as the set of action possibilities shaped by accessibility, continuity, and environmental comfort) become key conditions enabling or limiting interaction between people and place.

At the same time, spatial conditions alone are not sufficient to explain meaning, in fact the symbolic dimension, such as heritage, memory, and identity, plays an equally important role in shaping interpretations and values. In Mediterranean contexts, coastal identity is often shaped by long historical narratives and by ways of interpreting the relationship between land, sea, and urban life that have developed over time.

García-Ayllón [14] describes coastal transformation as characterised by a persistent tension between development and the need to preserve identity; Pallarés [15] highlights that maritime landscapes can still retain a strong cultural readability. These studies suggest that identity not reside in the physical form of the waterfront alone, but is selectively codified and reproduced through governance, planning practices, and cultural discourse. This can be seen in different Mediterranean waterfronts, such as the Vieux-Port in Marseille, Porto Antico in Genoa, Port Vell in Barcelona and in the area of the Port of Cagliari, where heritage, tourism, and public-space redesign have not cancelled local identity altogether, but have reshaped it, emphasising some meanings.

In Southeast Asian contexts, the relationship between identity and coastal space often appears more fluid and adaptive, largely due to the faster processes of urbanisation and socio-economic change, where traditional relationships with water coexist with new forms of development. Despite these differences, meaning still emerges when people are able to connect places with shared or personal narratives.

The third dimension of the framework relates to how space is lived and experienced in everyday practices such as walking, lingering, commuting, or informally occupying public space. It is important to consider that these uses shift across a day and through seasons, with tourism often generates those changes more visible, indeed more visitors can bring movement, encounters, and activity, but they can also disturb familiar routines, put pressure on shared spaces, and make everyday uses less present. This means that the dynamics of these dimensions are never completely stabilised, and their impact is greatly contingent on maintaining a balance between them.

When accessibility, environmental quality, and inclusive design support local practices, coastal environments can function as effective islands of meaning. When consumption overrides everyday use, this alignment weakens, leading to processes of fragmentation and loss of meaning.

Governance acts as a mediator that shapes access, use, and representation across all domains, as shown in Fig. 1, as well as planning decisions, regulatory frameworks, and public space management strategies determine the allocation of access, the heritage preservation, and the balance between tourist and local uses. Shcherbina and Nguyen [16]

highlight how governance is a factor that drives accessibility and inclusion along waterfronts, particularly in fast-growing coastal cities, and similarly Hansasooksin et al. [17] argue that without the direct involvement of local communities in decision-making, such governance arrangements risk reinforcing exclusion rather than mitigating it. The effectiveness of coastal environments therefore depends as much on institutional arrangements as on physical and cultural conditions.

Environmental conditions (sea-level rise, coastal erosion, and extreme weather events, etc.) make coastal spaces even more fragile and variable, affecting physical and experiential conditions in non-linear ways. These dynamics may disrupt patterns of use and weaken attachment, although their effects remain context-dependent and difficult to generalise. As Shiiba et al. [10] note, environmental comfort is an important part of a positive waterfront experience, but, at the same time, climate-sensitive design on its own cannot ensure that coastal spaces will remain usable and attractive over time. The real issue is what happens when these different conditions no longer hold together and what matters is not the presence of these dimensions, but how they hold together in practice.

3 Water-Based Identity and Symbolic Attachment

If coastal and island urban regions are interpreted as *islands of meaning*, identity has to be considered a primary dimension through which meaning is produced, stabilised, and contested. In coastal contexts, identity is rarely a fixed attribute or a simple inheritance from the past, indeed it is formed, and continually adjusted, through the ways in which people relate to the water environment. The sea, rivers, lagoons, or waterfronts shape not only the physical organisation of space, but also how places are remembered, described, and emotionally recognised. In this sense, water becomes part of the cultural language of a place, it influences everyday practices, collective memories, and forms of belonging, especially in settlements where the boundary between land and water is a physical edge, but also a central element of urban life and local meaning.

Through this lens, the concept of water-based identity, or blue identity, can be understood as the set of meanings and forms of recognition produced through repeated and embodied interaction with water environments. It can include the symbolic role of the sea in local narratives, the traces of memory embedded in waterfront spaces, and the sense of familiarity that develops when water is part of everyday experience in social practices, and cultural interpretation. This form of identity cannot be reduced to visual or aesthetic perception alone because it emerges through practice: through routines, habits, and ongoing contact with coastal space, as well as through the cultural frameworks that interpret water as heritage, a source of livelihood, or a threshold between different conditions [18]. In this sense, blue identity is something that is continuously produced and negotiated, as well as it is therefore relational: it links environmental conditions, social practices, and cultural interpretation into a single experiential field.

In Mediterranean coastal cities, this process is frequently framed by institutionalised through heritage rules and narratives of continuity. The sea has long been part of the way coastal cities developed, through trade, mobility, defence, and exchange, as well as through all the memories and meanings around these activities. These traces are still visible at the level of port areas, seafronts, promenades, and older urban fabrics. These

material and symbolic references transmit the coastal identity into the present, keeping some images of the past alive in everyday experience [3].

García-Ayllón [12] shows how Mediterranean tourist coastal change is intimately related to the divergence between development and the need to preserve territorial identity, while Pallarés [13] in turn, highlights the interpretative capacity of maritime landscapes as carriers of cultural legibility. What these studies make clear is that identity does not survive on its own but it is sustained through concrete choices, through the way places are represented, and through strategic preservation actions.

Heritage does not simply preserve meaning; it also selects, orders, and stabilises particular narratives, sometimes at the expense of others. When coastal identity is mobilised within tourism-led development, the risk is that heritage becomes simplified into a consumable or a simplified image: a waterfront to be visited, photographed, and consumed, rather than a place that people use, remember, and inhabit in everyday life.

It has been observed in several studies that, in tourism-led waterfronts, change impacts on uses do not necessarily impact equally. The attractive, profitable and aesthetic breakthroughs tend to gain priority, while everyday practices are more easily pushed aside [19, 20]. Other studies report that in the context of tourism-induced public-space transformation, accessibility and land use, as well as the experiential quality of experience (understood as the way people identify themselves with that particular place) change the sense of the place [21–23]. The challenge is therefore not one of whether heritage exists or not, but how it is understood, managed and (re)positioned in the context of contemporary coastal living.

This relation between water and identity had usually a different path in the Southeast Asian coastal regions. Historically, water has shaped settlement and mobility, work and adaptation in even more fluid and dynamic ways. For millennia, rivers, deltas, canals, estuaries, and coasts have long sustained forms of everyday life in which water is less a stable symbolic background and more an active agent in urban and territorial formation. Other studies observes that waterfront developments reinterpret water as a strategic urban resource [24, 25], often combining local references with globally circulating design models. What is significant in these cases is that blue identity does not disappear under transformation, but becomes hybrid, unstable, and negotiated [26, 27].

In Mediterranean and Southeast Asian contexts, identity is shaped by the interaction between inherited meanings and contemporary pressures. What varies is the relative weight of institutionalised heritage, the speed of transformation, and the modes through which local narratives are incorporated into planning and development.

Memory is central to this process because it mediates how people experience in space with the meanings they attach to it over time and particularly on the coast, memory operates as a bridge between physical space and culturally constructed meanings, thanks to the official narratives or heritage as well to the ordinary habits. This is evident in discussions of waterfront promenades as sites where public memory, everyday practice, and place attachment co-evolve, producing a durable sense of place beyond mere visual aesthetics [28, 29]. These repeated experiences can create attachment even when they are not formally acknowledged as heritage. Looking at memory in this broader way helps avoid reducing identity to monuments or institutional recognition alone. It also makes visible the importance of everyday repetition in stabilising meaning. Coastal

places become meaningful because they are historically important, as well as because they are repeatedly inhabited, recognised, and incorporated into daily life.

For this reason, symbolic attachment is inseparable from the practical conditions that allow people to engage with coastal space, in fact, it becomes more difficult for a water-based identity to persist when the waterfront is less accessible, when public space is increasingly privatised, or when environmental conditions undermine its everyday use. Recent studies underline the importance of environmental quality and the sensory experience of "blue spaces" are fundamental for urban wellbeing [30, 31], as well as, at the same time, other studies emphasise the role of accessibility and inclusiveness in maintaining meaningful costal public use [32, 33]. These contributions are important because they show that identity is not only cultural in a narrow sense; it is also spatially enabled. Belonging depends on narratives and on the material possibility of inhabiting the spaces through which those narratives become real.

At this point, tourism becomes a crucial factor because it can both reinforce and destabilise water-based identity. Tourism can provide visibility in some cases to coastal heritage, attract investment in waterfront regeneration, and reinforce the symbolic role of maritime landscapes. In addition, it may shift the meaning of these spaces away from local use and toward external consumption when coastal identity is reformulated primarily for visitors, losing importance in this way as an everyday structure of belonging. The space may still be attractive, but its meaning is no longer the same and the waterfront becomes less part of everyday collective life and more a carefully shaped place for leisure. This is one of the key tensions within the idea of islands of meaning: the same processes that activate coastal value economically may also erode the social and symbolic conditions that sustain coastal wellbeing.

In this light, water-based identity conceptualises an important key component of coastal wellbeing because it links environment, recognition, and everyday experience. Within the broader framework conceptualised in this paper, blue identity can be seen as the first fundamental condition through which the islands of meaning are formed: it anchors the relationship that exists between water and a sense of belonging, clarifies the role of memory and heritage in shaping coastal experience, and explains why tourism and development needs to be evaluated in terms of economic production and of what they preserve, transform (or constructively disrupt) in the lived structure of place.

4 Tourism Intensity and Socio-spatial Transformation

Whereas water-based identity represents the cultural and symbolic basis of coastal environments, tourism intensity is a key force in the restructuring, reinterpretation, and, in many cases, in contesting these specific contexts. In coastal and island urban regions, tourism is not simply an additional activity, but can be considered as a driver that reorganises spatial configurations, redistributes access, and redefines the relationship between residents, visitors, and place. Tourism intensity needs to be examined beyond its quantitative dimension (through arrivals, densities, or economic outputs), by considering also its qualitative effects on the organisation and experience of space.

Tourism intensity can be understood as the extent to which tourism reshapes the organisation and everyday life of a coastal urban system. These processes are particularly sharp in coastal areas, so this is usually where the land-water interface is the

arena of clearest conflicts around economic pressures and social practices versus environmental concerns. One of the more stark impacts that tourism intensity has is how public space becomes reconfigured: waterfronts, promenades, and beaches are designed, built and managed for high visitor numbers, meaning that space becomes standardised, and consumption-oriented uses of the space take priority. These transformations might increase in visual quality and accessibility but decrease in use diversity, limiting the non-tourist usages and functions e particularly for public spaces, use and perception can change gradually under the pressure of tourism.

These areas may gradually become more similar to one another as tourism intensity increases. What is promoted as distinctive may, paradoxically, produce more standardised coastal spaces, organised around the same visual qualities, leisure functions, and visitor-oriented experiences. Thus, coastal areas shaped by increasing tourism intensity may gradually lose their capacity to sustain the diversity of social uses that once characterised everyday life, weakening locally rooted practices and meanings [34–36].

This process is closely linked to commodification [37], through which coastal environments become marketable assets. Coastal landscapes are selectively reshaped to highlight elements such as scenic views, heritage, and leisure amenities, while less marketable aspects of local life become less visible. As a result, waterfronts tend to shift from spaces of everyday interaction and mobility to spaces increasingly organised around consumption and economic value [38].

However, the impacts of tourism intensity are not uniform and depend on governance, planning choices, and local socio-economic conditions.

Importantly, tourism intensity follows a non-linear pattern: up to a certain threshold, it can enhance vibrancy, maintenance, and accessibility, but beyond that point, crowding increases, everyday usability declines, and the ordinary meaning of place begins to weaken (Fig. 2).

This dynamic is particularly evident in Mediterranean coastal areas, where tourism tends to concentrate in specific locations, generating spatial pressure and social tension; In Southeast Asian, the situation is often more complex, as tourism develops alongside rapid urbanisation and waterfront transformations are therefore tied to visitor economies as well as to broader processes of urban expansion, resulting in spatial patterns that are dynamic and adaptive, yet often fragmented and uneven in terms of access and distribution of benefits.

Environmental conditions may further intensify these dynamics, indeed, tourism can place additional pressure on already fragile coastal ecosystems, with consequences that also affect the quality, comfort, and usability of waterfront spaces [39]. At the same time, climate-related risks, such as sea-level rise and extreme weather events, influence safety, accessibility, and everyday practices.

Within the islands of meaning framework, tourism intensity can therefore be understood both as a source of pressure and as a key mediating force. It affects the relationship between spatial affordances, symbolic meanings, and everyday life, while also showing how economic forces are translated into territorial change, social restructuring, and new ways of inhabiting the waterfront. The next section moves more directly to this lived dimension by focusing on experience at the land-water interface.

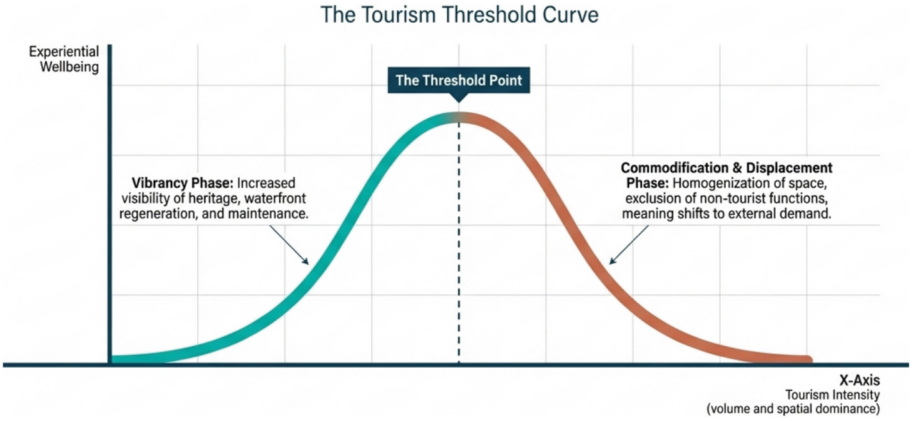

Fig. 2. The tourism threshold curve (Source: Authors elaboration)

5 Everyday Practices at the Land-Water Interface

As previously underlined, whereas intensity explains structural transformation, or, how coastal spaces can be transformed at a structural level, everyday practices reveal how these transformations are lived, negotiated, and stabilised through daily interaction. According to the *islands of meaning* framework, the land-water interface is a physical limit of demarcation but also a socio-spatial arena where mobility, leisure, social interaction, and environmental perception converge and meet together. This interface represents the most immediate experience of identity and tourism activity in everyday life, this is where becomes most visible the ability of coastal environments to sustain wellbeing. The focus shifts, then, from broader processes to the scale of actual use, where the relationship between people and place is continually transformed through practice.

Everyday practices in coastal environments are first and foremost conditioned by spatial accessibility. Any meaningful interaction with the waterfront depends first on the simple possibility of reaching it, entering it, and moving along it. Accessibility is not only a matter of physical proximity, but also of how different users can reach, cross, [40], and use coastal spaces, depending on spatial configuration, connectivity, and barriers [41–44]. When waterfronts are well integrated with the rest of the city, they more easily become part of everyday routines, strengthening familiarity and place attachment over time.

In addition to accessibility, everyday practices are also shaped by temporal rhythms, linked both to natural cycles (light, tides, and weather) and tourism seasonality. During peak periods, waterfronts may become more vibrant [45, 46], but also more active and transient; while outside these periods local routines and slower uses tend to re-emerge.

Environmental conditions also shape these practices in very concrete ways, especially through comfort at the micro-scale. Heat stress, lack of shade, or exposure to wind and humidity can make these spaces less comfortable and less usable, reducing both social interaction and everyday presence. Experiential quality therefore depends not only on symbolic and spatial attributes, but on the capacity to support comfortable and adaptable conditions for daily life.

The arrangement of public spaces is also crucial because their design influences how people move, where they stop, and how they interact with others. On the one hand, inclusive and flexible public spaces can accommodate diverse practices, allowing different user groups to coexist and negotiate space; on the other, specialised or rigidly programmed spaces may limit the range of possible uses, favouring certain activities while excluding others. In tourism-oriented contexts, the balance between residents and visitors becomes fragile: residents depend on waterfronts for daily mobility and social life, while visitors often use them for leisure and consumption. As tourism intensifies, local practices may lose ground due to changing atmospheres, rising costs, and less comfortable or accessible conditions.

Mobility makes this tension even more visible, since coastal areas are both destinations and connectors within the wider urban system. The quality of slow mobility networks, including continuity, safety, and integration with other modes, directly shapes how waterfronts are used and experienced. When mobility networks are well designed, waterfronts can support everyday functions as well as recreational ones, strengthening their role as shared urban spaces. When movement is fragmented or dominated by traffic, barriers become more evident and the overall coherence of the waterfront is weakened.

In addition, the interaction between everyday practices and tourism also has implications for the production of meaning: changes in practice produce shifts in meaning and identity, indeed meaning remains layered and inclusive when local routines persist alongside tourism.

Governance again is extremely important in shaping these outcomes, because thanks to it, it would be possible to determines how space is regulated, maintained, and programmed. Decisions regarding public access, land use, infrastructure, and environmental management all influence the conditions under which everyday practices occur. Governance therefore mediates whether everyday practices are sustained or displaced.

All of these dimensions can be synthesised as a single operational layer, where (i) the three domains, water-based identity, tourism intensity, and spatial conditions, are continuously translated into lived experience; (ii) this interaction is translated into observable spatial behaviours and outcomes; (iii) at a theoretical and operational level, this single layer is formalised through an **Operational Layer Assessment Model** (OLAM), conceived as a unified framework for translating the alignment between water-based identity, tourism intensity, and everyday practices into measurable variables.

OLAM does not simply describe the operational layer, but makes explicit how alignment or misalignment emerges from the interaction of identity, tourism intensity, and everyday practices within a single analytical structure.

Table 1 and Fig. 3 summarise this operational Assessment Model (OLAM), including variables, parameters (sub-indicators), and expected effects on coastal wellbeing.

Within OLAM, the operational layer is assessed through a composite **Operational Layer Index** (OLI), which aggregates the eight dimensions summarised in Table 1: Accessibility (A), Mobility routines (M), Temporal rhythms (T), Environmental comfort (E), Public-space design (P), Everyday practices (D), Resident-visitor balance (R), and Governance and management (G).

Table 1. Operational Layer Assessment Model (OLAM): variables, parameters, and expected effects on coastal wellbeing. (Source: Authors elaboration)

Variable	Symbol	Example sub-indicators / parameters	Operational meaning	Expected effect when high	Expected effect when low
Accessibility	A	continuity of waterfront access; permeability of edges; inclusiveness of connections	Measures the extent to which users can physically and equitably access the land-water interface	repeated use, familiarity, attachment	fragmented access, exclusion, weakened belonging
Mobility routines	M	walkability; cycling integration; modal continuity; presence/absence of barriers	Measures how the waterfront is integrated into daily mobility systems	socio-spatial integration; routine appropriation	isolation, reduced usability, tourist-oriented segregation
Temporal rhythms	T	daily intensity balance; seasonal coexistence of uses; resident/visitor temporal overlap	Measures the temporal compatibility between local routines and tourism cycles	adaptive coexistence across time	congestion, conflict, displacement during peaks
Environmental comfort	E	shading; thermal exposure; wind conditions; humidity; perceived safety	Measures the extent to which environmental conditions support prolonged and positive use	longer stays, sociability, restoration	avoidance, stress, reduced permanence
Public-space design	P	flexibility of use; seating; land-water transitions; pause/encounter opportunities	Measures the design capacity of space to support diverse practices and interactions	inclusive and meaningful shared use	over-specialisation, rigid use, exclusion

(*continued*)

Table 1. (*continued*)

Variable	Symbol	Example sub-indicators / parameters	Operational meaning	Expected effect when high	Expected effect when low
Everyday practices	D	diversity of practices; frequency of use; continuity of routine occupation	Measures how far coastal space is enacted as lived space through repetition and ordinary use	reinforcement of meaning and social cohesion	externalised or commodified use, loss of attachment
Resident-visitor balance	R	coexistence index; conflict intensity; displacement dynamics	Measures the social sustainability of shared coastal use	layered meanings, mutual visibility	tension, symbolic loss of place, local displacement
Governance and management	G	maintenance quality; access rules; programming; stewardship capacity	Measures institutional capacity to regulate and sustain inclusive use	stable liveability, balanced use	privatisation, uneven benefits, erosion of public relevance

The Operational Layer Alignment Model (OLAM) translates the relational framework into a set of observable variables, capturing how alignment or misalignment emerges across the three domains under specific governance and environmental conditions. In its simplest standardised form, the index can be expressed as:

$$\mathrm{OLI} = \frac{A + M + T + E + P + D + R + G}{8}$$

where each variable is normalised on a common scale from 0 to 1, with 0 indicating severe misalignment and 1 indicating optimal operational performance. A weighted version may also be adopted when specific coastal contexts require differentiated relevance among variables:

$$\mathrm{OLI} = w_A A + w_M M + w_T T + w_E E + w_P P + w_D D + w_R R + w_G G$$

with

$$w_A + w_M + w_T + w_E + w_P + w_D + w_R + w_G = 1$$

OLI captures the degree to which the three domains of the framework converge within the same operational space. Each variable can be operationalised through a set of sub-indicators. A high OLI indicates strong alignment between spatial conditions, everyday use, and governance support; a low OLI signals misalignment, expressed through fragmentation, exclusion, and reduced usability of coastal space.

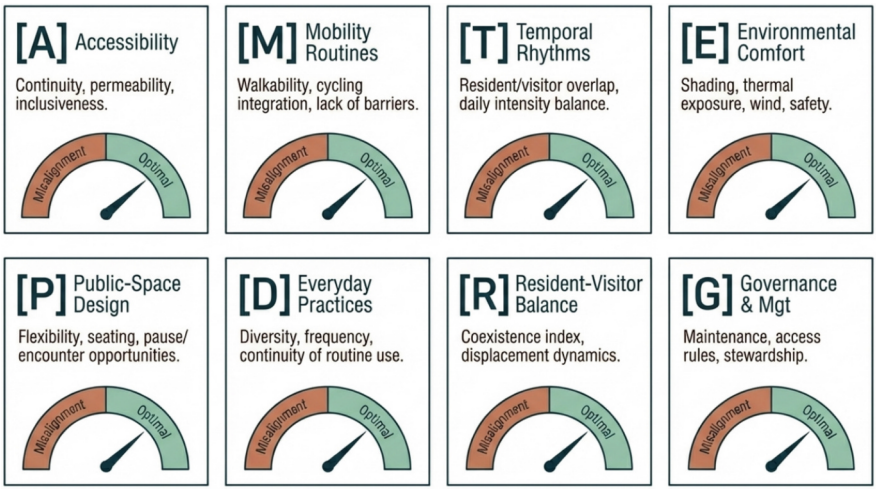

Fig. 3. Operational Layer Assessment Model (OLAM): Symbol, variables, and parameters (Source: Authors elaboration)

6 Discussion and Conclusions

This main goal of this paper is considering coastal and island urban regions as islands of meaning, namely socio-spatial systems in which water, identity, tourism intensity, and everyday practices interact to produce coastal wellbeing or, conversely, socio-spatial stress. This paper represents the preliminary desk-based study of the project *Coastal Happiness & Analytics for Regional Meaningful Places and Tourism* (CHARM), developed in collaboration between the University of Cagliari and Universiti Malaya. The future development of this research, within the CHARM project, will focus on the field application of the Operational Layer Assessment Model (OLAM) through the Operational Layer Index (OLI).

Instead of analysing these dimensions separately, the analysis found that it is their interaction (more exactly their alignment) that is a fundamental condition through which coastal environments deliver or diminish wellbeing. These dimensions converge into a single functional and operational layer, that does not invalidate the conceptual framework but rather heuristically expresses the interaction between its three primary domains into manageable forms.

The key question posed in the introduction asked basically how coastal and island urban regions can generate meaningful and inclusive forms of coastal wellbeing under conditions of tourism pressure and environmental change. A first primary answer developed in this paper is that such wellbeing emerges only when the symbolic, spatial, and practical dimensions of coastal life remain aligned, without one dimension being considered secondary to the others. Coastal wellbeing cannot be simply quantified through tourism growth, heritage value or environmental quality in isolation but relies on the maintenance of balance such that coastal space remains comparable to everyday life and thus approachable, identifiable, usable and acceptable whilst still catering for tourism without pressure from displacement of local meaning.

Where this alignment is maintained, coastal environments support belonging, sociability, and inclusion; where it is disrupted, they tend toward overcrowding, exclusion, and fragmentation or loss of attachment. In this viewpoint, the operational layer is the level at which the relational structure of the framework becomes observable through everyday conditions and practices. In order to make this dimension analytically useful, the paper introduces the **Operational Layer Assessment Model** (OLAM) as a part of the Islands of Meaning framework.

The model allows for comparison among different coastal contexts through an assessment of how coastal wellbeing is encoded by the interaction among eight variables, namely: accessibility, mobility routines, temporal rhythms, environmental comfort, public-space design, everyday practices, resident-visitor balance, and governance and management.

These eight dimensions would serve as the observable pillars of the operational layer and could be studied through a mixed-methods design combining spatial analysis, behavioural observation, environmental measurements, and perception-based surveys.

OLAM does not measure these variables separately, but evaluates their alignment through the **Operational Layer Index** (OLI), which allows comparison among different coastal systems in terms of their ability to support daily use and meaning.

The main value of such a model is that it would allow researchers to identify not only whether a coastal place is economically successful or environmentally exposed, but how it works in lived terms. It would also make it possible to compare cities with very different cultural and climatic conditions while retaining a common analytical structure. Within the broader contribution of this article, this research agenda confirms that the future of coastal urban theory lies in connecting symbolic attachment, tourism transformation, and daily spatial practice through a framework that is both critical and operational. In this sense, the Islands of Meaning approach offers not only a theoretical reinterpretation of coastal urbanism, but also the basis for a more precise and policy-relevant investigation of what makes coastal environments liveable and meaningful.

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References

1. Cohn, J.L., et al.: Strategies to work towards long-term sustainability and resiliency of nature-based solutions in coastal environments: a review and case studies. Integr. Environ. Assess. Manag. **18**(1), 123–134 (2022)
2. Fitton, J.M., Hansom, J.D., Rennie, A.F.: A method for modelling coastal erosion risk: the example of Scotland. Nat. Hazards **91**(3), 931–961 (2018)
3. Armendáriz, A.M., et al.: Touristic destinations and coastal cities: evaluation of the integrally planned center Los Cabos, Mexico forty years from its foundation. Int. J. Sustain. Dev. Plan. **12**(08), 1348–1358 (2017)

4. Gibson, J.J.: The theory of affordances. Hilldale USA **1**(2), 67–82 (1977)
5. Maier, J.R., Fadel, G.M.: Affordance based design: a relational theory for design. Res. Eng. Des. **20**(1), 13–27 (2009)
6. Garau, C., Annunziata, A., Yamu, C.: A walkability assessment tool coupling multi-criteria analysis and space syntax: the case study of Iglesias, Italy. Eur. Plann. Stud. **32**(2), 211–233 (2024)
7. Garau, C., Annunziata, A.: Supporting children's independent activities in smart and playable public places. Sustainability **12**(20), 8352 (2020)
8. Favro, S., Kovačić, M.: Construction of marinas in the Croatian coastal cities of Split and Rijeka as attractive nautical destinations (2015)
9. Serrano-Estrada, L., Bernabeu-Bautista, Á., Huskinson, M., Ciriquián, P.: Sustainable urban dynamics in coastal cities: a comparative study through digital footprints. J. Infrastruct. Policy Dev. **8**(6), 3905 (2024)
10. Hu, T., Chen, H.: Identifying coastal cities from the perspective of "identity-structure-meaning": a study of urban tourism imagery in Sanya, China. Sustainability **15**(21), 15365 (2023)
11. Ziu, V.: Durrës After Transition: Urban Identity at the Edge of Time, Tourism, and Transformation (2026)
12. Shiiba, N., et al.: Climate change and coastal resiliency of Suva, Fiji: a holistic approach for measuring climate risk using the climate and ocean risk vulnerability index (CORVI). Mitig. Adapt. Strat. Glob. Change **28**(2) (2023)
13. Linh, D., Son, T.: Reimagining coastal public space: the case study of Da Nang city, Viet Nam. IOP Conf. Ser. Earth Environ. Sci. **1226**(1), 012004 (2023)
14. García-Ayllón, S.: Retrospective analysis of urban development in the Spanish Mediterranean coast **1**, 291–302 (2013)
15. Pallarés, A.: Salinas: interstices of the urban, cultural and political processes in mediterranean ecologies. Plan J. **2**(2) (2017)
16. Shcherbina, E., Nguyen, T.: Urban zoning features of territories for tourist services facilities placement in coastal cities. Vestnik Mgsu **4**, 417–427 (2022)
17. Hansasooksin, S., Tontisirin, N., Anantsuksomsri, S.: Infrastructure-driven growth of a coastal tourist city: a case study of Pattaya, Thailand. J. Infrastruct. Policy Dev. **8**(9), 8141 (2024)
18. Mustofa, M.S., et al.: Reinterpretation of maritime identity of small fishermen on the north coast of Semarang city (2021)
19. Selvi Ünlü, T.: Changing urban identity of a Mediterranean port city: from consistency to fragmentation. Int. J. Urban Sci., 1–25 (2025)
20. Altwaijri, A.K., Alhammad, B.A., Alhowaish, A.K.: Global research trends in urban waterfront redevelopment and quality of life: a bibliometric analysis (2000–2025). J. Cult. Anal. Soc. Change, 577–595 (2026)
21. Sorkin, M.: Variations on a Theme Park: The New American City and the End of Public Space. Farrar, Straus and Giroux (1992)
22. Aversa, C.S.V., Catania, G.F.G., Corina, T., Fazia, C.: From tourism as an opportunity for growth to the discomfort of overtourism: the erosion of public space and the need to rethink Coastal Cities. In: International Conference on Computational Science and Its Applications, pp. 415–431. Springer Nature, Cham, Switzerland (2025)
23. Pourbahador, P., Brinkhuijsen, M.: Municipal strategies for protecting the sense of place through public space management in historic cities: a case study of Amsterdam. Cities **136**, 104242 (2023)
24. Smith, H., Ferrari, M.S.G. (eds.): Waterfront Regeneration: Experiences in City-Building. Routledge (2012)
25. Zhang, F., et al.: Decoding waterfront vitality: a space-experience interaction evaluation. Sustainability **18**(4), 2131 (2026)

26. Pauleit, S., et al.: Nature-based solutions and climate change–four shades of green. In: Nature-Based Solutions to Climate Change Adaptation in Urban Areas: Linkages Between Science, Policy and Practice, pp. 29–49. Springer International Publishing, Cham (2017)
27. Sposito, S., Palla, A., McEwen, L., Gnecco, I.: Green infrastructure as an operational tool in climate change education: a youth-informed framework for urban adaptation learning. J. Environ. Manage. **403**, 129069 (2026)
28. Badami, A.: Nørresundby waterfronts: a multifunctional and ecologically integrated urban environment. In: Urban Sustainability in the Making, pp. 131–164. Routledge (2025)
29. Wu, S., Li, Q., Wu, Y., Zhu, Z.: From space to well-being: understanding the restorative potential of urban riverfront landscapes. Buildings **16**(6), 1235 (2026)
30. White, M.P., Elliott, L.R., Gascon, M., Roberts, B., Fleming, L.E.: Blue space, health and well-being: a narrative overview and synthesis of potential benefits. Environ. Res. **191**, 110169 (2020)
31. Li, H., et al.: Beyond "bluespace" and "greenspace": a narrative review of possible health benefits from exposure to other natural landscapes. Sci. Total. Environ. **856**, 159292 (2023)
32. Theodora, Y., Spanogianni, E.: Planning for a liveable and resilient southern waterfront in Athens _ the role of coastal municipalities in setting priorities and addressing dilemmas for local development. In: International Conference on Computational Science and Its Applications, pp. 47–66. Springer Nature, Cham, Switzerland (2025)
33. Abdel-Razek, S.A., et al.: Universal and inclusive design in public open spaces for wellbeing-oriented cities: design strategies for the case of Alexandria public beach. Int. J. Sustain. Dev. Plann. **19**(6) (2024)
34. Lapointe, D., Lebon, C., Guillemard, A.: Space in transformation: public versus private climate change adaptation in peripheral coastal tourism areas-Case studies from Quebec, Canada. Int. J. Tourism Res. **22**(2), 238–251 (2020)
35. Barreiros Proença, S., et al.: The urban public space between land and sea: the case of Quarteira. Portugal. Land **12**(3), 539 (2023)
36. Xue, K., Yu, K., Zhang, H., Liang, X.: Research on health promotion strategies of public recreation space in the coastal area of Qingdao City center, China. Sustain. Energy Technol. Assess. **52**, 102144 (2022)
37. Rosli, F.N., Yana, R., Rozaimi, M.: Conservation versus commodification: synthesizing stakeholders' perceptions of the blue carbon credit ecosystem. Anthropocene Coasts **8**(1), 34 (2025)
38. Liu, T., Zhao, S., Peng, F.: Tourism-driven commodification of Island landscapes: an actor-network analysis of dynamic mechanisms in Guanglu Island, China. Chin. Geograph. Sci. **35**(4), 867–881 (2025)
39. Ganieva, K., et al.: The environmental consequences of extreme tourism in fragile ecosystems. Nat. Eng. Sci. **9**(3), 233–244 (2024)
40. Dastoum, M., Alam, T., Askarizad, R., Campisi, T., Garau, C.: Assessing socio-spatial equity in access to coastal areas of Italian island cities. TeMA-J. Land Use Mob. Environ. **1**, 21–36 (2026)
41. Garau, C., Alam, T.: Scaling urban complexities and their influence on accessibility and spatial resilience. J. Urban Des., 1–20 (2026)
42. Pellicelli, G., et al.: Sustainable mobility and accessibility to essential services. An assessment of the san Benedetto neighbourhood in Cagliari (Italy). In: International Conference on Computational Science and Its Applications, pp. 423–438. Springer International Publishing, Cham (2022)
43. Garau, C., et al.: A new definition of a smart and healthy city through a literature review on accessible urban green space. In: International Conference on Computational Science and Its Applications, pp. 269–285. Springer, Cham (2026)

44. Askarizad, R., et al.: Exploring the role of configurational accessibility of alleyways on facilitating wayfinding transportation within the organic street network systems. Transp. Policy **157**, 179–194 (2024)
45. Garau, C., Annunziata, A.: A method for assessing the vitality potential of urban areas. The case study of the Metropolitan City of Cagliari, Italy. City Territory Architect. **9**(1), 7 (2022)
46. Askarizad, R., et al.: Visibility graph analysis vs. human mobility patterns: an empirical validation of simulation-based analysis using space syntax in public squares. In: International Conference on Computational Science and Its Applications, pp. 51–68. Springer Nature Switzerland, Cham (2025)