Image Credit: Team Membrane - Josephine Philipsen, Luisa Brando, Andres Hernandez and Vejle Municipality

Urban Seascaping – How to live not just by the sea but with the sea

By Soo Ryu

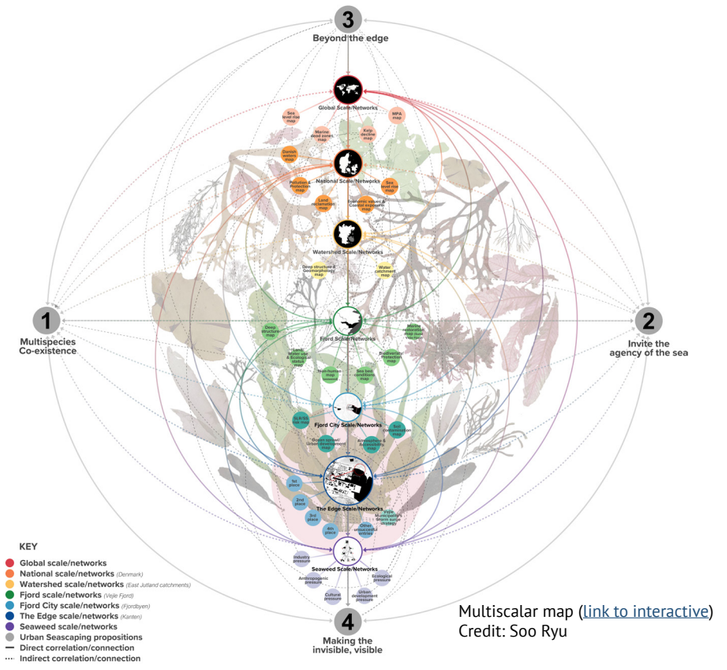
Urban shorelines are markers of the contested site between the city and the sea. For centuries, coastal cities have expanded their influence further into the sea in the form of land reclamation (also termed "ocean sprawl"), which is responsible for habitat loss, decrease in biodiversity and water pollution. The sea has increasingly become a backdrop to support the growth of business-as-usual (B-A-U) urban developments that are not conducive to the changing climate nor capable of moving beyond the exploitative and superficial engagement with the sea that most cities practice today. However, the consequences of climate change are challenging the sprawl, as the sea is pushing back onto coastal cities in the form of sea level rise and frequent storms. The dominant way coastal cities have responded to this encroachment has been defence-driven mechanical handling of water via sea walls and pumps, a symptom of a reactive rather than proactive response in addressing the climate crisis.

In response, my research, undertaken during a three-year PhD fellowship at the Aarhus School of Architecture in Denmark from 2019-2022, develops an initial hypothesis and a critical proposition called "Urban Seascaping" as an alternative way to re-envision urban coastal developments by exploring the potential of marine nature as an active part of the sociocultural cityscape and its future resilience. Nature-based solutions are emerging as a key component in coastal adaptation and mitigation strategies as climate change mitigation. Furthermore, the green transition of coastal cities is becoming paramount in addressing the rapidly approaching IPCC deadlines/Paris Agreement. The benefits of nature-based solutions are myriad, as they lessen not only the impact of storm surges or coastal erosion but also their capacity to capture carbon, produce oxygen, filter water pollutants, and increase biodiversity as habitats, to name a few. Thus, the research asks: *How can coastal cities of Denmark integrate the sea and its lifeforms to contribute towards re-envisioning urban development in light of a sea level rise and frequent storm surges?*

Too often, issues regarding the changing interface between the city and the sea have been the domain of applied science (i.e. coastal engineers) and natural science (i.e. marine biologists/ ecologists) with an emphasis on defense and marine restoration. There has been a lack of engagement from the spatial design disciplines, which might offer a transdisciplinary holistic approach to re-envisioning the entanglements between cities and the sea. However, in the past decade, emerging practices such as Blue Urbanism, Coastal Urbanism, and Urban Ecology have gained traction as a framework for coastal urban development. Therefore, to explore further the role of spatial design disciplines in aiding the increasing complexities and the need for the synthesis of transdisciplinary approaches, the second research question of this project asks: *How can design research methods and practice from the spatial design disciplines of landscape architecture, urban design, and planning contribute to responding to the changing spatial boundary between city and sea, human and nonhuman, due to climate change?*

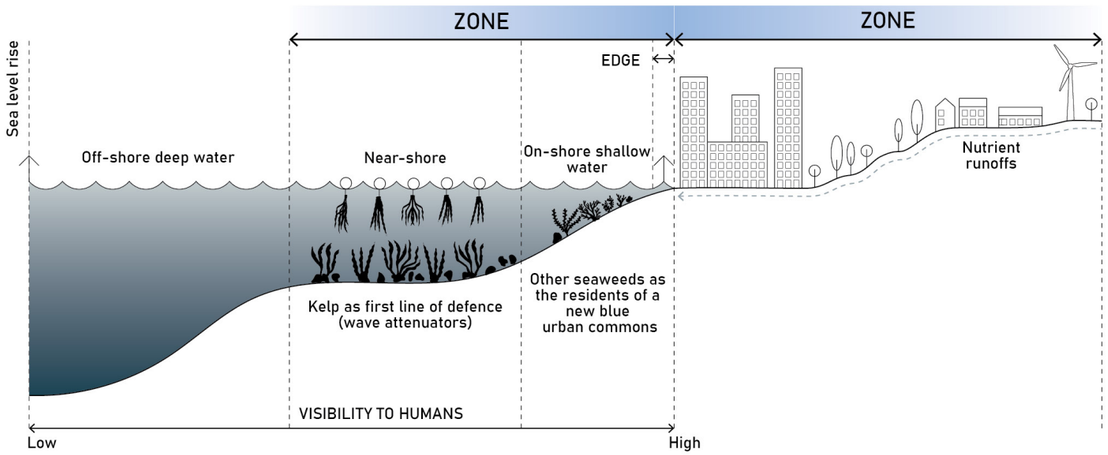
Much of the existing research on how to integrate marine nature-based solutions in coastal cities by the spatial design disciplines has largely focused on eelgrass restoration, salt marsh and meadows. In contrast, very little attention has been paid to seaweed, the potential of which remains understudied in the field. This is a problem because the different species of seaweed have several unique and positive characteristics that may contribute to marine nature-based solutions. Seaweed can provide not only beneficial ecosystem services but also influence human culture, for instance, as local cuisine in the form of a sustainable and healthy form of food or in its many applications in medicine, cosmetics, and bio-material, to name a few. Therefore, this project focuses on seaweed as a representative of marine nature in the context of urban coastal development. With seaweed as the lens to investigate the research questions, the project develops the concept of Urban Seascaping, which invites the idea of "seascaping" *with seaweed* in coastal urban environments, much like the way we landscape with trees and flowers. Ultimately, the intention of this conceptual proposition is to find alternative ways of reconceptualising the current dualistic relationship between the city and the sea that characterise B-A-U developments.

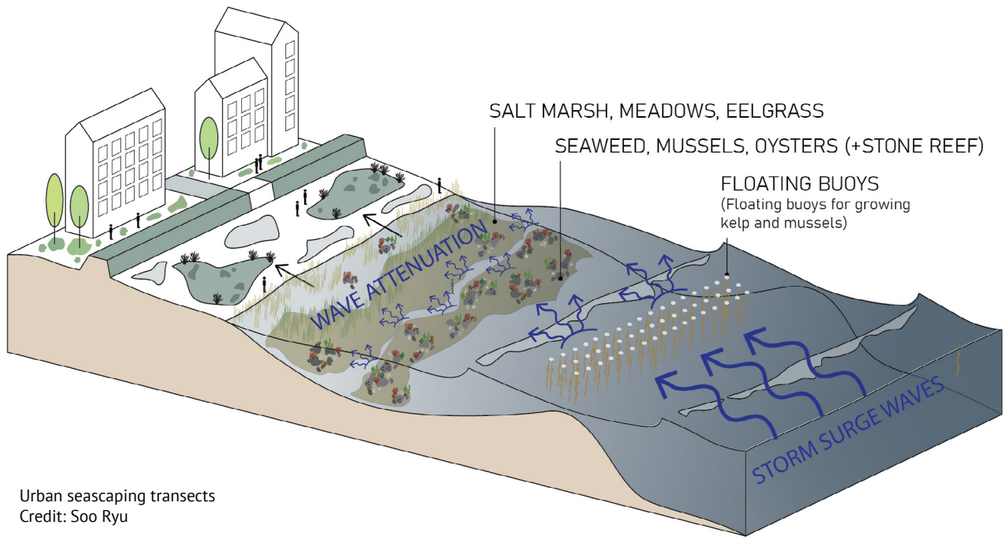
Furthermore, the concept of Urban Seascaping has been developed to present a set of guidelines and perspectives that together provide a framework that can aid in assessing and making informed design decisions for waterfront developments. In the project, four main propositions are put forward. The first proposition departs from an emerging approach called "Multispecies Urbanism", which suggests that cities should not be designed only for human occupation but for other (nonhuman) species. In the context of this research, this means extending the design thinking to include marine life



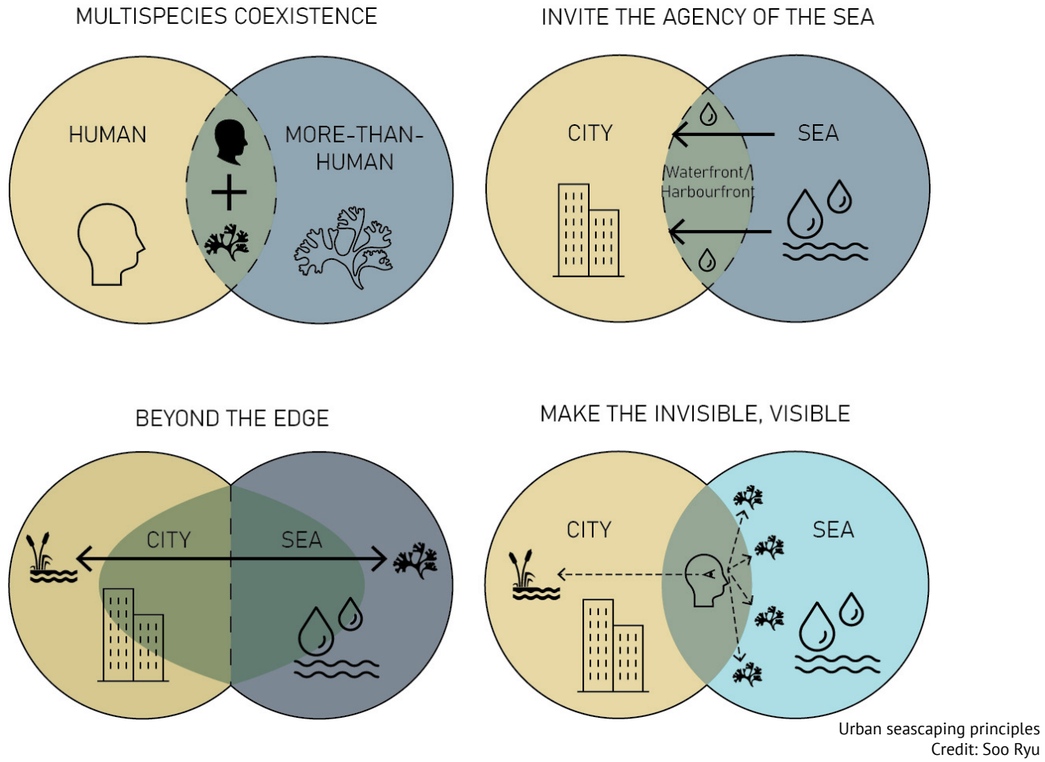
Multiscalar map (link to interactive)
Credit: Soo Ryu

(i.e. seaweed) as a design client and as a rightful resident of coastal cities that people need to learn to coexist with. The second proposition involves a more radical approach to coastal development, which suggests inviting the agency of the sea into the cities. This means departing from the current approach to constantly expand further out into the sea in the form of land reclamation and to embrace the rising sea level with the intention of transforming the waterfront areas into a more hybrid and dynamic place. The third proposition emphasises the need to go beyond the current preoccupation with "the edge" in favour of "a zone" when implementing nature-based solutions. This means addressing the interconnected networks of water that expand further into the landscape and out into the seascape, effectively challenging the conventional conception of a site. The last proposition highlights the importance of making visible marine lifeforms that are otherwise imperceptible to the human residents of coastal cities. This proposition addresses the longstanding exclusion of marine lifeforms in urban development and planning and thus seeks to engage in a spatial design approach that can bring them to the foreground and make their presence more known. Hence, Urban Seascaping serves as a critical proposition to induce transdisciplinary discussions on the value of integrating the forgotten and invisible agency of the marine realm into the visible urban realm for an equitable meeting place between humans and nonhumans. It contributes to the emerging field of blue urbanism and coastal urbanism from the lens of seaweed. That being said, it is not only a story about seaweed, but an ongoing and unfinished story of relations, entanglement, response-ability and extending our understanding beyond our immediate borders. Urban Seascaping with seaweed presents a small yet significant piece of the puzzle in addressing the climate crisis and the role the spatial design disciplines can play in coastal urban development.





Urban seascaping transects
Credit: Soo Ryu



Urban seascaping principles
Credit: Soo Ryu

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