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## **Cycle End of Boats' life and Coasts for creative projects on built environments in the post-pandemic future**

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### **Abstract**

Some coastal landscapes have become places of abandonment of boats at the end of their life. A growing phenomenon that affects many geographical areas, local communities, terrestrial and aquatic areas. The proposed theme is an investigation on the contemporary nature of coastal places and of the nautical wrecks abandoned in them as part of a landscape and intercultural research in progress based on relationships, interconnections, interspecific and spatial correspondences between natural environments, actions human and new life cycles (Life Cycle Assessment) in a post-pandemic scenario. Impaired coasts and boats can be transformed into landscapes and goods regenerated to new life for the near bio-centric future.

**Keywords:** *Cycle, End of Boats' life, Coasts, future, Mediterranean Landscapes*

### **1. Introduction**

International attention to issues relating to recent environmental protection, accelerated by the most global crisis, is imposing alternatives to the way of understanding the relationship between man and nature, for a more responsible use of natural resources and human actions. This kind of sensitivity also infects the aquatic dimension as a fundamental element and vital resource also for our future landscapes.

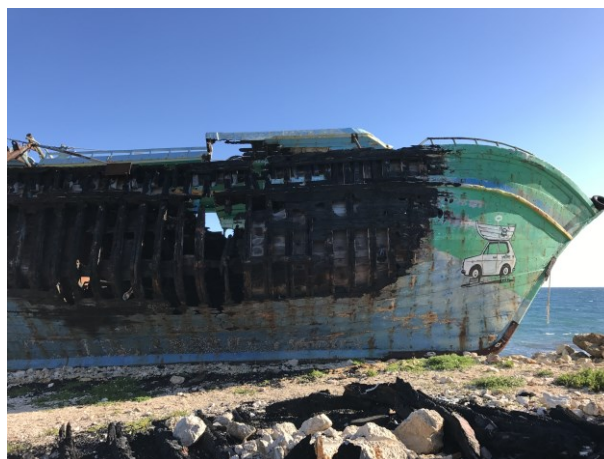
The research "End of Boats' life and Coasts" presents an original ongoing study of *Consortium Ciclo Fine Vita Imbarcazioni e Mezzi Galleggianti* (Italy) on the particular phenomenon of abandonment of boats at the end of life in the coastal environment, on the potential, inclusive relationships, new life cycles, the creativity and serendipity possible between nautical wrecks and depleted land and water elements. This is an investigation on a little investigated theme in the field of contemporary architecture and urban planning in contaminated coastal environments which, through a creative and cultural project, can change from an altered nature to new post-pandemic cultural spaces. In fact, culture "in its broad ethnographic sense is that complex whole that includes knowledge, beliefs, art, morals, law, customs and any other skills and habits acquired by man as a member of a society" (Tylor, 1871). Action that skilfully works to give meaning to everyday life (Agamben, 2014) can thus trigger mechanisms of a physical heritage with radical forms different from the usual, heterotopic, ephemeral, constructed and at the same time not completed spaces.

In the present case, the interspecific approach referred to boats and disputed is a tool to recover the sense of a particular abandoned heritage to return it to the community, regenerated and hybridized with the existing in the form of new cultural and spatial capital. Coastal areas occupied by nautical vehicles at the end of their life, in fact, can be redesigned and become usable landscapes for social communities (*societas*) for a wider territorial area capable of self-generating and guaranteeing an economic and cultural development for communities. In the current scenario on the state of coastal environments, the phenomenon of boats at the end of life represents a borderline case between the theory and practice of living in the aquatic dimension. It is a very powerful situation for the also on the creation of new living environments in a tension towards a different kind of sustainable and democratic beauty. The *Consortium Ciclo Fine Vita Imbarcazioni e Mezzi Galleggianti* operates in this research area as a grouping of Italian companies and associations recognized by the Ministry of Transport and the Ministry of Education, University and Research of the Italian Republic. It deals with innovative policies for the protection of the coastal environment, the sustainable management of the end-of-life cycle of boats put out of use, the procedures for the recycling of materials deriving from the demolition of boats, the research and environmental generation of marine and aquatic sites.

### **2. On materials and methods of end-of-life boats and the aquatic environments they have degraded**

On the border between the aquatic and terrestrial environments, the coastal area lives on the perennial relationship between man and nature in providing services and benefits for communities. In the last two decades, rapid geopolitical and social changes are also changing the appearance of the soils, the use and the way of living the relationship with the coastal area, generating complex forms of abandonment such as the case of abandoned

nautical wrecks. Different coastal margins of the globe (*bordscape*), in fact, carry the load of such bulky leftovers, a variety of boats considered no longer interesting by companies that first assimilate and then reject on certain geographical areas which for this reason become forced margins of contamination and reception in a constant change. These are the remains of boats, pleasure craft, molds of obsolete constructions stranded on the coasts or stacked in makeshift places, but also wrecks of laboriously censable naval vessels sunk due to damage or deliberately sunk. According to an estimate by the European Commission, obsolete small-sized pleasure craft units amount to about 25,000 per year, equal to 1-2% of the total, of which 95% are built in resin reinforced by a thermosetting process with glass fiber and / or carbon and, therefore, difficult to recycle (European Commission DG Environment, 2011). Many of these obsolete units occupy contexts in themselves degraded even as a result of inadequate use of the coast, clutter up aquatic areas or port areas, impoverish ecosystems, alter the perception of the landscape by overloading it with the weight of the ruin.



**Figure 1.** Hull of abandoned boat, then painted by dreams. Portopalo di Capo Passero, Italy.  
(Photo by Maria Maccarrone)

The phenomenon of the abandonment of nautical vessels becomes alarming due to the incidence and impact on society and nature in the case of large ships (beaching). In many cases, in fact, cargo ships, merchant ships, oil tankers, cruise ships or ferries that have reached an average life of thirty years are led to scrapping in poor areas of the planet where the cost of labor for the disposal of obsolete tonnage remains low due to non-compliance with international regulations on the environment and workers' health. According to data processed by world organizations, 862 ships at end of life were dismantled in the world in 2016, of which 87% in the regions of India, Bangladesh, Pakistan, Mauritania which, due to low market prices and non-compliance with international regulations, are still the main destination of obsolete tonnage of ships in the last two decades, with significant repercussions on the environment and health (Shipbreaking Platform, 2016). This is a growing phenomenon that affects many geographical areas, local communities, terrestrial and aquatic areas on which the most cumbersome nautical vehicles are left stranded. The Alang site on the Gujarat coast in the Indian Ocean, for example, is the largest area dedicated to the demolition of hulls. It extends for about 7 miles, involving about 160 places for recycling and involving about 30,000 people. The ships at the end of their life are led by tugs to the limit of the silty areas and abandoned there to the feeble tidal currents that drag the hull to the shore where a multitude of ant-men work to dismember the stranded vessel. This process is repeated on the Nouadhibou mudflats on the Mauritanian coast, in the Chittangon site in Bangladesh, in Gadani in Pakistan, in Conakry in Guinea. On the border between nature and anthropic environments, extensive geographical territories are affected by processes of "forgetfulness". The recognition of the fragile state of these particular terrestrial and aquatic environments, vital and limited, would be fundamental for their survival. Likewise, the set of boats at the end of their life cycle constitutes a vast nautical heritage of assets. In the era of the Anthropocene, it is an opportunity to rethink the relationship between built and nature to "support the symbiotic coexistence of both" (Rogers, 2017).

On nautical wrecks at the end of their life as pollutants for coastal environments and dangerous for the health and safety of workers, the European Union has produced the "Resolution of the European Parliament of 21 May 2008 on the Green Paper on better ship dismantling" (2007 / 2279INI) through which the first guidelines and mechanisms have been drawn up to consider "waste" any ship that is destined for scrapping that does not comply with the requirements of international conventions; the illegality of abandoning ships on the beach as an acceptable method of demolition; promoting the establishment of clean recycling facilities that ensure maximum protection of the environment, health and safety. Despite the transposition into Community law of the Basel Convention on shipments

of hazardous waste and the related amendment to the ban on exports of this type of waste to non-OECD countries, the situation was not satisfactory. In 2009, the International Maritime Organization adopted the "Hong Kong Convention for Safe and Environmentally Friendly Ship Recycling", in which the term "recycling" was defined as "the total or partial demolition activity of a ship at a ship recycling facility in order to recover components and materials for treatment and reuse, while paying attention to hazardous and other materials, including associated activities such as storage and treatment of components and materials on site, but not their further treatment or disposal in separate facilities" (Hong Kong International Convention, 2009). The Hong Kong International Convention also established that each new ship must have an inventory of hazardous materials and a specific handling plan for decommissioning and recycling (Ship Recycling Plan).

Following the Hong Kong International Convention, the European Commission adopted the "Strategy for better ship dismantling" in order to improve the demolition practices of disused ships making them safer for workers and the environment. With the "Regulation of the European Parliament and of the Council on the recycling of ships" (COM20120118 - C7-0082 / 2012 - 2012 / 0055COD) those actions were then outlined to prevent, reduce and minimize accidents, injuries and other negative effects on human health and the environment when ships and the hazardous waste they contain are eliminated or recycled. Nonetheless, to date only a fraction of the total number of decommissioned ships in the world is beginning to be managed in a safe and sustainable way. Within the EU, an updated list of sites authorized to carry out ship dismantling and recycling activities at the end of their life cycle has been published, to which owners of ships flying the flag of an EU country are legally required to refer according to EU health and environmental standards.

The life of boats has always been of interest as the ship "has been for our civilization, from the 16th century to the present day, not only the greatest instrument of economic development [...], but also the greatest reservoir of imagination. [...] A floating fragment of space, a place without a place, which lives for itself, [...] spaces that have the particular characteristic of being connected to all other spaces, but in such a way as to suspend, neutralize or invert the set of relationships that they themselves designate, reflect or mirror. [...] the ship is the heterotopy par excellence" (Foucault, 2009). Throughout history, ships have not just disappeared, rather they have been recycled. This process also takes place due to the value assigned to the components, "small elements that, when united with each other, look like ruins - representation of abandoned agglomerations as if time had destroyed or depopulated them - but are instead more similar to the interchangeable pieces of a game of constructions that can give rise to other forms, [...] element by element, piece by piece, each of which is destined to progressively enrich itself with the contribution of the other" (Augé, 2013). This approach, extended to the interaction of nautical wrecks with the environment, identifies new intercultural and interspecific research hubs for the design of landscape architecture that can offer new intervention methods, interactive, positive and interconnected between the built environment and nature. and to trigger new life cycles for derived products, applying biological criteria to industrial processes, almost without loss of energy (McDonough, 2003). In this sense, reconnecting nautical wrecks to altered places means creating the conditions for nature to flourish again and human beings to inhabit the world again in a poetic way (Balmori, 2009).

### 3. Results. From the end of life to the new life cycle for boats and nature

The set of end-of-life boats constitutes an original nautical heritage that can be treated through innovative eco-systemic approaches and which necessarily includes the sites on which the wrecks lie, special and hybridized places, a prelude to new evolutionary states with which to activate new cycles. of life.



**Figure 2.** Joana Vasconcelos, Floating Pavilion "Trafaria Praia". Venice (Italy), 2015. (Photo by Maria Maccarrone)

“The boundaries between art and ecology, infrastructure and intimacy are so many habitable opportunities to create lasting solutions of public space” (Wiess, Manfredi, 2015). Boats and impoverished coasts are studied as metaphors of a different dialogue between man and nature in which architecture becomes the tool through which to generate new spaces, create forms, other areas of connection, landscapes of innovation and renewed use in the near future. post-pandemic bio-centric.

Two case studies are examined: the Floating Pavilion "Trafaria Praia" by Joana Vasconcelos, the Pavilion of Portugal presented at the 55th International Art Exhibition La Biennale di Venezia in 2013 and the work "The Key in the Hand" by artist Chiharu Shiota, created for the Kanagawa Arts Foundation as part of the Japan Pavilion at the 56th International Art Exhibition La Biennale di Venezia in 2015. Joana Vasconcelos's project for the Pavilion of Portugal explores traditional values, habits, mythologies and customs, to appropriate of familiar objects and images and meticulously reworking them, assigning new meanings to the transformed elements, reflecting on the tensions between high and popular culture, public and private, local and global spheres, tradition and modernity. "Trafaria Praia" is the creative transposition of a typical boat of the city of Lisbon as a place of a geographical and metaphorical elsewhere.



**Figure 3.** Chiharu Shiota, *The Key in the Hand*. Venice (Italy), 2015. (Photo by Maria Maccarrone)

With the work "The Key in the Hand" by Chiharu Shiota, created for the Kanagawa Arts Foundation as part of the Japan Pavilion, curator Hitoshi Nakano, on the occasion of the 56th International Art Exhibition La Biennale di Venezia in 2015, the Berlin artist stages materials full of memories and traces of everyday life that silently permeate our minds and bodies. In this work, Chiharu Shiota uses boats as the archetype of hospitality and uses countless keys as a symbol of transmission of our goods and our feelings. A continuous thread of red wool holds old keys like a sea to symbolize the memories most dear to us. Old wooden boats placed on the floor are ready to collect the many individual memories and to transform themselves into a useful place for sharing new possible human bonds.

#### **4. Proposal**

The experimental research Life Cycle Floating Goods and Coastal Landscapes is part of an intercultural study between landscape architecture, architectural design, construction and maintenance processes of works for new correspondences and unprecedented inclusiveness between natural environments and human actions. Life Cycle of Floating Heritage and Coastal Landscapes is a project based on the awareness that the marine landscape is a vital and limited resource that must be guaranteed. For this reason, it is believed that the ecological drift of our different present necessarily also involves the nautical elements that have always interacted with the sea and that are of interest here for their entire life cycle (creation, production, demolition), including disposal and the interaction on the surrounding environments.

The development of Life Cycle Floating Goods and Coastal Landscapes research involves the identification and construction of an LCA (Life Cycle Assessment) experimental module with which to design an integrated and technologically intelligent nautical supply chain for small boats and coastal areas. The aim is to innovate processes and nautical safety for a more responsible use and monitoring of environmental and humanitarian resources in the next post-pandemic scenario. The study proposals under development are divided into three phases. Phase 1 Re-Land, ie an analytical survey of environmental criticalities and small boats in the areas of interference between land and water in different coastal stretches of the Mediterranean Sea (eg Sicily, Bosphorus). Phase 2 Re-Power, or the identification of timely strategies for the deconstruction and recycling of small boats at the end of their life with which to reuse materials and activate eco-sustainable models in the phases of construction, operation and recycling

(LCA). Phase 3 Re-Project, ie the creation of a "Boat Life Cycle" application module with which to implement a supply chain for the recovery of abandoned areas through nature-based solutions and the experimentation of new types of small boats and construction systems that are modular, eco-sustainable, recyclable and flexible to build virtuous growth (circular economy) in the yachting sector. The project actions are focused on innovative techniques, connective strategies and best practices to be extended and applied also on intermodal and multimodal services to strengthen regional development and cross-border cooperation of the main Mediterranean maritime corridors.

## 5. Conclusions

The research "Cycle End of Boats' life and Coasts for creative projects on built environments in the post-pandemic future" investigates original marginal pieces of coastal landscapes occupied by boats at the end of their lives as a phenomenon, memories and opportunities for the definition of a new context infrastructural and geographic with which to give life to other projects of post-pandemic contexts. The studies conducted in recent years by the Consortium for the End of Life Cycle of Boats and Floating Vehicles concern the analysis of the phenomenon of wrecks on coastal landscapes and the introduction of a "Boat Life Cycle" design module for connection with existing areas for the minimization of environmental impact, the restoration of human capital and artisan specialties in a vision of development of the coastal economic system and of technology transfer. The project actions are part of shipbuilding and Green Ship and Port, the results of which can support research and companies interested in sustainable and integrated growth of port areas, coastal sites and boats in the next post-pandemic and future scenario. bio-centric.

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## Conflict of Interests

The author declare no conflict of interest.

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