

Review

Bridging the Gap between Landscape and Management within Marinas: A Review

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Abstract: Marinas are known to be features related to nautical tourism. Nevertheless, the responsibility of managers does not lie solely on providing accurate services to boats, seafarers and visitors. Thus, an effective management should include other factors, because marinas are embodied in a singular space, with links to diverse nature. Landscape, known as the relationship between people and their environment, represents a set of these links. In this paper, we attempt to delve into the marina management and landscape. Firstly, a targeted exploration of the main issues related to the management of marinas was accomplished. Secondly, based on the previous items, a screening was carried out from a landscape viewpoint with the aim to establish which elements of marina's management are significant when tackling landscape. The results indicated that there is a concern with environmental aspects, specifically, on issues related to marine pollution and water quality. However, the determination of the main management-related issues, valued from a landscape perspective, may provide the main issues that need to be addressed in decision-making processes, incorporating the landscape dimension. Thus, we have attempted to understand and discuss how the landscape should be considered in marina management as a potential competitive advantage.



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1. Introduction

The landscape is defined by the European Landscape Convention (ELC) as “an area, perceived by people, whose character is the result of the action an interaction of natural and/or human factors” [1] (art. 1). The landscape is an essential component of human being's surroundings, because of the human interaction with their environment [2,3]. ELC has also highlighted the landscape as a contribution to human well-being and as an important economic resource in the global competition. One of the general measures of the ELC is to integrate landscape into policies [1], which also includes landscape management. It is understood as the set of continuing actions made to ensure the regular landscape's maintenance, throughout an evolving plan, which adapts to the transformations that societies have related to their lifestyle, their development, and their surroundings [4].

Marinas are features associated to nautical tourism, conceived as platforms to accommodate recreation activities on land [5–8]. Thus, the services provided are preponderant activities when dealing with decision-making process in the management of marinas. However, the responsibility of managers does not lie solely on providing accurate services to boats, seafarers and visitors. Supervision over control and good financial results makes successful marina management [9]. Marinas are a driving force of economic wealth [10,11]. A characteristic landscape should enhance a territory and its tourist appeal as a tourism image [12–14]. Thus, a landscape in a marina including an environmental quality and scenic views should be able to gain economic benefits [15,16]. Moreover, the communication of the image of the marina, through a landscape character, may also improve business [17].

The previously mentioned facts highlight the importance of landscape in the management of the marinas.

As the quantity of research in the field of marina management is growing, it is advantageous to consider the landscape. Although it is possible to find some documents regarding the landscape in the marinas [3,16], little research effort seems to have been focused on how to approach landscape within management.

The intention of this paper is to cover a lack of knowledge about how to deal with the landscape in marinas. To do this, we carried out a bibliographic review with a twofold objective. On the one hand, to underline the relevant elements to consider in the management of the marinas. The management of marinas comprises many aspects, it is a question of establishing which ones occur with higher incidence (RQ1). On the other hand, the second objective aimed to highlight the most significant elements of marina management from a landscape viewpoint. Within the most relevant elements in the management of marinas, it is question of identifying those that are most significant from a landscape perspective (RQ2) and, therefore, to address the landscape within decision-making processes.

2. Research Method

The research method used was a systematic literature review. This method required the undertaking of the research questions, followed by the formulation of a strategy to achieve the answers to the questions posed. We developed a research plan as an appropriate tool for the review, consisting of three main phases: (i) Data collection in the issues considered; (ii) Screening, where the relevant literature was selected by inclusion criteria; (iii) Analysis, refining the selection through additional inclusion criteria.

2.1. Data Collection

The purpose of this phase was to obtain the relevant literature in the field of study. The revision of the main marina management books represented the main way to fulfil the targets. In this sense, we made a review of the specific handbooks and manuals [18–27]. The results are shown in Table 1.

However, the aim was to focus on which topics were most the frequently addressed within the scientific literature related to the management of marinas. Scopus was used as academic database for this purpose. With the aim to obtain the maximum of information, the research was conducted with no limitations (subject area, document type or language), except the period, which adopted 2020 as a maximum. The terms “marina”, “tourist port”, “small craft harbour” and “management” were identified as searching criteria in the field article title, abstract, and keywords. The Boolean operators “AND” and “OR” were used to combine the three first designations with the topic “management”. Other terms such as “port” or “cruise” were not considered because they refer to commercial maritime activity.

With the aim to delve into the definition of marina, other relevant sources were used for the search, in addition to utilizing others such as grey ones, or researcher’s social networks, such as Researchgate or Mendeley.

Table 1. Marina management relevant issues.

Type	Description	References
Marina capacity	Berthing	[18–25]
	Dry storage	[18–22,24,26,27]
Service facilities	Water supply	[18–25]
	Bunkering	[18–25,27]
	Electrical equipment	[18–25,27]
	Sewage, storm water and waste disposal	[18–21,23,24]
	Boat handling	[18–24,26]
Environmental management	Pollution prevention	[19,22–27]
	Fire protection	[18–20,22–25]
	Ice protection	[18,19,24]
	Ancillary services	[20,22,24]
	Safety and security	[19–24]
	Landscaping	[20,24]
Buildings	Administration	[18,19,21,24]
	Social	[18,19,21,24]
	Sales and services	[18,19,21,24]
	Covered storage	[18,19,24]
Piers and walk structures		[18–20,24,27]
Development of grounds	Circulation roads	[18–20,24]
	Parking areas	[18,19,21,22,24]
	Boat yards	[18,19,22–24,26]
	Walks	[18,24]
Financial feasibility		[18–24,26]
Maintenance		[18–20]
	Dredging	[18,22]
Staffing and personnel		[18–24,26,27]
Level of quality/services orientation		[18,21–24,26,27]
Procedures and regulations		[18–24]
Liability and insurance		[19,21–23,27]

2.2. Screening

The contents of the aforementioned papers were broad, including issues not dealt with in marina management (marine areas, mangrove ecosystems, seagrass ecosystem, or nautical boats). Considering this, a screening process was accomplished with the aim to approach to the target issues. The analysis of the title and abstract allowed for the narrowing of the search, identifying the items related to the terms considered, and disposing of the others reading the title was used as the first filter criterion. If there was any doubt about the adequacy of the content, the abstract was also read as a second discriminator element. Sixty-one outputs were admitted to the following phase.

2.3. Analysis

This final phase represented the formulation of fulfilling the requested answer through the analysis of the selected papers. For this last approach, two suitability criteria were adopted. First, the topics obtained in Table 1 were taken as a reference. Adaptation with the landscape elements in marinas [16] was considered as a second validation criterion. A detailed read of the content of the papers was carried out to check the adequacy to the criteria adopted, and to categorize the issues to provide answer to RQs.

3. Results and Discussion

Figure 1 shows the number of articles finally considered. They cover a period from 1998 to 2020. It is possible to find references before this period e.g., [28,29], however they are either not numerically relevant or they have been used in the previous literature review e.g., [20]. The selected literature was used to provide an answer to the research question. For this purpose, we divided the section into the following subsections: (i) Main management items (RQ1); (ii) Landscape dimension within marina management (RQ2).

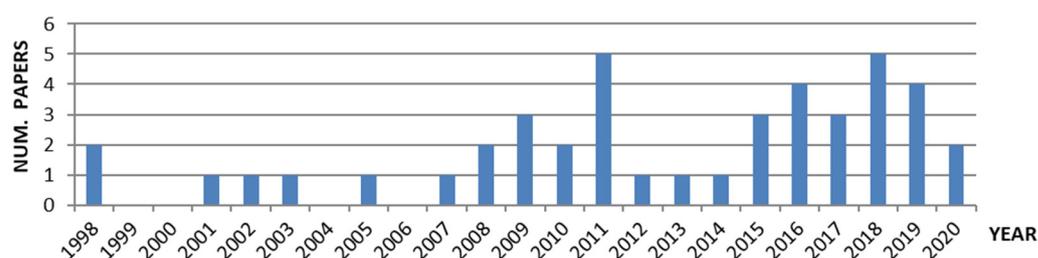


Figure 1. Selected papers organized by year of publication.

3.1. Main Management Items

Marina management has become increasingly complex. Firstly, it entails the balancing out of boat users, visitors, and neighboring residents with technical, economic, social, and environmental constraints [30]. Secondly, the powers of various authorities coincide in the marinas [31,32], thus coordination between them must be managed.

A first step when dealing with management of marina was to identify the main items through a literature review. Table 2 shows the results of the main issues.

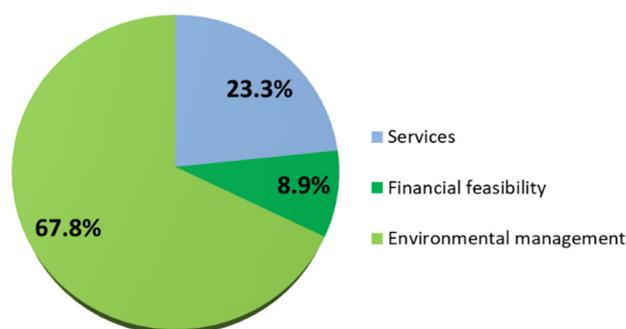
With the aim to tackle the management of marinas, we identified broad indicator issues. For this purpose, a review of the main categories related to marina management was carried out. Magalhães and Carmona [33] established four interlinked processes in public space management: the regulation of uses and conflicts between uses; routine maintenance; the new investments; the coordination of interventions in public space. Girard [10] has stated that the environmental assessment should also consider economic and social criteria. Kasum et al. [34] determined five categories for the optimal management of resources: safety, educational, protector, environmental, and management indicators. The European Commission [35] identified four key factors for a well-functioning marina sector: environment; services offer; marketing; and infrastructure. Lučić and Luković [9] indicated control and planning as two crucial factors of the successful management of the marina. In addition to providing services and obtaining economic revenue, Janković and Vlašić [36] recommended incorporating a greater interrelationship with social environment into the management of environmental issues and long-term sustainability. Bukša et al. [37] pointed out three specific issues related to the management of nautical tourism ports: development of basic services; seasonal character of the services; location in extremely ecologically sensitive coastal zones.

Based on the previously mentioned criteria, four main topics were considered when setting about marina management: (a) services provided; (b) financial feasibility; (c) environmental management; (d) maintenance. Table 2 shows the results of the literature review grouped into the considered main topics.

Table 2. Marina management's review.

Category	Type	References
Services	Berthing capacity	[36–39]
	Boat handling	[37]
	Shipyards and boat storage	[37,39–41]
	Buildings	[41,42]
	Parking facilities	[41]
	Auxiliary elements	[41]
	Access	[39,40]
	Circulation	[41]
Quality of services	[36,39,43–45]	
Financial		[36–38,46–50]
Environmental management	Marine pollutants	[37,38,50–56]
	Invasive species introduction	[56,57]
	Biological impact (habitat loss)	[47,53,54,58,59]
	Seabed alteration	[47,51,57,60,61]
	Waste management	[41,51,55,62,63]
	Social dimension	[37–39,55,64–66]
	Water quality	[36,54,57,66–73]
	Noise level	[66]
	Quality environmental certifications	[36,44,66,72,74]
	Promotion of nautical fairs	[75]
	Relationship with surroundings	[41,45,65,74,75]
	Environmental risk	[76,77]
	Safety and security	[39,43,78]

The results provided after grouping of the contents of papers analysed into the main topics are shown in Figure 2. There is an increasing interest toward environmental management, specifically on issues related to marine pollution and water quality. However, maintenance is not included in any of the analysed papers. It is not itself a subject of study, but it is considered as an intrinsic action in order to maintain the level of services.

**Figure 2.** Management subjects related to papers.

Focusing on marinas' services, the major goal of a marina is to attend to boats and their seafarers, and to provide leisure for the boatmen and visitors. The nature and variety of the services provided depend on the legal framework [58,79], the land availability [35,80,81], the compatibility of associated uses [82,83], as well as the type of owner and boat catered for [35,45,84]. Thus, boaters want to understand what sort of facilities and services they will find before travelling to a marina because variety and quality of services offered are a competitive advantage and a selection factor [20,85]. Port managers must learn from customers' needs and their requirements for the future [27,86]. The sale of services is one of the essential economic meanings of a port [86]. Martín [22] has defined a marina as a port used exclusively or primarily by pleasure boats, providing services for such boats and their users, and allowing the establishment of a transit between water and land in terms of comfort. Whilst commercial ports are designed to make the port stay of the vessels shorter,

marinas are conceived for leisure; therefore, the provision of a pleasant stay is attempted, seeking for a character of permanence more than the mere transit of boats and crews [22]. The services provided have been evolving, not only by technological advances, but also by the new needs of users. The principal design problem of the nautical offer is to coincide with the perspective of the users and what they request, and even to surprise them by providing more than they expect [26,87–89]. This fact requires flexibility enough within a programme, distinguishing between three main types of provisions: “*that which serves the boats, that which serves the owners and that which [. . .] is only remotely connected with boating or even not connected at all*” [20] (p.64). The focus on the various parts that encompass these factors characterizes the evolving stages in marina services: (a) boat-based, (b) human environment, and (c) community environment. In the beginning, marinas were places just for berthing boats, so it was necessary to take care of the boat. However, increased interest necessitated concern about the boat owner too: while the boat is safely afloat, the owner may enjoy himself. This changed the business from being conducted from offshore to onshore, to one also being focused on the desires of the boat owners and their requirements.

In relation to financial feasibility, it establishes the total costs and the probable return that may be expected over a given period, determining how successful a project can be. Nevertheless, this economic evaluation must consider both economic and non-market values because these maritime facilities have a high social value, and contribute to the enhancement of individuals’ welfare [90]. The marinas are tourist elements, generally associated to nautical tourism [5,45,84,88,91,92]. They need high investment; however, they usually have slow revenue. Moreover, they must guarantee the continuity of their economic viability through safe and successful port services and operations, retaining boat owners and visitors through the satisfaction of their requirements, and offering a high-quality service [45,84,87,93,94].

Focusing on the environmental management, it must be considered in a widespread definition, including topics such as minimizing environmental impact, enhancing environmental compatibility and quality, or the existence of certified management standards, between others [58,95]. The environmental protection is the main topic because the activities developed in the marinas are likely to generate impact on their environment. This item has been broadly studied by literature, such as pollution problems [15,56,70,73,96,97], conditions to the coastal dynamics [61,98], as well as to the flora and fauna [54,99–105]. Nevertheless, environmental management strategies are rare in marinas [57]. The relationship with the environment has been studied for the commercial ports, such as relations with their surroundings [79,83,106] or the safety of facilities [40,107,108], but to a lesser extent for marinas. The main topics related to the condition of the marina on the surrounding development are the participation of local communities [91,109–113] as well as the relationship with nautical tourism [6,89,92]. In addition, the sense of being in a secure environment, protected against danger, damage, and vandalism also has a positive impact on users of the marina [45,84].

Nowadays, new intangible items have been brought in the management of marinas. They have introduced new concepts related to environmental management, such as social aspects [111,113–115] and the character, understood as what makes the marina have a unique and different pattern from its surroundings [16,24,27,116]. In addition, the sustainability of the maritime facilities has been taken into account [66,113,117–119] in an attempt to find a balance between the tourists and the local residents or users, whilst facilitating the development of future opportunities.

Finally, the state of maintenance is in the group of main indicators of good management of marina because it is the cornerstone of the safety of the facility and its long-term survival [18,21]. Facilities should be maintained so that they may perform the functions for which they have been built [33]. As noted by Zhang et al. [120], it is also important to note that the marina is exposed to a harsh environment, which requires more attention, and the consequences associated with a disruption to services provided affects the efficiency and image of the marina. The marinas must not only present a level of satisfaction, but it is

also necessary to preserve it over time, performing the maintenance tasks for this purpose. In other words, the condition of infrastructural performance is directly related to quality perception [84,120].

In any case, in addition to the above, management processes should be based on flexibility and adaptation, with the capacity enough to create new services adjusted to users [118,121].

3.2. Landscape Dimension within Marina Management

To provide the landscape focus, the selected elements of the marina's management were analysed, taking into account the landscape's dimension. Based on Martín and Yepes' [16] analysis of the elements that embrace landscape within marinas, we confronted the most significant elements of the management obtained previously, with the elements of the landscape in marinas. As a determination criterion, we considered to main aspects: (a) physical and (b) perceived/subjective/social. The first one refers to the visibility properties of the elements, taking into account their size or their number. The second refers to the possibility to create an impression or judgement in the observer (positive or negative), as well as being able to establish links with the image of the marina to be transmitted (Table 3).

Table 3. Marina management's literature review.

Activity	Category	Subject	References
Services	Berths	Berthing capacity	Social
	Port uses	Boat handling	Physical
		Shipyards and boat storage	Physical
		Buildings (direct, indirect and ancillary services)	Physical/social
		Parking facilities	Physical
Mobility		Auxiliary elements	Physical
		Access	Physical/social
Financial feasibility		Circulation	Physical/social
		Port services	Supplies (water, electricity, bunkering, etc.)
Environmental management	Environment	Waste management	Physical/social
		Environmental compatibility	Physical/social
		Pollution prevention	Physical/social
		Water quality	Physical/social
		Landscaping	Physical/social
	Surroundings	Visual compatibility	Social
Other public agencies' relationship		Social	
Uses for adjoining land		Social	
Security		Fire protection and prevention	Social
		Safety and security	Social
Maintenance			Physical/social

A marina is a maritime infrastructure that responds to a lacking need in the environment, in particular, a sheltered area for boats. The alleviation of these shortcomings is materialized through the transformation of the natural processes using technology [122]. The absence of boats in a marina leaves no justification of the need for such infrastructure, causing not only the destruction of the existing landscape, but also social rejection [3]. Therefore, the degree of occupancy of berths reflects the degree of acceptance of this maritime infrastructure, because the small craft and the sailing boats are the justification of every marina. Besides, the variety of boats and vessels, and the maritime activity developed, have been an attraction since antiquity [20,123]. Vessels identify and configure all ports (Figures 3 and 9).



Figure 3. Figures 4–9 location map.



Figure 4. Viewpoints of the watershed depending on the distribution of the pontoons and boats, La Herradura (Granada) and Ceuta, ES.



Figure 5. Location of elements with a great visual impact, Portsmouth, UK.



Figure 6. Landscaping in marinas, Caleta de Vélez (Málaga) and Almerimar (Almería), ES.



Figure 7. Incompatibility between pedestrian and vehicle traffic, Almerimar (Almería), ES.



Figure 8. Port office as a landmark, Almerimar (Almería), ES.



Figure 9. The identification of a marina unit's environment, Kinsale, IE.

Water is an essential element within the design of the landscape [124,125]. This aspect is obvious in the marinas: their configuration (breakwaters embracing a sheltered sheet of water) provides a visual attractiveness and cultural links [126,127]. The surface of water is the focus of all ports [3,128]. The piers and pontoons are distributed on all these surfaces according to the characteristics of the boats and their maneuverability. In addition, this distribution determines the amount of the sheet of water seen. Thus, viewpoints will be more suitable where the dock is wide enough to allow a vision of an extensive water surface, or where the mooring lines are located at a minor angle than with respect to the direction of vision (Figures 3 and 4). Nevertheless, the importance of the extension of the surface of water seen is not only due to visual motives, but also of comprehension: the water is the means of transport of the boats, and it is bonded together with the rest of the surrounding water. There must be a visual coherence between sheltered and open water.

In relation to port uses, the first stage is to establish a spatial port planning, defined as a general plan of programmed actions with a dynamic nature in order to achieve future objective of management, starting with some personal constraints [129,130]. The use of the term “spatial planning” is an advantageous fact because it is becoming the term for territorial planning and policy making at all spatial scales [131]. Generally, spatial planning has been reduced “to little more than the allocation of land use and the logistics of distribution” [132] (p. 24). However, as discussed by Alemany and Bruttomesso [133], the traditional economic and functional approach to port spatial planning must be complete with another consideration, such as city–port relationship, cultural and heritage aspects, or landscape, among others. Therefore, the processes of spatial planning should address the relationship with the environment of the port from the sharing not only from space, but also of strategies and targets, starting from a mutual understanding of the respective requirements and needs, and with a shared negotiation of policies [10]. Complementary and compatible uses can help to improve these links between the marina and the city, serving as transition spaces from the strictly urban uses to the port uses, making port uses compatible with urban life [134].

With respect to the distribution of activities, the location of the elements with a great visual impact (Figures 3 and 5), such as ships yards, boat storage hangars, or parking lots, must be studied with the aim of not impairing the relationships above. It is also necessary to take into account the port character of these elements. In addition, landscaping is a tool whose use can help mitigate the visual impact of the elements, in addition to the attractiveness that it presents (Figures 3 and 6).

Regarding mobility, the port activities generate new traffic flows affecting the existing ones, both within the marina itself, and interfering with urban mobility [134]. An added difficulty rests on the ambiguity distinction between visitors and marina users, since both groups generally stay in the same place and use similar services [135]. In addition, the linear utilities have a significant effect on the visual environment, causing a fragmentation of the space and concentrating the flows [136–138]. Within these linear infrastructures, walkways and bike paths are important from the perspective of the landscape, both for its leisure character and for the lower speed circulation that allows more attention to be paid to the landscape. Moreover, the incompatibility between landscape users and a status may lead to various negative outcomes [139] (Figures 3 and 7). The path has some elements designed to make it more attractive for users, such as the width, traffic separation measures, greenery and woodland availability, and the presence of other pedestrians [140,141]. Nevertheless, it also must be a coherent and legible place, allowing for an easy way to find a destination and return [142], and it must provide viewpoints around it.

Related to port services, there are elements associated with the providing of the service required and which have an important visual impact because they strongly mark the area, providing sense and coherence to the landscape [143]. The port office or other buildings as the main construction for general services, or maritime signaling and beacons as primordial visual elements for sailing, also serve as visual attractors to the landscape (Figures 3 and 8). Most of these elements are easily identifiable at each port and provide

their own identity [144], which also help to avoid a homogeneous surrounding landscape. Therefore. These elements may improve the port's character, helping to enhance and imbricate it in the collective. It is also reached through the introduction of local peculiarities and practices [143,145], which also leads to the achievement of the concept of singularity at the place [132,146,147].

The search for links between small ports and users is achieved through the singling-out of space, which can be reached through several positions, mainly through the building elements and quality. First is to focus on the constructive elements of the port, both in the recognition and preservation of traditional elements corresponding to infrastructure or superstructure and the execution of new unique buildings which differentiate with respect to other ports, applicable to the port office, the building of services, fish markets, or the rooms of ship-owners [3,148]. If these traditional elements have a cultural heritage, they also help to enhance the character and the identity of the marina [149], which turns the space into the protagonist. Secondly, it is highlighted in the quality of the product offered, affecting both the provision of services and the environmental values existing within the port. It is also necessary to favour the permeability of the flows in the contact and provides a new vision that brings the port to its surroundings through the agglutination of these images.

Financial viability is not considered a direct influence on the landscape, but rather an indirect one, as the greater availability of economic resources allows a greater number of resources to deal with the landscape. Nevertheless, it is also necessary to consider that a pleasant landscape is able to generate economic benefits due to the quality of the environment and panoramic sights of its surroundings which are attractive to people [15,150].

Nowadays, there is an increase in awareness of the importance of the quality of the landscape [151], and environmental quality is one of the core values when perceiving the identity of the site [152]. Human uses of coastal waters interact with the natural environment depending on the nature and intensity of these activities. Marinas are crucial to maintain or enhance the environmental quality [63]. Marinas, as ports in general, are containers of contaminants due to significant factors [153,154]: they have been designed to create sheltered water (minimising hydrodynamic energy) and they are direct and indirect sources of pollution. The first one is due to the commercial activities developed inside (accidental spills, hull cleaning, painting, etc.) and, secondly, because they are receptors or industrial and urban activities (e.g., wastewater emissions). The environmental impacts of marinas have long been a topic to many scholars and researchers [100,155,156], specially related to recreational boats which are responsible for significant environmental challenges for waterways and seagrass [95,157–159].

If we focus on environmental management in marinas, firstly we must take into account that anthropogenic activities can generate diversity and a decrease of the quality of the coastal environment [160,161]. Landscape visual quality is directly linked to public perception [162], and a neglect of the environment can represent a decrease in the attractiveness for visitors and users of the marina [16,160]. This fact is more remarkably related to the surface of water of the basin: directly, it is the focus of the marina, and indirectly, it affects seawaters. Secondly, waste management has a double impact over marina landscape, both on the environment and on the landscape. It is not just adopting guidelines for the compliance of applicable legislation to dangerous and non-dangerous waste, but also that waste itself has a visual impact [63], and a poor management produces a decrease in the image of the marina, also negatively affecting the environment. Finally, the adoption of codes of action and environmental certifications encourage the marina to move beyond compliance with environmental quality [160]. The implementation of contingency plans against marine pollution and environmental management certificates are guarantors of the maintenance of the environmental quality.

The most important goal in the relationship of the marina with its surroundings is to get people to perceive this space as something of their own. Place is not a mere physical space but is conditioned by other intangible elements, such as cultural practices [132] or the

existence of a “genius loci” as the strong character of a place with clearly defined and easily identifiable features that determines their image and identity [146]. In addition, Girard [10] (p. 178) has defined a place as “spaces characterized by high levels of values and meanings, with interconnections in time and space of different components (tangible and intangible) that determines a sense of unity and wholeness”. The gaining of this character should be achieved by transforming the marina into a focal point of attraction of its environment, improving the interaction and exchange of experiences [3,127,163,164]. Therefore, every place is configured as a physical reality and a subjective perception [145,164,165]. It can be stated that “place” is obtained by adding to “space” the set of relations between configuration and environment; it is a cultural site. When a space becomes a place, its vision becomes landscape. However, the relationship with the environment is also developed in a physical way: the marina, as a coastal infrastructure, affects the dynamic process and generates impacts on the adjacent coast [60,166,167]. Measures must be taken to avoid shore erosion and to encourage the preservation of the environment, such as beach nourishment or by-pass process [168].

Place is defined not only by its quantitative and qualitative properties, but also by its surroundings [169]. Thus, the needs of the environment should be addressed as far as possible by analysing the relationships and influences of both [10]. Enhancing the interchange fluxes of knowing between the marina and its environment helps strengthen these relationships. These fluxes can be physical (permeability) and social (porosity). On the one hand, the best way to know a site is through the ripple effect, that is, to favour its permeability [169]. In analogy with waves, when their transmission through the medium is not possible, they disappear. It is necessary to seek into the balance between existing flows and port operability, which allows penetrating within the reality of space. The accumulation of the coherent visions of a space allows for the achieving of its conception and understanding as a place [170]. In addition, there must be a visual compatibility with the environment. As noted by Krause [143], a local landscape image reflects a part of the landscape’s general spatial character. Therefore, it should attempted to encompass the broad spatial pattern and its interconnections, enhancing the value though the natural, socio-cultural features. On the other hand, the term porosity refers to a more diffuse interface and emphasises the overlapping of the different socio-economic dimensions [171]. The proximity to environmental amenities and disamenities in the surrounding area is an indirect reflection of the value of the space [172]. In this sense, the arrangement of adjacent spaces and their complementary uses help to resolve the transition between the different uses. Moreover, the overlapping of the mutual knowing in a territory—such as the promotion of the nautical promotion in the surroundings and the promotion of the surroundings within the marina—and urban level—the celebration of marina activities within the port or the cession of port space for urban uses—are factors of imbricating those spaces.

New governance may be encouraged and spread out, characterized by an adaptive, participative, and reflective management, involving all stakeholders and inhabitants. This strategy allows for the creation of a more positive image of the marina and a greater relationship with their environment [10].

The marina must be able to create a relationship between physical elements and the needs of people, transforming the conceived space and the living space. It must be sought that people form an integral part of the visual environment: as space become socialized, it becomes place [170,173]. The planning process must drive this new space in concordance with the social memory, that is, the new space must have be attractive enough for people to assume the new meaning and impose it on the previous one [174]. The introduction of the new codes in the significance of space must be based on the set of intangible elements that constitute the “soft values” of the marina, which produce new benefits and promote correlation with their environment [10,175].

Security and landscape are related in the sense of taking all the measures to protect a place, and preserving its state. In an analogy given by Sklenicka et al. [176], the success

of preservation strategies is dependent on a blend of incentives, planning actions, and restrictions. Incentives should be considered, as all actions are carried out with the aim of getting stakeholders involved. Planning actions are related to all processes, driving how to preserve the landscape or the features that comprises the landscape. In a general sense, emergency plans for different issues, e.g., pollution prevention, marine contingency plans, and even maintenance plans, should include a landscape preservation approach. Finally, the port space close to urban uses may be considered as undeveloped open space, and the high value of these areas increase pressure over port uses. Nevertheless, all open space is not public space; although public space invites interaction between people, relaxation, or walking [177], the port activity presents uses in intensity, danger, or economic benefit that justifies its separation from other spaces. However, these separations must be sufficiently permeable not to isolate the port from the urban uses, and should not be a barrier to urban flows [16,20]. In addition, surveillance is a preventive measure to prevent the deterioration and ensure the preservation of the landscape.

Another measure to preserve the state of the landscape is through maintenance, that is, all the actions carried out with the aim of preserving it in its being, giving vigour and permanence. As Zhang et al. [120] has shown, the main reasons for port infrastructure maintenance are: (a) maintaining the operating level of the feature for the maximum lifetime; (b) the exposure environment is aggressive; (c) the high cost of the consequence associated with port infrastructure failure. From the perspective of landscape, the maintenance must be considered in two ways: visual and structural. Firstly, the maintenance will be more important than the greater visibility elements to be considered (Figures 3 and 10), both by their volume (breakwaters, seawalls, buildings, docks, and berths) and by the number of observers (e.g., statutory services, pavements, landscaping, public spaces and urban furniture). Secondly, it also ensures that the elements maintain their function, there being coherence between the element and its meaning (e.g., a port mouth loses its function and meaning if the siltation and lack of dredging produces its closure) Thus, the condition of visual and infrastructural performance affects the efficiency of port landscape.



Figure 10. Maintenance of seawalls, Almerimar (Almería), ES.

Although landscape is a recurrent topic in the regeneration of waterfronts and derelict port areas [133,145,178–184], this issue is addressed to a lesser extent in marinas, sometimes in a vague and ambiguous way.

Some scholarships remark the pleasant environment as a major attractive stimulus for users of marinas, formed as a harmonic and balanced set of shapes on land and water [18,185]. A pleasant atmosphere where sharing experiences also represents an element which lure visitors to marinas [161,186]. The aesthetic conditions should also be expanded to the relationship with the environment [20,163]. Girard [187] has analysed various factors related to the beauty of ports. Martín and Yepes [16] identified the elements that integrates the landscape in the marinas. Therefore, the landscape is a strategic factor that influences port management [39].

In order to investigate marina management, it could be beneficial to analyse other researchers' scientific databases. The use of more related terms and Boolean operators could also help expand the field or review. Likewise, each marina has its own particularities, both from an environmental, social, economic, or cultural point of view. This makes this review a mere starting point, and not a general procedure. This represents a tool for each marina manager to make modifications so that the marina will be better characterized.

Finally, based on the concept of landscape, which is understood as a relationship between people and its environment, this review shows which of these elements may be considered for the implementation of the landscape within marinas. In this sense, it can be seen that that landscape goes beyond a mere physical perception, and that the social/subjective aspects should be taken into account when considering the marina landscape. This better understanding represents a two-fold competitive advantage: on the one hand, it allows a better identification of the elements for its management; on the other hand, it allows the implementation of specific strategies when dealing with the image and identity of the marina.

4. Conclusions

We have carried out a review of management issues related to marinas. We have identified a concern on environmental aspects, specifically on issues related to marine pollution and water quality. Nevertheless, an assessment from the viewpoint of landscape revealed a lack of consistency in the applied frameworks. This review showed that landscape is often excluded from management. Therefore, it seems to be reasonable to establish a relationship between landscape and management.

The ELC has called for the assessing of landscapes, in identifying their characteristics and in defining quality objective. In this way, based on visibility and social perception, it was possible to establish a set or relevant elements within marinas, both from the perspective of management and landscape. This provided a starting point to introduce landscape in marina management. However, the related elements may vary depending on each marina, since each one has its own particularities, whether social, cultural, economic, or geographical. Research effectiveness will be best enhanced through a rating of the elements that constitute the landscape in each marina and how they are managed.

Faced with the particular idiosyncrasies of the marinas, landscapes play an essential role in defining the people's welfare, the environmental quality, and the scenic views, as well as being an important economic resource. Therefore, it is possible to remark the importance of landscape in the management of the marinas and its consideration as a potential competitive advantage.

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