

THE PRESERVATION OF THE TAGUS ESTUARY TRADITIONAL BOATS: NEW ISSUES AND CHALLENGES

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ABSTRACT

Up until the 1960s, Tagus Estuary traditional boats played an important role in the functioning of the economy of the region and city of Lisbon as a transport mode used for the movement of goods between the banks of the Tagus and as support to the movement of cargo to and from the ships anchored in the Port of Lisbon. However, technological progress and development of regional transport system observed afterwards led to functional disuse and gradual decline of these boats. In the 1980s, social and institutional acknowledgement of their cultural and patrimonial value provided for the launch of the process of recuperation and preservation of these traditional boats. However, nowadays the preservation of these patrimonial elements faces a complex of new challenges which in some cases threaten their sustainability. Supported by the analysis of the valorisation process of the Tagus Estuary traditional boats and based on experience of various local stakeholders, the article analyses, discusses and systematizes major contemporary challenges for the preservation of these traditional boats.

Keywords: Traditional Boats; Maritime Heritage; Preservation of Cultural Heritage; Local Stakeholders.

JEL Classification: N74

1. INTRODUCTION

The historical importance of the Tagus Estuary traditional boats is based to a great extent on the role played by these sailing vessels in the functioning of the transport system that supported the economic and functional relations established by the city and port of Lisbon with its area of influence (Fernandes & Pinto, 2012; Fernandes & Vale, 2015). The lack of road connections between the north bank and the south bank of the Tagus Estuary in the Lisbon region, as well as the weakness of the regional road system, meant that, until the beginning of the second half of the 20th century, the transport of goods between the banks and along the navigable sector of the Tagus river was made using these vessels. As Carrasco (1997) points out, “the transport of goods wasn’t restricted to the traffic between the two banks; it was also important the traffic between riverine settlements in the upper estuary and the city [of Lisbon]” (author’s translation). This transport service ensured the transport of goods which were destined to supply the city of Lisbon and also to the export market

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(through the Port of Lisbon), including the transportation of different types of products, from raw materials to finished products, transport of salt and wine, sand or cork, sugar and cereals, coal and even garbage (Fernandes & Pinto, 2012; Fernandes & Vale, 2015). The functions performed by these vessels, the diversity of operation areas and the style of each shipyard/shipbuilder were factors that together contributed to an important typological diversity of traditional boats (Curtinhal, 2007; Nabais, 2009; Fernandes & Pinto, 2012), including: *Fragatas*, *Varinos*, *Faluas*, *Botes*, *Botes-de-fragata*, *Botes do Pinho*, *Botes de Meia-quilha*, *Cangueiros*, *Barcos de Água Acima*, *Canoas* and *Catraios* (Figure 1).

Figure 1. *Varinos*, *Botes* and *Fragatas* moored in Ribeira Nova Quay, Lisbon



Source: Centro de Documentação e Informação da APL - Administração do Porto de Lisboa, SA.

Until the 1960s, the practical utility of these vessels as a mode of transport and their use guaranteed their preservation. However, three main factors determined its functional obsolescence and subsequent decline. The first factor is the development of the regional road network, namely the construction of two bridges between the banks of the Tagus Estuary: the first bridge was built in 1951 in Vila Franca de Xira, approximately 30 km north of the city center of Lisbon; the second bridge was built in 1966, between Lisbon and Almada. The second factor is related to the rapid development of the road freight transport services in Portugal. The combination of these two factors resulted in an increasing competition from road transport as a competitive alternative to inland waterway transport supported in traditional boats services. Finally, the third factor is related to the progressive introduction of motorized vessels, with greater operational efficiency than traditional boats (Curtinhal, 2007; Fernandes & Pinto, 2012). As a result, the 1960s and 1970s were marked by a progressive decline and abandonment of these vessels.

It was only in the late 1970s that these vessels were socially and institutionally recognized as cultural heritage elements symbolically representative of the identity and culture of the Tagus Estuary riverine territories. A recognition that resulted in the recovery, preservation and safeguard of the Tagus Estuary traditional boats by different local stakeholders, namely the municipalities, nautical clubs and citizens/individual owners (Fernandes & Pinto, 2012). The recognition of these vessels as cultural heritage is supported by the definition proposed by ICOMOS, according to which cultural heritage “is an expression of the ways of living

developed by a community and passed on from generation to generation, including customs, practices, places, objects, artistic expression and values” (ICOMOS, 2002). More precisely, this process underlies the recognition of the Tagus Estuary traditional boats as “maritime heritage afloat”, a concept that “embraces the single traditional ship in which is found the evidence of a particular civilization or significant development as well as traditional sailing, seamanship and maritime workmanship” (European Maritime Heritage, 2003).

This process of valorization of traditional boats occurred according to two main approaches: patrimonialist/constructivist and, in more recent moment, productivist (Fernandes & Pinto, 2012). The first one refers to a process of recovery in which traditional boats are perceived as attributes of a culture and ancient ways of life, where these patrimonial elements acquire symbolic and also educational value. In addition, according to Fernandes and Pinto (2012), this valorization has also associated a constructivist dimension, according to which “the cultural heritage is understood as a result of a social construction process, i.e., accordingly epochs and social groups valorize and legitimate certain patrimonial elements and not others. (...) the cultural heritage is understood as a symbolic identity representation, but also as synonym of culture in many occasions” (Pereiro Pérez, 2003; author’s translation). The recovery and preservation of these vessels by municipalities and nautical clubs for the purpose of raising awareness, as well as the recovery and preservation for recreational and leisure purposes by individual owners, constitute examples of this composite approach. Regarding the productivist approach, it involves the valorization of traditional boats as a cultural resource for the development of economic activities, namely for maritime tourism activities (Fernandes & Pinto, 2012). There are some examples of companies that have been carrying out this activity with small and large traditional vessels.

Currently, there are about 80 Tagus Estuary traditional boats (including several replicas) of large size (*Varinos* and *Botes*) and small size (*Canoas* and *Catraios*), the latter being largely predominant. Nevertheless, the systematic work that the authors have been developing on the Tagus Estuary traditional boats, as well as the contact established with several local stakeholders involved in the preservation and safeguard of these vessels, allowed to verify the existence of a set of new challenges and threats to the preservation process of this floating heritage. The article focuses precisely on the contextualization and discussion of the challenges and threats perceived by local stakeholders, aiming to contribute: (i) to their clarification and systematization; (ii) to deepen knowledge about the complex of challenges to the preservation and valorization of Portuguese and European maritime heritage; (iii) to the construction of solutions that respond to these challenges and threats in different areas.

2. RESEARCH METHODS

The identification of the challenges and threats to the Tagus Estuary traditional boats was based on the application of a face-to-face questionnaire to local stakeholders directly involved in the preservation and valorization of these vessels. The survey was applied between February and April 2017, with 32 responses distributed among the following categories of local stakeholders: individual owners/skipper (*Arrais*) of traditional boats (13 stakeholders); nautical clubs (8 stakeholders); municipalities owners of traditional boats (6 stakeholders); shipyards/self-builders of traditional boats (3 stakeholders); maritime tourism companies (2 stakeholders). The selection of these stakeholders was based on the fact that they are key participants in the preservation and valorization process of Tagus Estuary traditional boats, and therefore have knowledge relevant to understand this process. These stakeholders own/represent 34 traditional boats, which corresponds to approximately 42.5% of the existing fleet (totaling about 80 traditional boats in operation).

The survey was structured in 3 parts. Part I aims to understand the perception of the local stakeholders regarding the challenges/threats to the preservation of the Tagus Estuary traditional boats, including the following questions: (i) recognition (or not) of the existence of challenges/threats to the preservation of these vessels; (ii) identification of challenges/threats according to their nature (i.e. legal nature, regulatory nature, financial nature, infrastructural nature, environmental nature, and formative nature). Part II is focused on the evaluation of the challenges/threats to the preservation of these traditional boats by local stakeholders, including the following questions: (i) classification of the influence of different factors as threats to the preservation of the Tagus Estuary traditional boats; (ii) identification of the three most important factors according to the level of threat they represent to the preservation of these vessels. Part III corresponds to the assessment of local stakeholders on the performance of different entities regarding the preservation of the Tagus Estuary traditional boats, including the following questions: (i) identification of measures that should be adopted to promote the sustainability of the Tagus Estuary traditional boats; (ii) classification of the work developed by a group of stakeholders (i.e. municipalities, Administration of the Port of Lisbon, Captaincy of the Port of Lisbon, Directorate-General for Natural Resources, Security and Maritime Services, Seixal Municipal Ecomuseum, nautical clubs, maritime tourism companies, shipyards, self-builders and owners/skippers) considering their contribution to the preservation and promotion of traditional vessels. In view of the scope and objectives of this article, it is focused on the analysis and discussion of the results of Parts I and II of the survey.

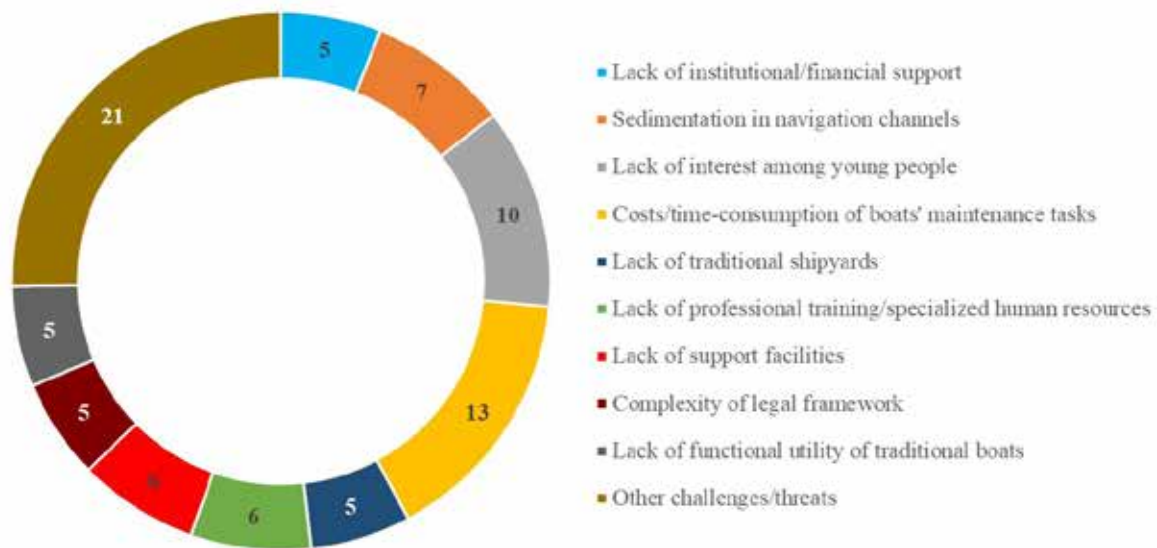
3. RESULTS

The survey applied to local stakeholders made it possible to identify the existence of a general recognition about the occurrence of a set of challenges/threats that threaten the preservation and sustainability of the Tagus Estuary traditional boats. Specifically, 96.9% of the local stakeholders (31 stakeholders) consider that there are several challenges/threats to these traditional vessels. Only 3.1% of the local stakeholders (1 stakeholder) declare that there are no relevant challenges/threats.

Regarding the analysis of the results of Part I of the survey, focused on the perception of the nature of these challenges/threats (Figure 2), it is verified that the maintenance costs and the time-consumption of the annual maintenance process of these wooden vessels is the challenge/threat that the majority of local stakeholders identifies (13 stakeholders).

The lack of interest among young people in relation to these traditional boats represents another relevant challenge/threat and is identified by a significant number of local stakeholders (10 stakeholders). The third challenge/threat most commonly referred to by local stakeholders (7 stakeholders) involves an environmental factor, i.e. the sedimentation process of the navigation channels used by traditional boats. A challenge/threat that is felt mainly on the south bank of the Tagus Estuary, reflected in limitations on the number of tides with sufficient water height for the navigation of these vessels, but also in the limitation of the time period with navigability conditions during a certain tide.

Figure 2. Perceptions about the challenges/threats to Tagus Estuary traditional boats preservation



Source: Own Elaboration

On the other hand, the lack of support facilities for supporting the navigation in traditional boats and the lack of professional training related to the construction/maintenance of traditional boats (reflected in the lack of specialized human resources), are challenges/threats identified by 6 local stakeholders.

It should also be noted that the following challenges/threats are identified by 5 local stakeholders: lack of institutional/financial support for the preservation of traditional boats; lack of traditional shipyards (currently there is only one active shipyard dedicated to the construction/maintenance of traditional boats); lack of functional utility of traditional boats; complexity of legal framework related to traditional boats.

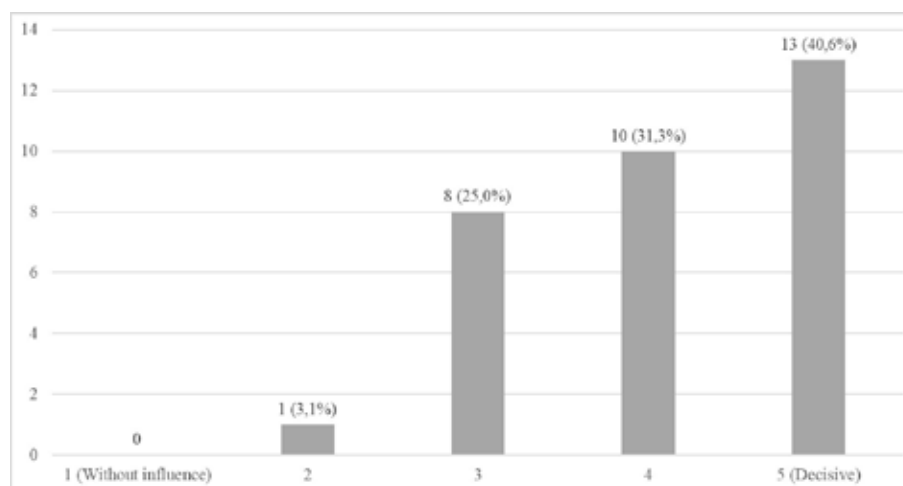
Finally, 21 local stakeholders have identified other challenges/threats, for example: technical requirements and costs associated with the construction process of traditional boats; lack of quality raw material for the construction of these vessels (i.e. wood); lack of a policy focused on the preservation and valorization of the Tagus Estuary traditional boats; cost of building a traditional boat.

Regarding the Part II of the survey, it is focused on evaluation the challenges/threats to the preservation of traditional boats by local stakeholders, through the classification of a set of 14 factors considered as challenges/threats to this preservation process. These factors were previously grouped in different natures of challenges/threats: legal nature; regulatory nature; financial nature; infrastructural nature; environmental nature; formative nature.

From a legal perspective, three factors could be identified as challenges/threats to the preservation and sustainability of traditional boats: (i) lack of a specific legal framework for Tagus Estuary traditional boats; (ii) technical requirements of the construction process of traditional boats; (iii) requirements to develop maritime tourism activities with traditional boats. Regarding the first factor, it is related to the lack of a legal recognition or classification of the Tagus Estuary traditional boats as traditional vessels/cultural goods. These traditional boats do not have a protection status. They are currently classified as recreational crafts, and are therefore subject to complying with the provisions applicable to recreational craft in general. There are some exceptions, like the boats owned by some municipalities which have a municipal classification status. This is the case of the *Varino* "O Boa Viagem", owned

by Moita Municipality, which is classified as cultural good of municipal interest. It should also be pointed out that currently the owners of traditional boats can voluntarily join an association - Associação Marinha do Tejo -, passing their vessels to constitute themselves as part of the Portuguese Navy Museum (Museu de Marinha), in accordance with the Order (Despacho) no. 15897/2008 of June 11. This adherence presupposes an evaluation of the compliance of the traditional boats according to the parameters established by a “Regulation of Compliance of the Tagus Estuary Traditional Boats” (“Regulamento de Conformação das Embarcações Típicas do Tejo”), published by the Order (Despacho) no. 6010/2009 of February 23. According to Claro (2008), the legislation already allows the riverine municipalities to make an inventory and classify these vessels as cultural goods of municipal interest, with the consent of the owners and based, for example, on a municipal regulation on the inventory and classification of traditional boats. Something that was not carried out by these municipalities. The lack of a specific legal framework for traditional boats is a factor classified by the majority of local stakeholders (40.6%) as a decisive challenge/ threat to the preservation of these vessels (Figure 3), while 31.3% of the local stakeholders consider that this challenge/threat is very important as it might endanger the preservation and sustainability of the Tagus Estuary traditional boats.

Figure 3. Evaluation of the challenges/threats to traditional boats preservation - Lack of a legal framework for traditional boats

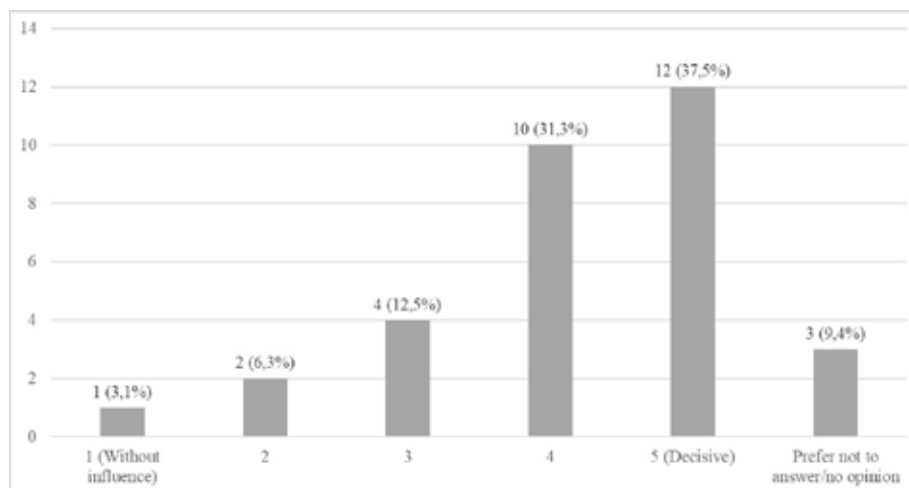


Source: Own Elaboration

Considering the second factor of legal nature, it is related with the technical requirements of the construction process of traditional boats. These boats are currently classified as recreational crafts. In this way, their construction process is regulated by the Ordinance (Portaria) no. 1491/2002 of December 5, which defines the safety conditions and certification, dimensional characteristics, tonnage and classification of recreational crafts. Taking into account that Tagus Estuary traditional boats are vessels for navigation in sheltered waters, with a length of 5-12 meters, the Ordinance establishes that the application for obtaining a license for the construction of a vessel must be accompanied by the following elements: detailed descriptive memory; geometric plane; general arrangement design; master section; other structural and stability drawings. A set of requirements that represents a decisive challenge/threat to the preservation of traditional boats for 37.5% of the local stakeholders (12 stakeholders), while 31.3% of stakeholders (10 stakeholders) understand that it is a very important challenge/threat (Figure 4). This perspective of local stakeholders is related to two main aspects. The first aspect concerns historical reasons, related to the fact that

these traditional boats were historically constructed without construction plans. For that reason, their characteristics were a compromise between the requirements determined by the ship-owner and the “eye” (or style) of the shipbuilder. As Mendes (2013) points out, “in a time when there were no drawings only the masters knew the final result of the work” (author’s translation). The way in which an old shipbuilder (Mestre António Cruz) describes the difference between *Botes* and *Faluas* is indicative of the influence of the style of each shipbuilder in the form and diversity of traditional boats: “Mestre António described the Botes as having a more masculine appearance (...), this being the reason for their names, whereas the Faluas were more feminine (...) and were frequently, but not invariably, named after women” (Leitão, 2002). The second aspect that justifies the perspective of the local stakeholders regarding the technical requirements of the construction process of traditional boats is related to the high costs of technical drawings and stability calculations. This tends to constraint the construction of new traditional boats, since it represents an expressive cost, adding up to the costs that result from the construction of the traditional boat itself.

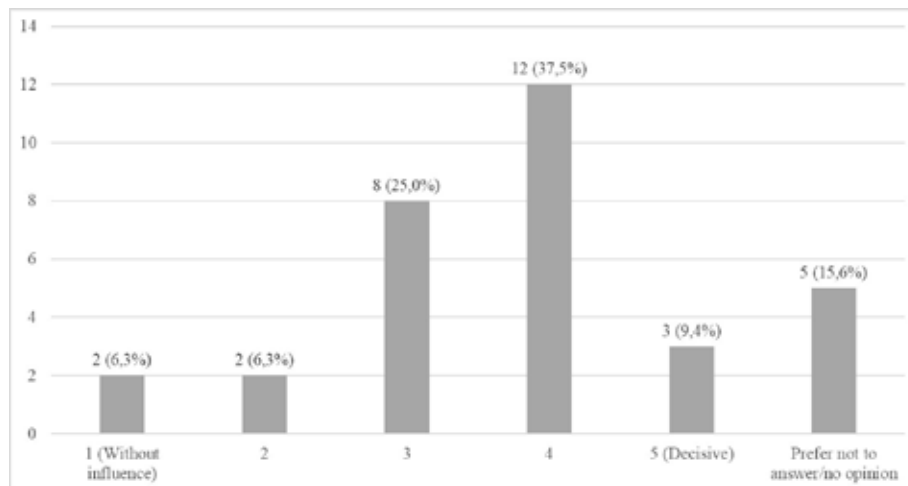
Figure 4. Evaluation of the challenges/threats to traditional boats preservation - Technical requirements of the construction process



Source: Own Elaboration

A last legal factor is related to the development of maritime tourism activities with traditional boats. This activity is currently regulated by the “Regulation of vessels used in maritime tourism activity” (“Regulamento das Embarcações Utilizadas na Atividade Marítimo-Turística”) – Decree-Law (Decreto-lei) no. 149/2014 of October 10 –, which establishes that the following vessels may be used in the maritime tourism activity: maritime-tourist vessels; commercial vessels; fishing vessels; tugboats; recreational crafts; vessels exempted from registration; traditional boats or typical boats. Regarding the latter, the law states that their activity is regulated by a specific statute, although this statute has not yet been published. In this way, traditional vessels must comply with the requirements applicable to recreational craft, which may represent an obstacle to the development of maritime tourism activities using traditional boats. According to local stakeholders (Figure 5), the requirements for the development of these activities represent a very important challenge/threat for the preservation of traditional boats in the opinion of 37.5% of the stakeholders (12 stakeholders) and an important challenge/threat for 25.0% of the stakeholders (8 stakeholders). Only 9.4% of the local stakeholders (3 stakeholders) rate this challenge/threat as decisive.

Figure 5. Evaluation of the challenges/threats to traditional boats preservation - Requirements to develop maritime tourism activities



Source: Own Elaboration

Focusing the analysis of regulatory factors, another factor that might pose a challenge/threat to the preservation and sustainability of traditional boats is the requirements to organize a traditional boats regatta. It is important to mention that, since the end of the 1980s, traditional boats regattas have been important moments for the celebration of cultural traditions related to Tagus Estuary traditional boats, as well as for the promotion of these vessels among the local communities (Figure 6).

Figure 6. Traditional boats regatta in Sarilhos Pequenos, Moita

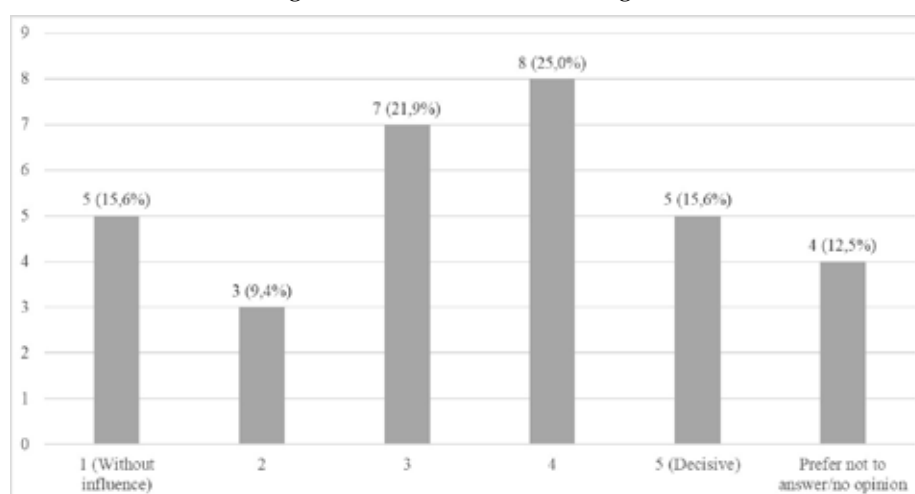


Source: Associação Naval Sarilhense

Besides their contribution to the visibility of the traditional boats and to raising heritage awareness among local communities, these initiatives have also played a significant role in promoting the construction/reconstruction of new vessels (mainly *Canoas* and *Catraios*), with technical characteristics more appropriated for their participation in these events. It should be noted that the competition between the owners/skippers (*Arrais*) of traditional boats is not a new phenomenon. Since the time when these vessels were used in the transport of goods there are records of disputes between owners/skippers (*Arrais*) to gauge the fastest vessel and

the skipper (*Arrais*) with greater skills in the art of sailing. Leitão (2002) describes a dispute between the *Bote* “Leão” and *Falua* “Diana” dating from the mid-twentieth century: “What is undoubtedly is that the «Leão» and the «Diana» sustained an intense rivalry between them, and that the *Bote* was sometimes able to outsail the *Falua* to windward. The story is still told, at Alcochete, of the day when Estevão de Oliveira, after beaten by his rival in one of these improvised races, as so enraged that he drew his knife and slashed a new cotton sail to ribbons, returning to the boat landing under oars”. Specifically with regard to the requirements to organize a traditional boats regatta, it should be pointed out that there is no legal recognition or classification of these vessels as traditional boats. Consequently, these events are classified as sporting events, and not as cultural events. As a result, the entities that authorize the realization of these events, namely the National Maritime Authority – Captaincy of the Port of Lisbon, in accordance with the powers conferred by Decree-Law (Decreto-lei) no. 44/2002 of March 2, require compliance of a set of conditions that some nautical clubs partially consider as barriers to the organization of this type of events. In this regard, they highlight the need for an insurance to cover the risks inherent to the practice of the activities, for the participants and for the damages caused to third parties. There is an understanding that these regattas are sporting events, and since these traditional boats generally do not have insurance that covers the participation in sporting events, it has repercussions on the need for the organizers (essentially nautical clubs) to take out their respective insurance, which represents a relatively high cost compared to the financial capacity of these clubs. Regarding maritime safety issues, it is interesting to note that one of the recommendations of the 7th European Maritime Heritage Congress focused precisely on the need to “change the mindset of regulator so that safety, of course must be given priority, but safety can be obtained in different ways”, adding this document that “important is the maritime heritage can be maintained and not threatened” (Divisão de Património Histórico e Museus, 2008). The analysis of the results of the survey points out that, when asked about the level of threat inherent to the requirements to organize a traditional boats regatta (Figure 7), 21.9% of the local stakeholders (7 stakeholders) consider it as an important challenge/threat, while 25.0% consider it to be a very important challenge/threat (8 stakeholders).

Figure 7. Evaluation of the challenges/threats to traditional boats preservation - Requirements to organize a traditional boats regatta

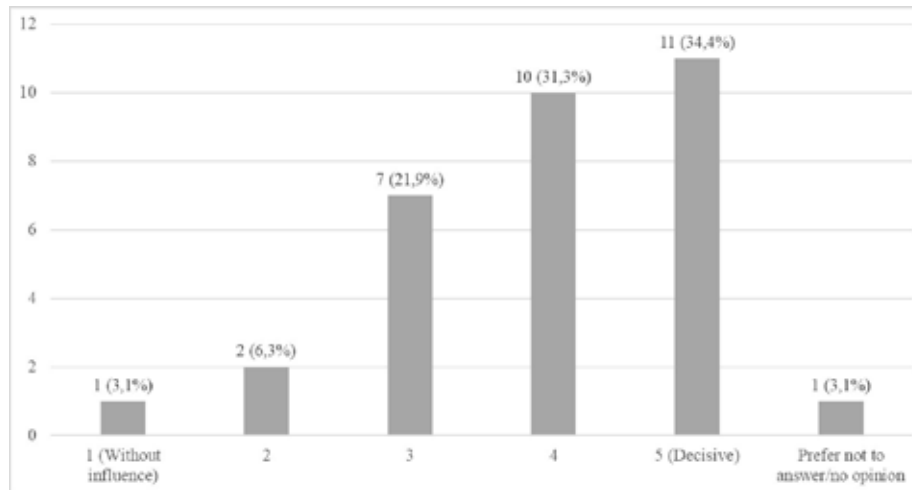


Source: Own Elaboration

Regarding factors of financial nature, the following potential threats to the preservation and sustainability of traditional boats were considered: (i) construction costs of a traditional

boat; (ii) maintenance costs of a traditional boat; (iii) parking costs of a traditional boat; (iv) costs of traditional boats insurance; (v) costs with taxes applied to traditional boats; (vi) costs of taxes applied to nautical clubs' concession areas. Concerning the construction costs of a traditional boat (Figure 8), the majority of the local stakeholders considers this factor as decisive (34.4% - 11 stakeholders) or very important (31.3% - 10 stakeholders) challenge/threat to the preservation of these vessels.

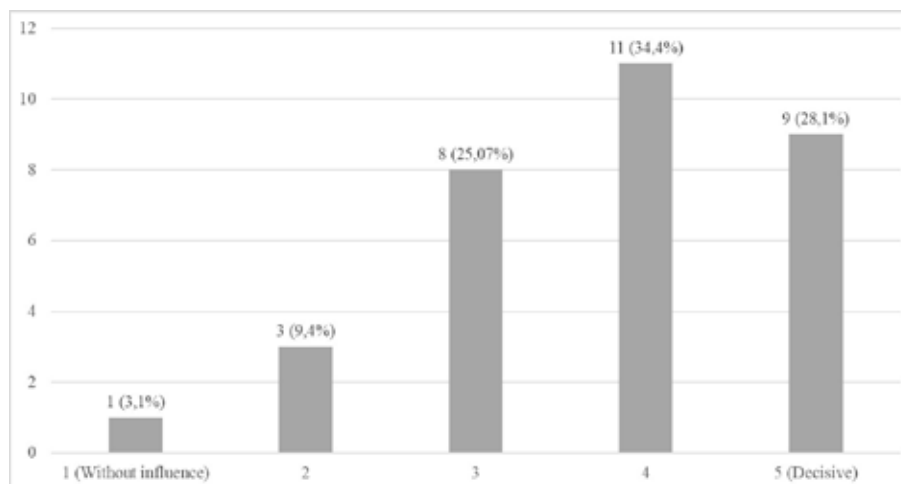
Figure 8. Evaluation of the challenges/threats to traditional boats preservation - Construction costs



Source: Own Elaboration

The maintenance costs of traditional boats (Figure 9) are identified as a very important challenge/threat to its preservation and sustainability by 34.4% (11 stakeholders) and as a decisive challenge/threat by 28.1% (9 stakeholders) of the local stakeholders. It should also be noted that several stakeholders expressed their concern about the lack of financial or other support to the owners of these vessels.

Figure 9. Evaluation of the challenges/threats to traditional boats preservation - Maintenance costs

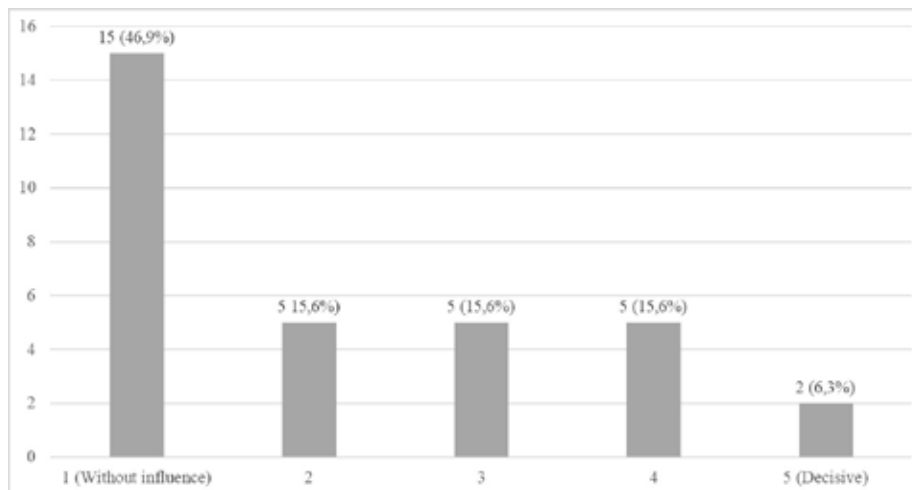


Source: Own Elaboration

Regarding the parking costs of traditional boats, it should be borne in mind that the current situation in the Tagus Estuary is quite different when considering the cost of parking on the North bank and on the South bank. On the North bank, parking takes place mainly in marinas, recreational ports and recreational docks, having a relatively high cost. On the

South bank (the main concentration area of traditional boats), parking of traditional boats occurs mainly on beaches, in anchorages or in small support infrastructures provided by nautical clubs and municipalities, without costs or with relatively low costs. In the opinion of the majority of local stakeholders (46.9% - 15 stakeholders) parking costs of traditional boats do not represent a challenge/threat to their preservation or sustainability (Figure 10).

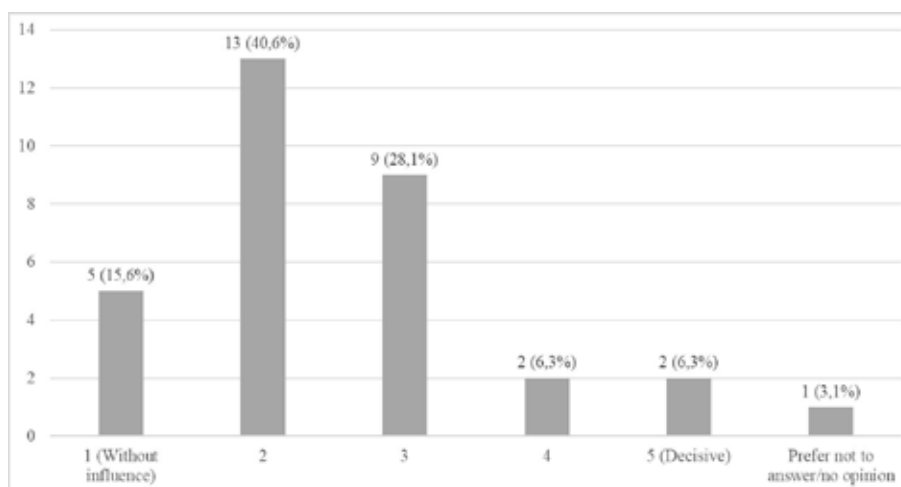
Figure 10. Evaluation of the challenges/threats to traditional boats preservation - Parking costs



Source: Own Elaboration

The insurance costs for traditional boats are essentially related to the civil liability insurance policy legally required for navigation on recreational crafts, which is established by the Decree-Law (Decreto-lei) no. 124/2004 of May 25. Regarding the level of threat posed by these costs, local stakeholders state that it is moderate (Figure 11), with 40.6% of the stakeholders (13 stakeholders) considering that these costs represent a challenge/threat with low influence in the preservation process, and 28.1% (9 stakeholders) considering that these costs are an important challenge/threat.

Figure 11. Evaluation of the challenges/threats to traditional boats preservation - Costs of boat insurance

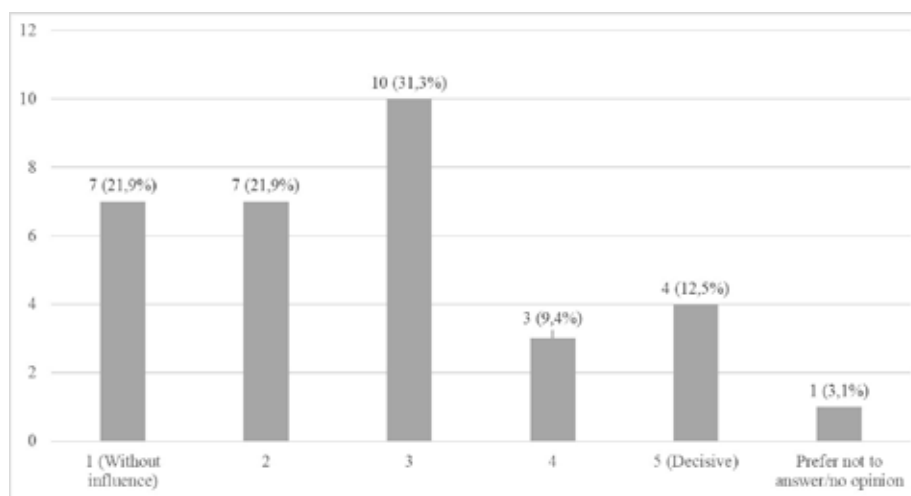


Source: Own Elaboration

In the same way, tax costs (e.g. lighting and signaling taxes, inspections) is not considered a factor with a very important or decisive influence on the preservation of these vessels

(Figure 12). In fact, 31.3% of the local stakeholders (10 stakeholders) select this factor as an important challenge/threat, while in 43.8% of the local stakeholders (14 stakeholders) consider that this factor has no influence or has a low influence on the preservation and sustainability of traditional boats. The value of these taxes, as well as the fact that some traditional boats are currently exempt from their payment, contributes to this perception by local stakeholders. For example, traditional boats owned by the Associação Naval Sarilhense are exempt from the payment of the lighting and signaling taxes under the Article 2 of the Decree-Law (Decreto-lei) no. 12/97 of January 16, which states that “vessels belonging to foundations and associations of social solidarity, as well as those belonging to social solidarity particular institutions or other non-profit private collective persons, used exclusively for humanitarian purposes, namely search and rescue, and for learning “ (author’s translation) are exempt from the payment of these taxes.

Figure 12. Evaluation of the challenges/threats to traditional boats preservation - Tax costs

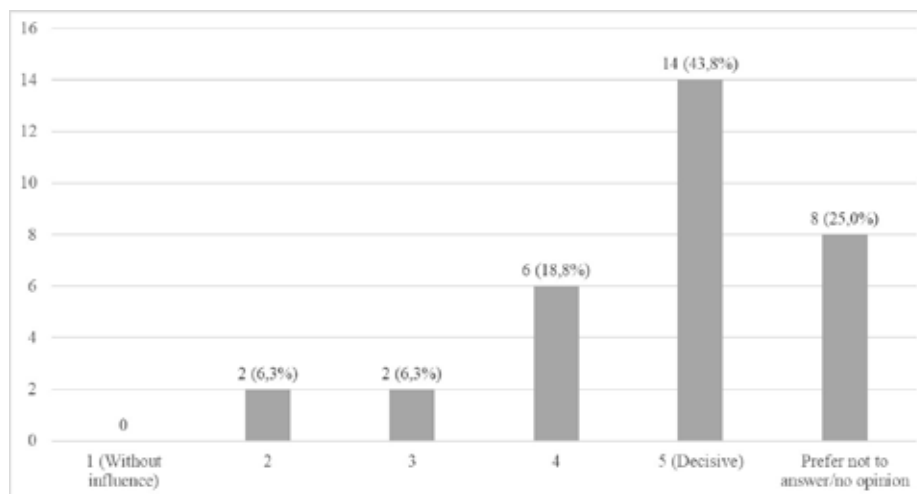


Source: Own Elaboration

Regarding the costs of taxes applied to nautical clubs’ concession areas, their consideration as a factor that could affect the preservation and sustainability of traditional boats must be understood from the following perspective. The nautical clubs related to traditional boats have played a very important role in the preservation and promotion of these vessels, mainly through: (i) direct recovery and conservation of traditional boats, with some nautical clubs having their own traditional boats (e.g. Associação Naval Sarilhense, Associação Náutica do Seixal, Associação de Desportos Náuticos Alhosvedrense “Amigos do Mar”); (ii) support to the boats maintenance through the permission for the utilization of their facilities (infrastructures and supporting equipment); (iii) promotion of the access to water by boats and crew members/passengers through the supply of infrastructures (e.g. portage ramps) and other equipment (e.g. bridge-wharf); (iv) promotion of initiatives in educational and heritage awareness (e.g. organization of field trips); (v) organization of nautical events for the promotion of traditional boats (e.g. regattas, traditional boats meetings); (vi) promotion of maritime heritage and riverine culture, for example through the organization of thematic exhibitions and scientific/technical events (Fernandes & Pinto, 2012). The areas where these nautical clubs are installed generally are included in the Public Domain (Water) of the State managed by the Port Authority (Administration of the Port of Lisbon) and used by these clubs through private use licenses that give them the private use rights. For that, nautical clubs pay certain amount to the Administration of the Port of Lisbon, calculated according to the extent of the area and the type of occupation of the area (depending on

the type of occupation, rates with differentiated values are applied). The costs of the taxes applied to nautical clubs' concession areas are commonly pointed out by these clubs as representing a high effort, which constraints their activity in favor of the preservation and promotion of Tagus Estuary traditional boats, since these taxes absorb a relevant portion of their revenues. A perception that is reflected in the results of the survey (Figure 13), which reveals that 43.8% of the local stakeholders (14 stakeholders) consider that these costs represent a decisive challenge/threat to the preservation and sustainability of the Tagus Estuary traditional boats, while 18.8% (6 stakeholders) classified this challenge/threat as very important.

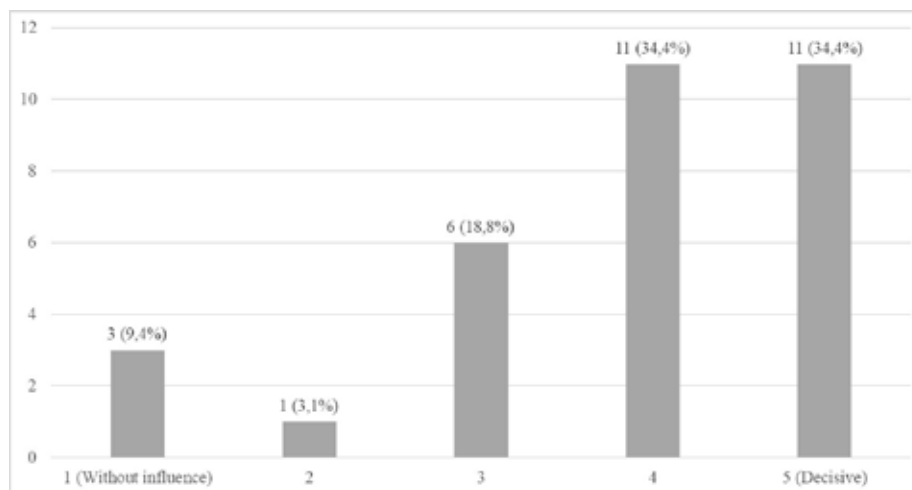
Figure 13. Evaluation of the challenges/threats to traditional boats preservation - Costs of taxes applied to nautical clubs' concession areas



Source: Own Elaboration

Analyzing the factors of infrastructural nature, their relevance stems from the fact that the support facilities for recreational boating and, in particular, for traditional boats represent a basic condition for access to water and, in this way, for a safe access to water. It should be noted that the access conditions to water are very different in the North or the South bank of the Tagus Estuary, with the offer in South bank being less developed. This led the Administration of the Port of Lisbon to assume as one of the objectives of the “Tagus Estuary Integrated Plan of Supporting Infrastructures for Nautical Recreation” the promotion of a greater balance and adequacy in the territorial distribution of the offer of these facilities (Administração do Porto de Lisboa, 2010; Figueira de Sousa *et al.*, 2011). Regarding factors of infrastructural nature with influence in the preservation of traditional boats, the following were considered: lack of support facilities for boats; lack of support facilities for crew members/passengers. In relation to the first one (Figure 14), 34.4% of the local stakeholders (11 stakeholders) consider that the lack of conditions of access to water by vessels is a very important factor, similar percentage reached those who believe that this lack is a decisive factor as a challenge/threat to the preservation of traditional boats.

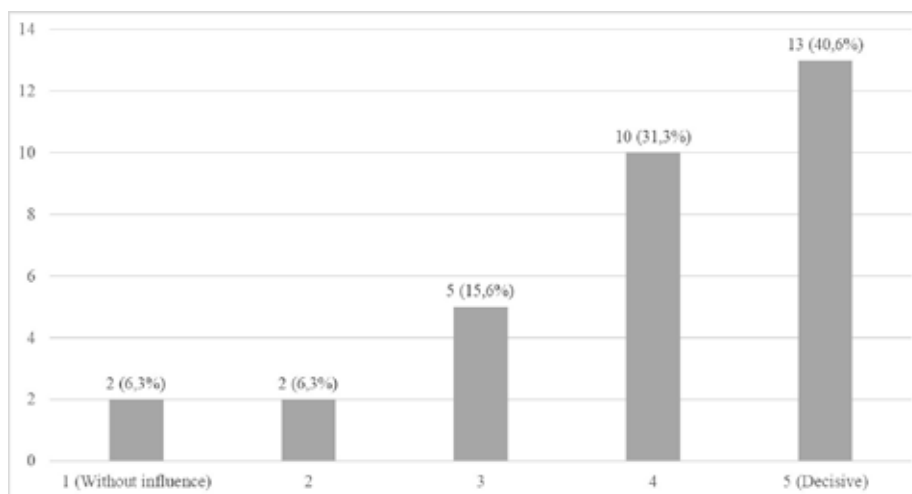
Figure 14. Evaluation of the challenges/threats to traditional boats preservation - Lack of support facilities for boats



Source: Own Elaboration

On the other hand, 31.3% of the local stakeholders (10 stakeholders) classify the lack of support facilities for crew members/passengers (Figure 15) as a very important challenge/threat, while 40.6% (11 stakeholders) classify this lack as a decisive threat to traditional boats.

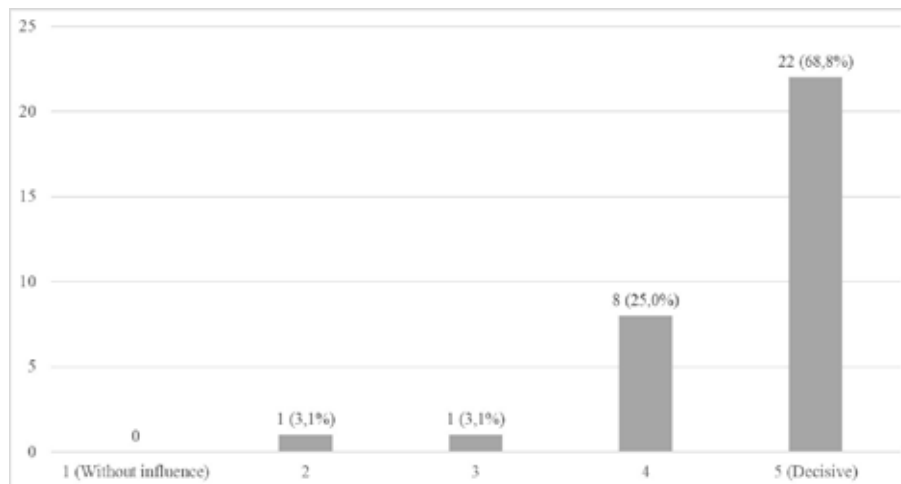
Figure 15. Evaluation of the challenges/threats to traditional boats preservation - Lack of support facilities for passengers



Source: Own Elaboration

Regarding the environmental factors, the main challenge/threat identified is the process of sedimentation of the navigation channels used by traditional boats, mainly on the South bank of the Tagus Estuary. It should be noted that part of these channels are classified in the 3rd level by the “Channels Regulation” of the Port of Lisbon. In other words, these are channels in which the Administration of the Port of Lisbon does not assume maintenance or monitoring responsibilities. Due to the greater use by traditional boats, the following channels should be pointed out: Moita-Alhos Vedros Channel; Montijo Channel – Section II; Alcochete Channel. From the point of view of the large majority of the local stakeholders (68.8% - 22 stakeholders), sedimentation of navigation channels is a decisive threat to the preservation and sustainability of traditional boats (Figure 16).

Figure 16. Evaluation of the challenges/threats to traditional boats preservation - Sedimentation in navigation channels



Source: Own Elaboration

However, it should be noted that some investments have been made in order to improve navigation conditions on some sections of these navigation channels, whose maintenance was once essentially ensured by the water flow-backflow movements supported by tidal mills existing along the estuary banks. Two examples of these investments are particularly remarkable, both in Moita Municipality. The first one involves the construction of a weir to remove the accumulation of sediments from the channel near Moita Village (Figure 17), one of the main areas of concentration of traditional boats. The second example is related to the recovery of the system of an ancient tidal mill – Alhos Vedros Tidal Mill –, to remove the accumulation of sediments from the channel near Alhos Vedros Village.

Figure 17. Mechanical weir of Moita

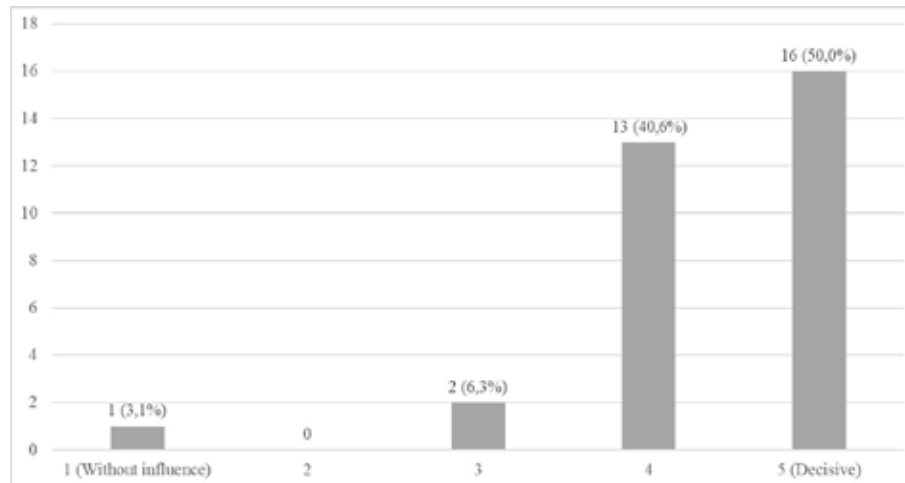


Source: Own Elaboration

Finally, regarding formative factors, it was considered as a potential challenge/threat the lack of professional training related to the construction/maintenance of traditional boats (e.g. shipbuilders, caulkers, painters). In the medium-term it should threaten the capacity of

construction and maintenance of these boats, especially large vessels. From the point of view of local stakeholders (Figure 18), this factor represents a decisive challenge/threat for 50.0% of the stakeholders (16 stakeholders) and as a very important challenge/threat for 40.6% of the stakeholders (13 stakeholders).

Figure 18. Evaluation of the challenges/threats to traditional boats preservation - Lack of professional training

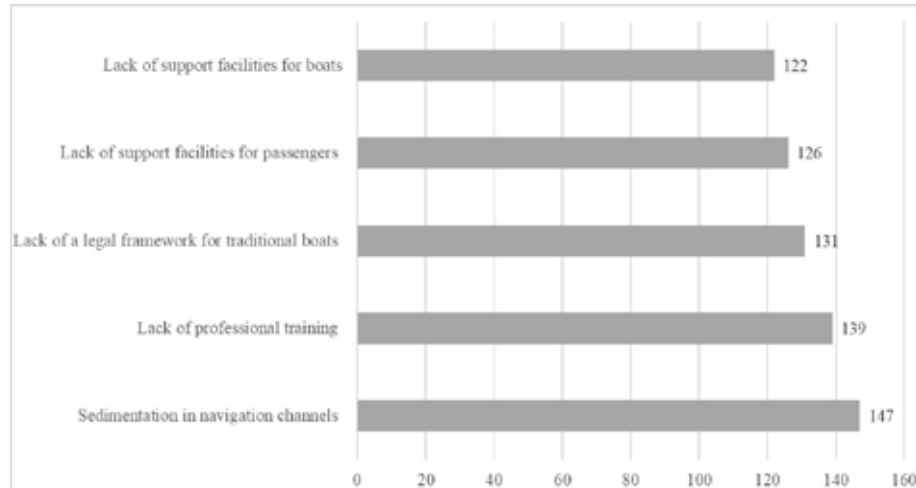


Source: Own Elaboration

4. DISCUSSION

The analysis of the perception of local stakeholders in relation to the various factors that could represent threats/challenges to the preservation and sustainability of the Tagus Estuary traditional boats highlighted the differentiated evaluation that these stakeholders make in relation to the level of threat that such factors represent. There is thus a perception that, for several reasons, some factors will tend to produce more relevant effect on the sustainability of this floating heritage than others, although there is a series of new and complex issues and challenges. It was decided to focus the discussion on a set of factors that, from the perspective of local stakeholders, represent a greater and more effective level of threat to the preservation of traditional boats. In order to understand the assessment attributed to each factor, we made the sum of the evaluation of the threat level made individually by local stakeholders for each factor considered by the survey. The Figure 19 identifies the five factors that, from the perspective of local stakeholders, represent the greatest threats/challenges to the preservation and sustainability of traditional boats.

Figure 19. Most important challenges/threats to traditional boats preservation



Source: Own Elaboration

The analysis of these results shows that the main challenges/threats to the preservation and sustainability of the Tagus Estuary traditional boats involve factors of different nature, including: environmental nature; formative nature; legal nature; infrastructural nature. It is important to note that financial factors have not been evaluated by local stakeholders as one of the main challenges/threats to traditional boats, which is particularly interesting when the costs associated with the maintenance and preservation of floating heritage are often identified as a challenge/threat that could jeopardize its preservation and safeguard. Focusing the analysis on the main factors identified by local stakeholders (Figure 19), one of the greatest concerns is the sedimentation of the navigation channels. An environmental challenge/threat that does not affect exclusively the navigation on traditional boats, although it occurs in a remarkable way in channels that guarantee the access to some of the main concentration areas of traditional boats (e.g. Montijo Channel – Sector II that allows access to Montijo and Sarilhos Pequenos). As mentioned previously, the sedimentation process – a natural phenomenon in estuaries –, creates limitations to navigation with these vessels, including: (i) limitation on the number of tides with sufficient water height to ensure safe navigation conditions; (ii) limitation of the time period with navigability conditions during a certain tide; (iii) limitation of the estuary areas in where it is possible to navigate, as a result of the progressive reduction of depth (especially on the South bank). Regarding this last aspect, it should be mentioned, for example, that some regattas of traditional boats annually carried out in the riverside areas of Sarilhos Pequenos (Moita) and Montijo changed the regatta sites for *Canoas* due to the sedimentation of some areas. In addition, since sedimentation is a natural process, if no measures are taken (e.g. remove the accumulation of sediments and/or construction of weirs/other structures), the associated effects will become worse over time, affecting negatively the navigability in the estuary and, in particular, the navigation on traditional boats.

The second main challenge/threat identified by local stakeholders is the lack of professional training related to the construction/maintenance of traditional boats (formative nature factor). Indeed, this impossibility of replacing the current (and last) specialized professionals in the various areas related to traditional shipbuilding (especially shipbuilders, caulkers and painters) will tend to constitute an important challenge/threat to the preservation of the traditional boats in the medium/long-term. This is a particularly relevant challenge/threat in the case of large boats, since in the case of small vessels (*Canoas* and *Catraios*) there are some self-builders with technical knowledge that enable them to build and maintain these

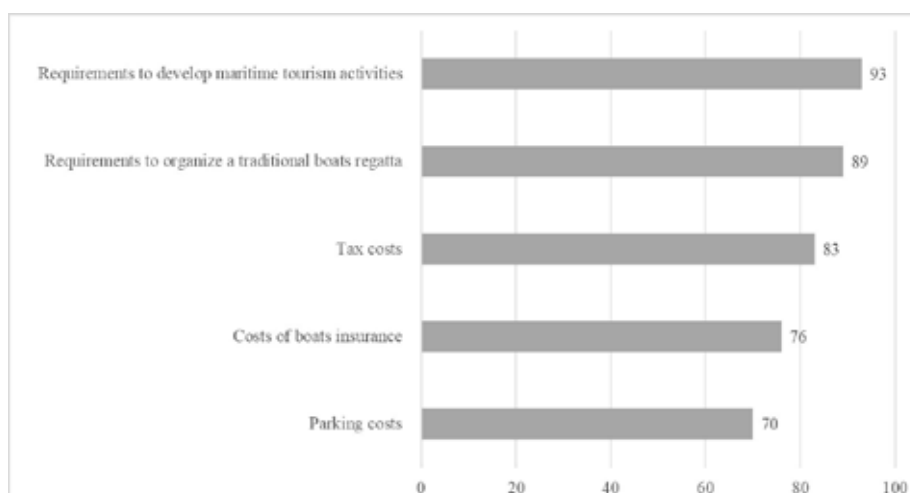
vessels. Regarding this factor, it should be noted that there is currently only one shipyard in the Tagus Estuary specialized in the construction and maintenance of traditional boats.

The third main factor identified by local stakeholders involves a legal factor: lack of a legal framework for traditional boats. The analysis of the results of the survey highlights the structural and transversal dimension of this factor, since it has implications at different levels in several other challenges/threats. Two examples of the effects of the lack of legal recognition and classification of these vessels as traditional boats are highlighted. A first example concerns the technical requirements of the construction process of traditional boats, which in the opinion of several local stakeholders has hardened the construction of new vessels, mainly due to the costs and complexity of this process. A second example is related to the requirements to organize a traditional boats regatta. As mentioned previously, the lack of classification of these traditional boats is reflected in the understanding that these events - of great relevance for the promotion of this floating heritage - are sporting events (and not cultural events), with important consequences for the organization of these events by nautical clubs (e.g. insurance to cover the risks inherent to the practice of sports activities).

The fourth and fifth main factors identified by the local stakeholders refer to factors of infrastructural nature: lack of support facilities for boats and crew members/passengers. In this way, it is recognized that access to water in a safe and comfortable way is of particular importance. In fact, the improvement of the conditions of access to water could be a catalyst for increasing the interest of the local communities for navigation in traditional boats, as well as for promoting the development of maritime tourism activities on the South bank of the Tagus Estuary using traditional boats, thus contributing to their preservation and sustainability.

On the other hand, it is important to point out that the factors that local stakeholders consider to be less relevant as challenges/threats to the preservation and sustainability of traditional boats include factors of a financial, regulatory and legal nature (Figure 20). The three least important factors are from financial nature, including: parking costs of traditional boats; costs of traditional boats insurance; tax costs applied to traditional boats. The requirements to organize a traditional boats regatta (regulatory nature) and the requirements to develop maritime tourism activities (legal nature) are the other less important factors. According to local stakeholders, these factors generally present a lower degree of threat to the preservation and sustainability of the Tagus Estuary traditional boats.

Figure 20. Less important challenges/threats to traditional boats preservation



Source: Own Elaboration

5. CONCLUSION

The analysis of the results of the survey showed that, in general, local stakeholders recognize the existence of several challenges/threats to the preservation and sustainability of traditional boats, which are emerging factors. In fact, in a first moment (after functional obsolescence and subsequent decline of traditional boats), the immediate challenge was the recovery and preservation of these vessels in order to avoid their disappearance. Having assured this preservation for more than three decades, challenges and threats go beyond the strict scope of preservation and safeguarding of traditional boats (*stricto sensu*), emerging nowadays factors that encompass the context (or “ecosystem”) of these vessels. The results of the survey show precisely that local stakeholders have an integrated view of traditional boats and of the challenges/threats they face. A conclusion supported by the fact that the main challenges/threats identified by the local stakeholders include several factors that go beyond the strict scope of the vessels themselves (namely the sedimentation of navigation channels and the lack of support facilities for boats and crew members/passengers).

A second relevant conclusion is that stakeholders identify a set of structural and medium/long-term factors as the main challenges/threats. Examples are the factors related to the lack of a legal framework for traditional boats and the lack professional training related to the construction/maintenance of traditional boats.

A third conclusion related to emerging issues and challenges is the diversity of factors that shape these different issues/challenges (i.e. legal, regulatory, financial, infrastructural, environmental and formative), which will tend to represent additional difficulties for the preservation, safeguarding and valorization of these traditional boats at two main levels. The first level is related to the need for the involvement and concerted action by different entities with competences directly and indirectly related to traditional boats and cultural heritage. The second level is related to the need to define an integrated and multidimensional strategy for the preservation, safeguarding and valorization of the Tagus Estuary traditional boats in the long term, clearly defining the actions to be taken, the intervention priorities, the stakeholders to be involved, and the resources to be mobilized. In this context, it is considered that the results achieved with this article could be an important support to a deeper discussion on the challenges/threats to the preservation of the Tagus Estuary traditional boats and, in this way, contribute to the formulation of the mentioned integrated and multidimensional strategy for its preservation, safeguarding and valorization.

Finally, it should be pointed out that the approach applied in this work to the case of the Tagus Estuary traditional boats, as well as the results achieved, can be used as a reference framework for the analysis and discussion of the challenges/threats to the preservation and safeguarding of other floating heritage fleets, particularly in the European context.

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