Bullfight of the sea: fishing gears and artefacts in Algarve (Portugal) between the 30s and 60s

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ABSTRACT: This article describes the gears and artefacts used in the tuna fishing, in a short-term community settled in Faro Beach, in Algarve, Portugal, between the 30s and 60s. Also describes the role of the various fishermen at sea and onshore, in a hierarchical and structured way, during tuna fishing period, from March to June. This paper was based on interviews with people involved in this art, and photos provided by those, complemented by documentary analysis and bibliographic research. Limitations to the development of this work were found due to the scarcity of available information under this point of view, and to the advanced age of the people involved, now with around 90 years old. That's why is so important the awareness of this heritage, which is being lost, and the consequent urgency to an adequate registration and disclosure to the valuation of such sustainable asset, that is scarce.

1 INTRODUCTION

Tuna fishing in continental Portugal during the 30s and 60s of the last century only occurred in, in the Algarve, almost at the entrance to the Mediterranean Sea. It's in this region that the tuna passes in a migratory cycle from the Atlantic Ocean to the Mediterranean Sea (Fig. 1). This fishery consists of several stages, but its peak is the *Copejo*, where the tunas were captured; due to the fact that this act is very bloody, this phase of the fishing was called *bullfight of the sea.*

Figure 1. Image of the relative location of the Algarve in the south of continental Portugal and the Mediterranean Sea (Source: Google Earth, 2017).

Almadrava, an Arabic term meaning "place of death" (Santos, 1989) was located in the sea and supported by the *Arraial*, located onshore, which consisted of the dwellings of the fishermen and their families, forming the *Armação*, a short-term fishing community, during the fishing season (*ib.*).

In this article, a brief description of the fishing nets, vessels and artefacts, and their functions in the Faro Beach, in Algarve, between the 30s and 60s is described. It also describes the role of the various fishermen at sea and onshore, in a hierarchical and structured way, during tuna fishing period, from March to June in *Armação of Cabo de Santa Maria, Ramalhete and Forte, (CSMRF)* in Faro.

In the considered period of time, the fishermen's community was constituted for almost 200 families, who lived there during the tuna fishing' season. With the exclusive use of human strength, they operating a huge amount of gears and various types of vessels for the different stages of the fishery.

The main information was obtained by interviews with people involved in this art and photos provided by those, complemented by documentary analysis and bibliographic research. However, limitations to the development of this work have been found due to the scarcity of available information and to the advanced age of the people involved, presently with around 90 years old.

2 THE ALMADRAVA

2.1 *Context*

Being a fishing system that already existed in the Algarve when the territory was reconquered from the Muslims in 1249 (Lyster Franco, 1947) and having as first known written reference to an *Armação* on the coast of Cabo de Santa Maria (Faro) in the XVI century (Baldaque da Silva, 1891), it is important to clarify future generations about this fishing tradition that has been lost in this region.

In a more detailed description, *Almadrava* was a tuna-trapping apparatus: a complex system of fixed nets in the sea, vertical, suspended on the surface by floating buoys tied to the seabed with iron anchors, with a great extension. The purpose of this system was to intercept the tuna, routing along its nets, forming labyrinths, until it gets cornered in the central part.

In 1935 the existing *Almadrava* in Faro Beach, had an extension of approximately 10,000 meters at sea surface and its central part was extended to a depth of 20 meters. There were used 70,000 meters of steel cable from 2 to 3.5 inches, 90,000 kilos of cork for the confection of floating and signaling buoys, 400,000 square meters of fishing net of various dimensions and were attached to the seabed through 350 iron anchors of 2 to 3 meters long which weighed a few hundred kilos, each (Brito, 1943).

Arraial, onshore, had to be very well structured and organized in order to give appropriate support to a structure of such dimensions, especially because all works was carried out manually, without using mechanical means. Due to the salary received, which was directly proportional to the required responsibility and skills, an organizational hierarchy was formed. At the top of the hierarchy was the Master, *Mandador,* who ran the whole team and was responsible for the execution and orientation of all operations, including those related to the life of the community. He was the brain of the *Armação*, with great experience and knowledge. He had the power and control of techniques and secrets that were only shared among his predecessors. The *Mandador* controlled and coordinated the two work shifts: sea and onshore, under the guidance of the *Preguiceiro*, who was his direct assistant and to whom he delegated powers in his absence.

Bellow the *Mandador* was the clerk, *Escrivão*, in charge of the daily written record of all that was going on in the *Armação*. His tasks were the handling of all administrative part, the count of the tuna caught and was also responsible for the weekly payments of the fishermen's salaries.

The *Interinos* were fishermen who run small groups of fishermen for several activities and were the assistants of the *Preguiceiro*. They were chosen from the most skillful and experienced

fishermen of the community. The *Companheiros* were all the fishermen and the work force of the *Armação*.

The *Companheiros* were divided in two work shifts: onshore and at the sea. In the work shift onshore, in the *Arraial*, every necessary items for the maintenance and repair the nets was prepared: steel cables, floating buoys made of cork involved in fishing nets, and wooden vessels which were damaged during the fishery, were arranged and mended. In the work shift at open sea, all the maintenance and repair operations of *Almadrava* were carried out, such as the signaling and protection against other vessels that were approaching.

The *Almadrava*, above described, formed a colossal barrier within the sea, with such a dimension that its location and development was in the hydrographic plans of the Algarve coast (Batista & Gonçalves, 2017) - Figure 2.

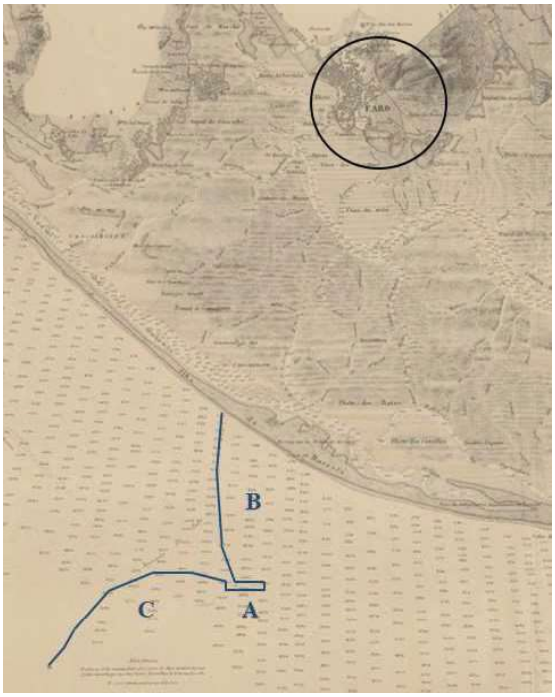

Figure 2. Hydrographic Plan of the bars and ports of Faro and Olhão of 1885, highlighting the city of Faro and the location of the *Almadrava*, consisting of *Quadro* (A) *Rabeira/Palma-Torres* (B) and *Quartel/Legítima* (C) (Source: Biblioteca Nacional de Portugal).

2.2 *Fishing gears and vessels*

The nets of *Almadrava* were vertical, suspended on the surface by floating buoys tied to the seabed with iron anchors and with a great extension.

The *Almadrava* was divided in five main parts (Baldaque da Silva, 1891) – Figure 3:

- *Quadro*, central part, where the tuna was retained and captured;
- *Palma-Torres*, a net with 140 meters, between the *Quadro* and the *Rabeira*;
- *Rabeira,* a net that stretched from the *Quadro*, in the middle of the sea, towards the coast line, close to the sand, reaching about 3700 meters;
- *Legítima*, a net between the *Quadro* and *Quartel*;
- *Quartel* or *Guia*, another net that extended from the *Legítima*, in an opposite direction to the coast line, to the Southwest, also in the sea, reaching about 4600 meters.

2.2.1 *Quadro*

It was in the Quadro that was developed all the fishery (represented inside the rectangle in Fig. 3). It characterized the main body of the Almadrava, constituting its central space, surrounded by netting, which left only one opening, the Boca (Fig. 4), through which the tuna entered. It usually had a horizontal section of approximately 360 meters long by 60 meters wide (Brito, 1943).

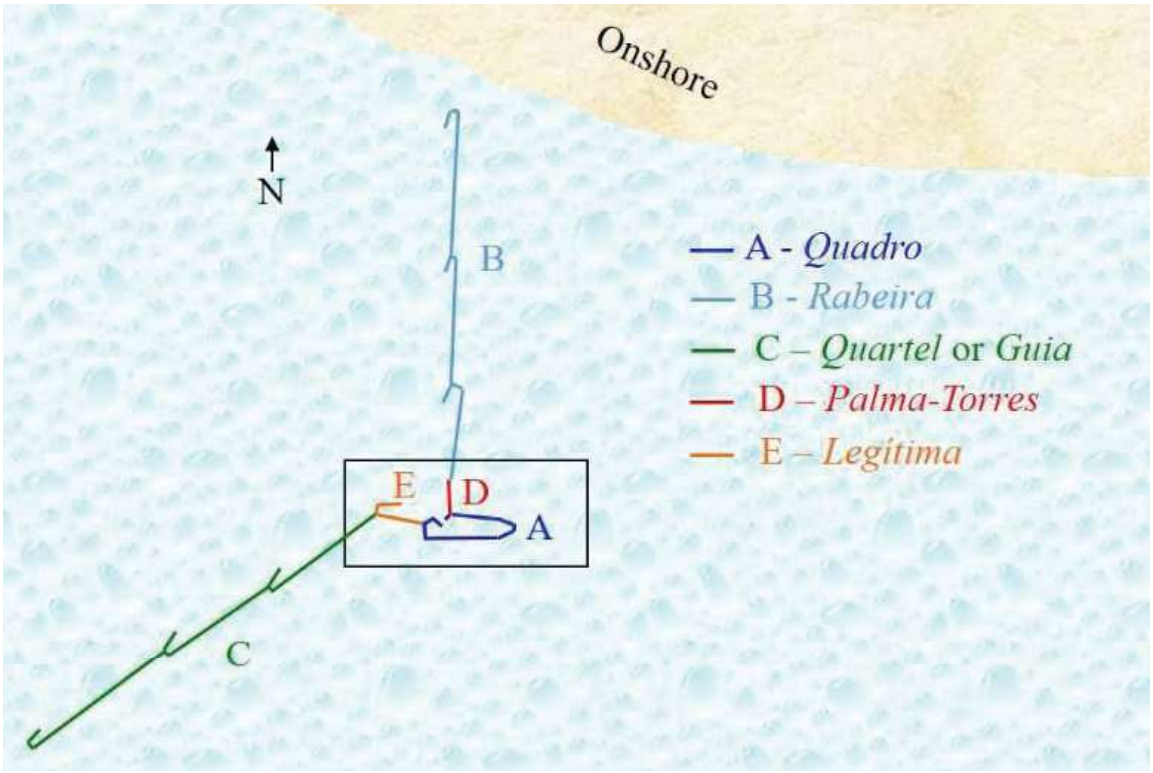

Figure 3. *Almadrava*, consisting of *Quadro* (A), *Rabeira* (B), *Quartel* or *Guia* (C), *Palma-Torres* (D) and *Legítima* (E) (Source: Authors).

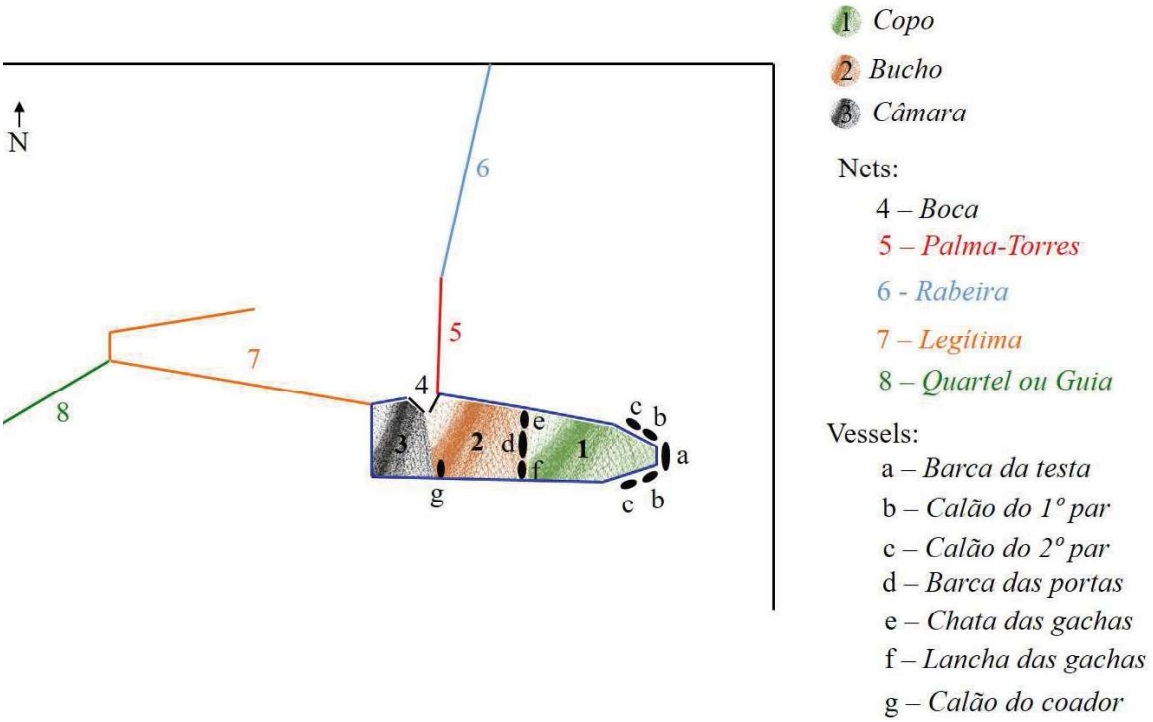

Figure 4. *Almadrava*. Detail of *Quadro* (Source: Authors).

The *Quadro* was composed by the *Câmara*, *Bucho* and *Copo* as we can see in Figure 4.

The *Câmara* occupied almost a third of the *Quadro* and had a trapezoidal section, 90 meters long and 40 meters wide in west side and 56 meters wide in east side. The nets that formed its walls were of linen with meshes of 32cm. The *Câmara* was tied to the seabed with 7 huge iron

anchors (Brito, 1943). Its function was to create more space for the movement of the tuna after entering in *Quadro*.

The *Bucho* was located between the *Câmara* and the Copo, occupying the central third. It was the continuation of the *Câmara* and also had trapezoidal horizontal section, 120 meters long by 60 meters wide. It was where the tuna remained before entering the *Copo* Figure 4. *Bucho* was tied to the seabed with 9 huge iron anchors (*ib.*).

The *Copo* was the westernmost part of the *Quadro* and also the most resistant of the *Almadrava* and constituted a vast net bag (with a coated bottom). It had in its connection to *Bucho,* a system of networks which allowed the communication to be established and interrupted. It was 146 meters long by 54 meters wide, in the west side, and 18 meters wide, in the east side (*ib.*).

It was formed by a network system: *Balão, Gachas* and *Testa*.

The *Balão* was the network that formed the ground of the *Copo* and that sat on the seabed. It was made of fine *cairo* with 25cm meshes.

The *Gachas* were the side walls of the *Copo* and were of linen with 20cm meshes.

The *Testa* was where the fishing was done and, therefore, the most resistant part of the whole *Quadro*.

The *Copo* was tied to the seabed with 16 huge iron anchors more 8 additional anchors to reinforce the *Testa* where the capture of the tunas occurred.

2.2.2 *Vessels*

Given the large size of Almadrava and the number of fishermen involved in the art, the Armação of necessarily had to use a large number of vessels.

The vessels used were quite simple, made of wood, with *boca aberta* – "open nautical beam" and had to be strength/hard, once the *Almadrava* was situated in the open sea, far from the coast, and had to withstand the strong swell of the sea.

In 1935 there were 25 vessels due to fishery, of which 4 were boats with mechanical propulsion and 21 sailing and rowing vessels, which were divided into *barcas*, *calões* and *canoas*. The *canoas* were further subdivided into *batéis*, *lanchas* and *chatas* (Brito, 1943) Figure 5.

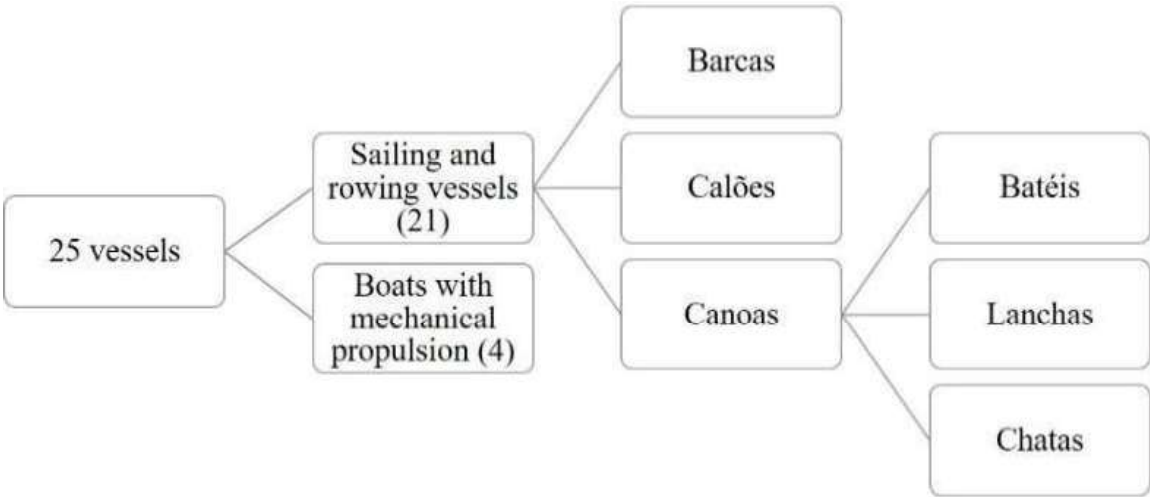

Figure 5. Vessels forming the *Armação* (Source: Authors).

The *barcas* were the longest and heaviest vessels of the *Armação*. They were adapted to several functions and they could sail, having a mast, a square stern and a deck. They had a cargo hold in the middle of the vessel that could be closed by hatches in case of great sea disturbance. They had approximately 20 meters long and 20 tons of weight (Santos, 1989).

The *calões* were distinguished from other similar vessels by the lack of deck, by the absence of their own means of locomotion and by their bow and stern of very similar dimensions, both

finished in corner and superiorly in beak. They also possessed a corridor, which was a space that existed on both sides along the length of the vessel, where the fishermen moved at the time of the *Copejo*. They also had the *paus entre as velas* - sticks between seals - that were attached to their structure and which had very strong ropes on the top to allow the fishermen to lean with the purpose to catch the tunas during the *Copejo – bullfight of the sea*. Also received the tunas that the fishermen caught with the *bicheiros de mão*, and could reach the hundreds - Fig. 6 (*ib.*).

The *canoas*, constituted by *batéis*, *lanchas* and *chatas* were smaller, lighter and easier to maneuver. They possessed a sail and rows. They were aimed at tasks that required greater speed and mobility, as well as traveling along the *Almadrava* with the aim of perform routine inspections, in search of breakdowns in the networks of *Almadrava,* landings, among others. The *canoas* served to place the fishing nets in the spaces between the 3 existing seats.

In the existing *Armação* of CSMRF had the vessels showed in Table 1 (*ib.*).

Table 1. List of the vessels existents in the Almadrava of CSMRF.

Barca da testa – (14,437 tons)	Calão do atalhinho – (9,324 tons)
Barca das portas - (22,754 tons)	Batel do coador – (7,374 tons)
Calão do 1º par (face de fora) – (12,177 tons)	Batel do peixe – (6,412 tons)
Calão do 1º par (face de terra) – (12,177 tons)	Barca dos faróis do pêgo – (8,547 tons)
Calão do 2º par (face de fora) – (12,396 tons)	Barca dos faróis do Quadro – (13,921 tons)
Calão do 2º par (face de terra) – (11,756 tons)	Barca dos faróis da Rabeira – (7,672 tons)
Lancha das gachas – (8,294 tons)	Batel para aguada ao vapor – (7,150 tons)
Chata das gachas – (7,892 tons)	Batel para aguada à companha – (9,279 tons)
Calão de empandar – (9,918 tons)	Lancha da parte – (1,771 tons)
Calão do atalho – (9,324 tons)	Chata para serviço de praia – (1,138 tons)

Figure 6. Vessels during the Copejo in Faro Beach: *Barca da testa, calões do 1º par, calões do 2º par* and Barca das portas (Source: Brito, 1943).

There were also the *andainas* which were very similar to the *barcas*, but were intended to transport the tuna from the *Almadrava* to the fish sells.

2.3 *Artefacts*

Fishing also includes artefacts, which were the instruments that complete the mission of nets and vessels. In the tuna fishery, anchors, floating and signaling buoys, *bicheiros de mão* and *bicheiros de alcance* where used with different functions.

2.3.1 *Anchors*

Almadrava's nets were tied to the seabed by iron anchors of great dimensions and weight. The anchors measured between 2 and 3 meters in length and weighed between 450 and 600kg. In the *Almadrava* 350 anchors were used and it was necessary about 12 fishermen to carry each, Figure 7.

2.3.2 *Floating and Signaling buoys*

To the *Almadrava* operated, was used 90.000 kilos of cork in the manufacture of floating and signaling buoys, Figure 8, and it was necessary about 4 fishermen to carry some of the larger buoys into the sea.

2.3.3 *Bicheiros de mão e bicheiros de alcance*

The tools used to catch the sea tunas and introduce them into the vessels were called the *bicheiros*, similar to Hooks-Fig. 9. There were several types of *bicheiros*, with slightly different functions, like the *bicheiros de mão* and the *bicheiros de alcance.*

The *bicheiros de mão* were hook-shaped iron gear, very sharp, with a cloth-lined cord or sisal, on which the fisherman held, and was fastened to the forearm by a cloth-lined rope strap, which allowed the hook to be dropped of iron, to loosen the catch tuna.

The *bicheiros de alcance* were very similar to previous, with the particularity of having a longer wooden cable in order to reach the most distant tuna.

Figure 7. Anchors in the *Arraial* of Faro Beach in the 60´s. (Source: Museu Regional do Algarve).

Figure 8. Cork floating buoys in the *Arraial* of Faro Beach, in the 60´s. (Source: Museu Regional do Algarve).

3 THE FISHING SYSTEM

When the tuna begins to enter in the *Almadrava* nets, it also begins the preparations for fishery. The *Mandador* in the *calão dos pares* goes to the *Bucho.* A *peguiceiro* in the *calão do coador* goes to the *Câmara*. The *calão do atalho* is tied the *Legítima*, being ready to strike when necessary. The *calão do atalhinho* is tied to the *palma-torres* having another *Preguiceiro* which stands alert, since it is the zone of entrance of the fish to the *Quadro*.

Two *calões,* with fishermen following the instructions of the *Interinos* will check again the entire net system. The other fishermen stay on the remaining available vessels near the *Quadro* eastern of the *Rabeira*.

Then, tunas come into the *Quadro* through *Boca* reaching sequentially the *Câmara, Bucho* and *Copo*. At that time, happens the *levantada* following *Mandador*'s orders.

At this moment, the *barca da testa* moves to the eastern side of the *Copo*; the *barca das portas* moves to the western side of the *Copo* accompanied by the *lancha das gachas* and *chata das gachas*.

Little by little, very carefully, a net settled on the seabed called *Balão*, is raised, reducing more and more the space where the tuna stays and forcing them to come to the surface. It is now, in the *barca da testa* and in the *calões dos pares* that the *Copejo* begins: and the famous *bullfight of the sea* is performed.

Figure 9. *Bicheiros de mão* (smaller) and *bicheiros de alcance* (longer) used to catch the tuna from the sea (Source: Museu Regional do Algarve).

4 BULLFIGHT OF THE SEA: COPEJO

> "... The Copejo was very handsome! It was like a bullfight: the man and the bull! The fish felt trapped and lifted all that foam in the air! The men sang as they lifted

> their nets. And then they threw themselves into the sea into the Copo to catch the fish that were already tired of fighting...” (description of Copejo verbally obtained).

The *Copejo* aroused the most varied types of emotions in the *Companheiros*. It was the ultimate proof of all the effort up to that moment. It was the true confrontation of Man against Nature to obtain sustenance (Florido-Corral, 2013). When the *Mandador* decided that it was time to raise the tuna catch, *a Levantada*, he would ring the bell in the *Arraial* and the onshore shift would join to sea shift to give support and all began the preparations for the *Copejo* (information verbally obtained).

The *Levantada* began with a technical movement of the nets that slide, drawn by the vessels, in order to reduce the space of the *Copo* to less than half of its original size. The *Quadro*, originally 360 meters long by 60 meters wide, was now reduced to the *Copo,* with 146 meters long and 60 meters wide. The tuna is a frightening fish and now it was starting to feel tight and to get nervous. On the surface the vessels formed a fence around the *Copo*. Until then the order was silence but when the *Companheiros* began to raise the nets to the surface the order was to make noise to enervate the tuna.

The nets were rising little by little and the tuna had less and less room to move. They shouted: “Ala! Ala! Ala!”, cursed, prayed, sang and continued to hoist the nets coordinated by the instructions and the sound of the whistle of the *Mandador* (information verbally obtained).

When the tuna began to rise to the surface, nervous, agitated, and in the distress of the tightness with the rest of the shoal, it tried to jump out of the water, a movement that was used by the *Companheiros*, usually in groups of two, suspended by cables attached to the masts of the vessels, with *bicheiros de mão* in hand, ready to hoist into these, taking advantage of such an impulse.

This is the only way to understand how two men managed to bring tuna with 300 kilos or more to the surface. The water was temporarily red with the blood of the tuna, which is why it was called “*The bullfight of the sea*” and, spite of this fact, was an inspiration for known individuals throughout the ages such as: King D. Carlos who accompanied a *Copejo* in 1894 and portrayed this moment with a painting; Júlio Lourenço Pinto in 1894 (writer, politician and literary critic); Manuel Teixeira Gomes in 1904 (7th president of the Portuguese republic and writer); Raúl Brandão in 1923 (military, journalist and writer); Alberto Sousa Costa in 1923 (writer), Carlos Filipe Porfírio, who painted “*O Copejo*” in 1942 (Algarve’s painter and filmmaker, friend of Pablo Picasso) - Figure 10, and the well-known artist Salvador Dali.

Figure. 10. Triptice titled “*O Copejo*” painted by Carlos Porfírio (Source: Museu marítimo of Faro).

Shortly after the *Copejo*, the tuna caught were changed to the *andainas* to be transported to Vila Real de Santo António, located on East part of Algarve, for the canning industry. Each *andaina* could carry about 100 tunas (information verbally obtained).

5 CONCLUSIONS

During the *Armação (Almadrava and Arraial)* livelihood, as described, people lived difficult times, when the social conditions offered during the months of the work were precarious.

The enormous size of the *Armação* required the use of a large number of resources, fishing nets, vessels, artefacts, and fishermen to handle it, using only human strength, many under difficult conditions.

Although the *Armação* ended in 1967, the *Companheiros* (that remain alive) testified those times with great longing, referring to the companionship and camaraderie that existed.

Presently there are not many vestiges of the fishing nets, vessels or artefacts used in the *Armação,* except for a few isolated and scattered pieces.

One of the added value of the work that has been developed by the authors, referring to this theme, is that the elements are compiled and treated from different points of view. Work has been done on its dissemination, in a first stage, by the scientific community, through the publication of articles and presentation at congresses.

However, in order to reach the population, the most direct method is through exhibitions, thematic festivals and public presentation of the elements achieved until then, for example, encouraging popular participation.

It seems to be only in situations of threat that value is attributed to the heritage. This is certainly the case of the vernacular heritage related to tuna's fishing. It is in this sense that the various facets of the work have been developed by the authors, making an appeal to the society in general to preserve the collective memory of this profession that disappeared from the Algarve and, at the same time, hoping to clarify the future generations about this fishery tradition with centuries-old, preserving and disseminating its memory and knowledge.

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