

Tuna architectures in the south Iberian peninsula

Diego Inglez de Souza

ISCTE–INSTITUTO UNIVERSITÁRIO DE LISBOA¹

Tuna has been fished in the Iberian peninsula southern coast since ancient times, following the predictable movement of schools entering Mediterranean sea to breed. Portugal and Spain shares multiple connections on fish, fishing techniques and capitals, constantly circulating through the borders along centuries, but specially since the invention of canning in early 19th century. Analyzing two pairs of settlements in both countries, designed in the 20th century in a planned fashion to host the workforce dedicated to fishing and processing activities, we pretend to establish parallels and search for connection points between these tuna–fishing architectures, built between 1920 and 1940's in direct relation to the Almadravas.

Sharing fishing spaces and historical affinities with Spain, Portugal didn't transformed tuna in a national symbol as did with cod and sardines. Spain captured this identity element for its nationalistic driven economy and propaganda through a monopolistic consortium on tuna fishing, while in Portugal private initiative prevailed on canning, under strict surveillance of the corporatist state.

The dimensions of the towns designed to host fishermen families during the fishing season are directly related to the fish traps scale, positioned in relation to the fishing sites, contributing to rise the fishing pressure over a *sui generis* specie and building the landscape. Even if contrasting to the image of vanguardist modernity, these settlements, realized under different economical schemes, shows some degree of industrial rationality, aligned with productive expectations, resulting in effects on built environment and marine ecosystems. The similarities between the architectural imprints of fishing on land suggests other perspectives that overpass the national borders and direct relations between architectural history and marine biology to understand the socio–ecology of a fish.

1. introduction: Tuna fishing and the Almadravas

In the southern Iberian coast, *Thunnus thynnus* – or bluefin tuna, has been systematically caught since ancient times by traps known as almadravas. The history of tuna fishing is intertwined with the occupation of the Algarve and Andalusia coastlines. Tuna fishing in the south Iberian peninsula combines the dimensions of fishing gear with the built expression of the dynamics involved in capturing and processing a *sui generis* specie, related to its biology and particular environmental conditions.

Tuna's structure implies constant movement: it can reach speeds of up to 90 km/h when migrating across the Atlantic. The eastern population – or "stock", of bluefin tuna follows defined and predictable routes towards the



Figure 1. Ruins of the Nueva Umbría's fishing village, between Cartaya and Lepe, in Huelva, built by the Consorcio Nacional Almadrabeto (CNA) in 1928 and expanded in 1940's. © (Archivo Histórico de la Junta de Andalucía / IES Rafael Reyes).

Mediterranean Sea, crossing the Strait of Gibraltar between spring and summer to spawn.

The *almadravas* are traps designed to intercept this instinctive trajectory along Algarve and Andalusia's coast, specially at the Gulf of Cádiz. The biological dynamics of the tuna and their instinct explains the built environment in the south Iberian peninsula, combined with the transformation of fishing and processing techniques through the last two centuries.

The setting up of the large maritime constructions to catch tuna in their migratory movement led to the construction of settlements along the coast. The *arraiais* of Algarve and the *pueblos almadrabetos* in Andalusia were seasonal camps that accompanied the setting and the operation of the traps, assuming variable positions. At the end of the 18th century, an important technological transformation in the tuna fishing took place: from the *almadravas de tiro*, popular across Andalusia, launched and collected from the shore, the *almadrava de copo* became widespread, combining fixed and mobile nets that concentrated the tuna in the death chamber formed by boats on the sea. There, the fish were captured on board after fatal blows of hooks and pikes operated by dozens of fishermen during the *copejo*, a truly blood ritual depicted in Roberto Rossellini's *Stromboli* (1950).²

The fish was delivered from the boats to ports, processed by brineries and canneries and exported, mainly to Italy, where tuna persisted as a consumption habit after the fall of the fisheries in Sicilia and Sardegna decades before.

In Algarve and Andalusia, almadravas almost disappeared in early 1970s, as a result of the economical impacts of overfishing. Recently, the raw fish market associated with Japanese cuisine gave a new boost to tuna fisheries in the region. The socioecological transformations involving men and tuna can be observed through the architectural remnants of the fishing settlements built during the expansion of the canning industry.

2. Tuna Architectures in Algarve and Andalusia

In Andalusia, after the fall of the dynasty Sidonia–Medina that had the monopoly of tuna fishing since medieval times, this activity was explored by several different families and investors during 18th and 19th century. As in other Atlantic and Mediterranean countries, canning industries flourished in Spain from late 19th century, opening new markets through international shipping and raising the demand for the natural resource. During the Miguel Primo de Rivera y Orbaneja³ dictatorship (1923–1930), the organization of the Consorcio Nacional Almadrabeto (CNA) in 1928 represented an initiative to arrange private interests and nationalist strategies, expanding this activity fostered by canning industry.

New settlements were built by then to support tuna fishing, materializing cultural practices and economical expectations into coastal imprints of fishing that would lead to impacts on marine ecology. The Nueva Umbría and Sancti Petri *pueblos almadrabetos*, build under CNA's rule, are examples of the social dimensions and pragmatic organisation involved in fishing operations in different moments. Designed to shelter fishermen and other professionals involved in other activities related to fishing, these settlements occupied strategic positions on the coastline in function of Almadrava's positions on the sea, articulating both spaces.

Their locations combined access to traps' positions with port facilities to deliver the fish as quickly as possible to canneries but also with the *hinterland*, source of workforce and essential supplies for everyday living in the *Pueblos* during the tuna season. In Barbate, one of the most productive tuna ports in Andalusia, this economy gave place to early modern architectural achievements such as the fish market designed by the architect Casto Fernandez–Shaw in 1940.⁴

Nueva Umbría's settlement is structured by 8 aligned and identical blocks of housing for fishermen, combined with more comfortable installations for graduated employees in a articulated U-shaped block, a detached house for the captain with a tower and strategic view to the settlement and to the waterfront. A linear warehouse is placed between the housing blocks and the inner shore at the mouth of Piedras river, dedicated to store and repair boats, cables, nets, buoys and anchors related to the trap.⁵ Its organization is telling of a pragmatic and rational design to enhance the production, inaugurated in 1929 and later expanded. Close to former rural settlements on the coast and

connected to Ayamonte and Huelva, by then flourishing canning and exporting ports, Nueva Umbría mainly supported temporary housing during the fishing season, offering no more than shelter and support to explore a seasonal natural resource.

Sancti-Petri, initially settled in 1929 but greatly expanded in 1940, immediately after the end of the Spanish civil war, shows clearly not only the support that Francisco Franco (1892–1975) and the new regime gave to Rivera's monopolistic organizations but also reveals shifts in the scale and in the rhetoric involved in these state-controlled official architectures.⁶

Built over one of the islands of the estuary of the Guadalete river, at Chiclana de la Frontera, between Cádiz and Gibraltar, Sancti-Petri was a self sufficient village composed of equipments to face other needs beneath shelter as support to fishing activities, like cinema, church, market, stores and social club and other collective equipments dedicated to the scarce free time of fishermen and their families. As result of a more sophisticated architectural project, the settlement incorporated one large canning factory, offering work to the fishermen's wives and children, transforming Sancti-Petri into a permanent village.

Observing both Spanish and Portuguese settlements, we can infer that architecture followed the fish, ignoring national borders, even if the economical and political structures of both countries under fascist dictatorships are not exactly the same.

The remnants of the fishing villages that still exist today in Algarve, built in the first half of the 20th century, also represents attempts to rationally



Figure 2. Aerial Photography of Sancti Petri pueblo almadrabero, built by the CNA in Chiclana de la Frontera, close to Cádiz, between 1928 and 1940. © 1977, (Archivo Histórico de la Junta de Andalucía).



Figure 3. Fishermen hauling boats at Barril *arraial* at Tavira island, eastern Algarve. © Artur Pastor, 1965 (Arquivo Fotográfico da Câmara Municipal de Lisboa, PT/AMLSB/ART/050720).

organize housing and work involved in fishing and tuna processing. The radical transformation of fishing techniques propelled by the expansion of the canning industry during this period dramatically changed the landscape of the coast. These attempts sought to overcome the deficiencies and precariousness of the primitive villages, which were fragilely built on the beach sand and frequently destroyed by coastal erosion, fires and storms.

New *arraiais* were built to replace the improvised agglomerations of shacks made of natural materials, tending to disappear, according to the book published by the Center for Ethnological Studies on “primitive constructions”.

Their disappearance was a consequence of industrialisation that fostered transformations on fishing techniques, related to the expansion of canned fish exports, propelled by corporative state policies, mainly focused on sardines.

Although the ethnographers’ gaze focuses on rural activity and the relationships between agricultural systems and building cultures (an orientation of the gaze towards land that is even more evident in the architects’ survey), they do not fail to underline the connections between fishing traps and informal settlements. While noting the disappearance of these “primitive constructions”, they underline the continuity between some of these places and contemporary construction, as in the case of what is

now Cabanas de Tavira, then Cabanas da Conceição or Cabanas da Armação, where “only vestiges remained, lost in the midst of the stone and lime houses of the current settlement”.

Fishing is indeed recurrently mentioned in the celebrated Inquiry into popular architecture in Portugal, published in 1961, a product of a vast field research carried out by the National Union of Architects teams who recorded and analysed the multiple types of dwellings and constructions related to material and cultural conditions found on the Portuguese territory. However, there is practically no mention of the productive and marine biological chains associated with these ‘ecologically adapted’ architectures. Even if focusing on identifying roots and paths to modern architecture, underlining the shapes and expressions of formally elaborated constructions employing simple means, repetition of standards and embodying some kind of rationality on building, the transformation of the canned industry and fishing techniques was apparently ignored by the inquiring architects, converting these signs of inflections into ahistorical types.

The *arraiais* built around 1930 in the Tavira Island dunes, seem to follow the logic of the company towns built around factories and mines in Europe after the industrial revolution. Specific fishing companies offered to their workers minimum infrastructure and services that were essential for work and a life dedicated to it.

This industrial sense is perceptible in some of the villages which, built in the 20th century, follow a patronal model somewhere between the factories and mines of the European Industrial Revolution and the Alentejo’s *monte*. These were small units which bound the workers to a particular company on the basis of family unity, with clusters of dwellings complemented by some minimal services essential to work and daily life, such as the bread oven and the fresh water well. This paternalistic model is very evident in the arraial of Barril, which corresponded to the homonymous frame active between 1867 and 1963 and was rebuilt between the end of the 19th century and 1930. There are two parallel lines of brick construction, with interlocking walls that mark the structure of the building and the rhythm of the compartments. Each interior space, which is called an *apartado*, has two compartments facing the inner courtyard and the dune, with only one door in each direction. The whole has associated small extensions that serve both as a classroom, bread oven, barber shop and a fiscal guardhouse. The owner’s house, with space for a clerk and other officials, occupied a prominent position in the complex, not only because of its size and accessibility to the kitchen garden and the roof terrace.

The destruction of the settlement associated with Medo das Cascas almadrava by coastal erosion and wind storms between 1931 and 1943 gave rise to the Arraial Ferreira Neto, which was designed by engineer José de Sena Lino in 1943 for the Algarve Fishing Company. The Arraial was conceived as a self-sufficient village idealised to house the families of 150 fishermen, fishing

gear and fish processing activities, comprising a chapel, school, maintenance workshops and warehouses for the deposit of materials and boats between fishing seasons, in addition to facilities for staff involved in daily life of the settlement such as doctor, teacher, priest and barber.

Organised into *'two squares and five streets'*, it initially consisted of *'52 houses, a warehouse for the collection of materials, the thread house, washing house, three cisterns and five warehouses in corrugated sheet metal.'* A watchtower, a church and a school were later added. According both to the promoters of the initiative and to contemporary historians that focused tuna fishing in Portugal, the Arraial Ferreira Neto materialised an ideological, productive and social project designed to mediate conflicts between capital and labour *'the two indispensable elements of national production and wealth'* (Galvão, 1948, p.143). The *'constructive programme'* of the Arraial Ferreira Neto *"allies the past to monumentality and joins the austere air to the classical plan, undoubtedly showing total empathy, whether ideological or artistic, with the architectural taste advocated by the Estado Novo regime"* (Lopes, 2008, p.55).

Built by a private company and designed by an engineer closely involved with emblematic Estado Novo's realizations such as the National stadium in Lisbon's outskirts and ports' infrastructures, the Arraial Ferreira Neto is a pragmatic response to the the canning industry expansion, based on ancient and limited fishing techniques, but also to the political situation, defining precisely coordinates to the collective organization of work and sociability under state control in order to avoid class struggle.

Perhaps this identification with the fascist regime explains the lack of interest on the part of both architects and ethnographers, who largely ignored the venture. Although the Arraial Ferreira Neto was promoted by a private company, the settlement clearly expresses relations between fishing, politics and construction, despite the stereotypes it mobilizes. Beyond the *'português suave'* style, the official architectural aesthetics of the regime that combined new building programs and techniques to regional and rural stereotyped architectures, the Arraial Ferreira Neto is a telling expression of the junction of a pragmatic construction and an rhetoric and nationalistic realization. One dedicated to the support of fishing, devoid of ornamentation, organized according to the sequence of activities related to the installation and maintenance of the almadrava. The other devoted to the temporary housing of the workers of this company, designed to materialise the hierarchies involved in the division of labour, according to strict political guidelines.

Despite its meticulously planned organisation, the Arraial Ferreira Neto was relatively short-lived, if the long duration of tuna fishing on the Algarve's coast is considered. In 1971, last season of activity, Medo das Cascas caught a single tuna and some other smaller fish. In Andalusia, tuna fishing yield kept high through the first half of 20th century, possibly due to the control of sardine's fishing. In Portugal, sardine canning and fishing prevailed, fostered by



Figure 4. Arraial Ferreira Neto shortly after its inauguration in 1945. © Andrade Family, Tavira, 1965 (Private collection).

corporative state's policies, affecting tuna fisheries (Gonzalez and Acevedo, 2012). The correlation between different species populations seems to be as straightforward as the connections of the "stocks" over the borders along the trophic chain in an unstable dynamic, menaced by fishing pressure's rise related to the expansion of canning industry.

3. An epilogue or requiem for an fish

The decline in tuna populations on the Iberian peninsula southern coast makes explicit that the continued expectation of fishing after the construction of the Arraial Ferreira Neto was unsustainable for ecological reasons. In Andalusia, some almadras resisted to our days, redirecting their activity to Japanese gastronomy, fostering the exploitation of a resource whose population was on clear collapse.

The dimensions of the rationally designed company towns designed to host fishermen families during the fishing season are directly related to the fish traps scale, positioned in relation to the fishing sites, contributing to rise the fishing pressure over a *sui generis* specie and building a particular architecture. Even if contrasting to the image of vanguardist modernity, these settlements, product of different political arrangements, shows some degree of industrial rationality aligned with productive expectations, resulting in effects on built environment, landscape and marine ecosystems. These Almadras also share a common history, collapsing rapidly during 1960's, consequence of the pressure over the ecological limits of the fish populations. The transformations of its architecture are expressions of the expansion of the fishing pressure but also of the disconnection between processing and consumption sites, made possible by freezing, air shipping and new logistic chains and habits. The similarities in their function, scales and shapes shows can reveal connections between these architectures over national borders, following the fish. Nationalistic, stylistic or ideologically driven histories of

architecture seems to be limited on describing and understanding the coastal imprints of fishing from the built environment perspective, with evident impacts over marine ecologies.⁷

References

- Amaral, Francisco Keil do, (ed.). *Arquitetura popular em Portugal* Lisboa: Sindicato Nacional dos Arquitectos, 1961.
- Bragança, Dom Carlos de. *Resultados das investigações científicas feitas a bordo do yacht Amélia – A pesca do atum no Algarve*. Lisboa: Imprensa Nacional, 1899.
- Costa, Fausto. *A pesca do atum nas armações da costa algarvia*. Lisboa: Bizâncio, 2000.
- Corral, David Florido del. 'Evolución histórica y cultural de las almadrabas en el litoral atlántico meridional (siglos XVI–XX)' *Quaderns blaus – Documents de Treball*, nº13, (2005):1–90.
- Corral, David Florido del. "Las almadrabas andaluzas bajo el consorcio nacional almadrabero (1928–1971)". *SEMATA, Ciencias Sociales e Humanidades*, vol. 25, (2013): 117–151.
- Ellis, Richard. *Tuna – Love, Death, and Mercury*. New York: Vintage books, 2008.
- Galvão, António Miguel. *Um século de história da Companhia de Pescarias do Algarve*. Faro: Companhia de Pescarias do Algarve, 1948.
- Lopez González, J., Ruiz Acevedo, J. "Series históricas de capturas del atún rojo en las almadrabas del golfo de Cádiz (Siglos XVI–XXI)" *Collect. Vol. Sci. Pap. ICCAT*, n.º 67(1), (2012) 139–174.
- Jiménez, Segundo Ríos "La gran empresa almadrabero–conservera andaluza entre 1919 y 1936: el nacimiento del Consorcio Nacional Almadrabero" in *Historia Agraria*, n.º 41, (2007): 57–82.
- Lopes, Marco. "A longa vida da Armação do Medo das Cascas e o "Português Suave" do Arraial Ferreira Neto" in *Tavira, patrimónios do mar edited by Jorge Queiroz and Rita Manteigas*. Tavira: Câmara Municipal, 2008.
- Oliveira, Ernesto Veiga de, Galhano, Fernando and Pereira, Benjamim. *Construções primitivas de Portugal*. Lisboa: Centro de Estudos de Etnologia Peninsular, 1969.
- Roberts, Callum. *The unnatural history of the sea*. Washington: Island/ Shearwater, 2007.

Notes

- 1 Instituto Universitário de Lisboa (ISCTE–IUL), Centro de Estudos sobre a Mudança Socioeconómica e o Território, Lisboa, Portugal (Project UIDB/O3127/2020).
- 2 Also documentaries such as *Almadrabas* by Carlos Velo (1933) and *Costas del Sur* (1956) or *La pêche du thon*, by Leitão de Barros (1939), *Almadrava atuneira* by António Campos (1963), *Almadrava* and *Copejo* by Hélder Mendes (1968), are significant sources of information on the technologies and sociological aspects of tuna fishing.
- 3 Primo de Rivera (1870–1930) was born in Jerez de la Frontera, close to Cadiz, a traditional tuna fishing port since ancient times.
- 4 Listed by Docomomo in 1996 as one of the emblematic works of the modernity in Iberian peninsula and as cultural heritage by Andalusian authorities. See Diego Climent and María Dolores González: "La antigua Lonja del río Barbate" in *Actas del Cuarto Congreso Nacional de Historia de la Construcción* Madrid: I. Juan de Herrera/ SEDHC/ COAAT Cádiz, 2005.
- 5 Carrasco, Pablo Campoy. *El viento y la ruina, centro de investigación de la Pesca de Almadraba en el Real de Nueva Umbría, Huelva*. Universidad de Sevilla, 2017.
- 6 Barroso, Sara Melgar. *El puerto fluvial de Barbate y su relación con el Consorcio nacional Almadrabero* Master en Urbanismo, Planeamiento y Diseño Urbano. See also https://www.juntadeandalusia.es/institutodeestadisticaycartografia/didactica/eltempovuela/entregas/sancti_petri/index.htm
- 7 This work has been developed under the research's projects "The Sea and the Shore, Architecture and Marine Biology: The Impact of Sea Life on the Built Environment" (PTDC/ART–DAQ/29537/2017), coordinated by André Tavares (Universidade do Porto) in the Lab2PT (Universidade do Minho) and under the "Project ReARQIB – Built Environment Knowledge for Resilient, Sustainable Communities: Understanding Everyday Modern Architecture and Urban Design in the Iberian Peninsula (1939–1985)", European Research Council Starting Grant – Ref. GA949686 (2021–2026), coordinated by Ricardo Agarez in ISCTE–IUL (Lisboa).