

THE ENVIRONMENT GIVES, THE HUMAN HAD (AND SPOILED IT): THE CASE OF COSTA DA CAPARICA, CENTRAL COAST OF PORTUGAL

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Costa da Caparica is a parish in the municipality of Almada (southern Lisbon), located in the Caparica - Espichel coastal section at the south bank of the Tagus estuary, in the Setúbal Peninsula (Fig. 1). This is an area that comprehends beach, beach-dune and fossil cliff systems. This littoral has got serious problems of coastline retreat and coastal erosion, with greater relevance after the mid-20th century and in the coastal front of Costa da Caparica (Freire 1986, Veloso-Gomes *et al.* 2009, Ferreira 2016). More: the climate change with the increased frequency of extreme weather events can compromise the survival in this overcrowded coastal stretch with destruction of sandy beach, fishing or tourism. And why is that? That is the question we will try to answer in this work! Let us focus in the territory occupation and the times. What for? To better understand the strategies of the anthropic exploitation of natural resources in along the times.

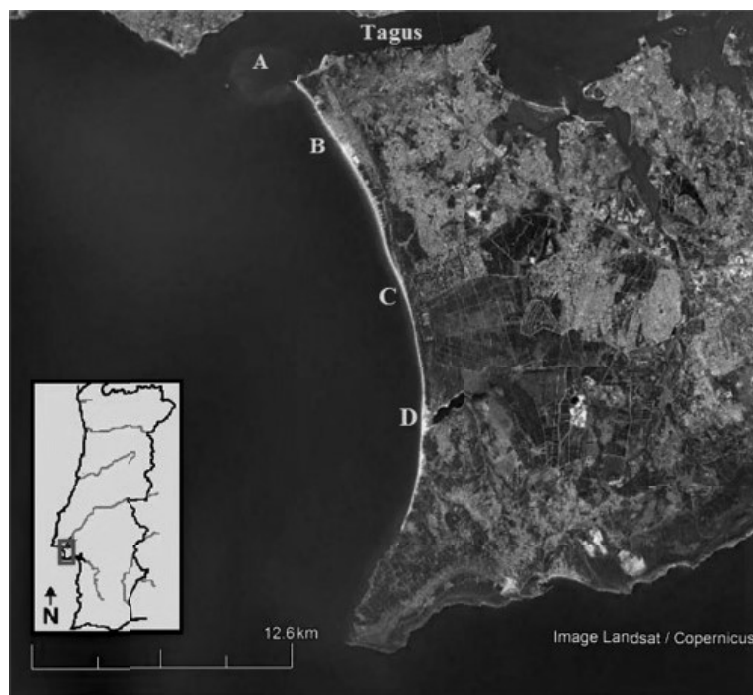


Figura 1. Study area: A) Trafaria-Bugio sandy spit; B) Costa da Caparica; C) Fonte da Telha; D) Albufeira Lagoon.

Human occupation of Setúbal Peninsula dates back to prehistoric times. After the definitive conquest of Lisbon by the Christians, in 1147, the settlement and defence of this territory became very important as it constituted the southern border of Christendom. As all the conquered territory belonged to the king, he handed over its administration and exploitation to particular lay nobles and, above all, to the religious and military order of Santiago de Espada. These were the holders of the full domain of the soil and handed over the useful domain of it and its exploitation, to others who worked and profited from it. Between the 11th and 19th centuries, the written historical records allow us to conclude that mining, agricultural/wine-growing, river (Tagus), lagoon (Albufeira fig. 1D) and maritime fishing were the main economic activities implemented. However, from the 19th century onwards, everything changes! With the progressive conviction of the benefits of sea water for physical and mental health, beaches began to be progressively more and more sought after by the upper classes. The behaviour of the upper layers of the social pyramid tends to be mimicked by other social classes and, thus, the so-called maritime vacation became an unquestionable reality from the mid-twentieth century. Let's not forget that Costa da Caparica (fig. 1B) is really close to Lisbon, so the population of the Portuguese capital, plus people from Alentejo, started going to the baths there.



With the increase in demand it was necessary to create infrastructure to accommodate visitors. That's how it is explained a construction of the first establishments, the first hotel named "Hotel Praia do Sol", the village electrification, the installation of piped water and basic sanitation, the construction of the fishermen's district and of a road connecting to Fonte da Telha (fig. 1C). Roads near the beach began to be paved. Caparica infrastructures growth to be seen in the 1950s as a seaside resort, however it increased the illegal construction in sensitive areas such as the dunes and the forest, destroying the natural protections of the beaches. In the following years, the tourist demand in this region increased, especially after the construction of the Tagus bridge in the late 60s, which promoted a more efficient, fast and safe way of crossing the river. This increased public transport connections, the growing of campsites offer that would become very popular and also accommodations offer. It was also relevant the proximity of Lisbon airport and the international boom of tourism after the second world war (Ferreira, 2016). The village was facing a complete change as new hotels, pavement roads, housing districts consisting of high-rise buildings, were built not only, but also, along the coastline. This changes brought an ideal of progress to local population who aspired to see in the locality the archetype of development that had taken place in the resorts of Biarritz - France, or Torre de Molinos - Spain (AHMA 1 and 2). Towers with more than 10 floors and avenues such as Avenue General Humberto Delgado, were built in the seafront destroying the dune system that defended the interior of overtopping. This process of increasing and densifying spaces with more urban functions was continuous until present and Costa da Caparica became an urban plain with a sharp decline in agricultural and dunes areas (Ferreira, 2016). This growth in the human occupation and urban construction, happened when the process of coastal erosion and retreat also intensified due to human action.

In the 19th century, anthropic actions in the Tagus river mouth contributed to coastal retraction and to erosion processes due to human interventions, namely by transformation of swampy areas in agricultural land and the construction of the Lisbon harbour. In the 20th century, the construction of hydroelectric power plants, diminished the sediments flow to the coastline. Besides, about 14.5 million cubic meters of sand were removed for landfills on the right bank of the Tagus. This made disappear the sandy spit that existed in Tagus mouth (Fig. 1A) and retained the sediments that nourished this coastline beaches (Freire 1986, Dias 2005, Veloso-Gomes *et al.* 2009). In the 1950s the first large erosion problems begun with house's destruction and the need of relocation (AHMA 2 and 3). The interventions on dune repair, the first artificial nourishment on the beaches and the construction of coastal protection infrastructures, controlled the problem until 1996, although there was a progressive loss of beach width and volume (AHMA 2). In the following years some episodes lead to infrastructural damages, coastal retreat and erosion, leading to interventions between 2002 and 2006 (Veloso-Gomes *et al.* 2006). In that year's, winter erosion increase and lead to the need of new interventions between 2007 and 2009, namely beaches and dunes artificial nourishing. This kind of intervention was then repeated after the 2013-2014 winter when Hercules, Brigid and Stephanie storms, brought considerable damages to this coastline (Ferreira 2016). In conclusion, this coastline it is high vulnerable to hazards and risks concerning costal erosion at the risk of even disappearing in some coastal stretches.

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AHMA 2. Arquivo Histórico Municipal de Almada, Praia do Sol, IV, nº 70, XVI, nº 230, XX, nº 229, 279; XXI, 297; XXII nº 300; XXIV nº 326, XXXIII nº 317.

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