

Historical accounts about the occurrence and capture of common dolphins in Portugal mainland

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ABSTRACT

Historical oral sources indicate that common dolphins (*Delphinus delphis*), locally known as “toninhas”, were observed and captured in large numbers at Portugal mainland during late 19th and 20th centuries. Historical occurrences given by naturalists and scientific surveys conducted by biologists indicate their regular presence with particular preference for certain areas. Also, recent observations of opportunity resulted in the same kind of accounts. Between 1976 and 1978, a research for captured cetaceans in fish markets along the Portuguese shore was conducted and resulted in a total count of 45 cetaceans. Most captures were of small cetaceans (87% common dolphins), even though four baleen whales were registered. These cetacean captures were part of a local non industrial fishery, as they were not the main target, rather opportunistic catches or even by-catches of other fisheries. Delphinids were not protected by law at the time and were caught with hand harpoons or accidentally drowned in fish nets, sometimes sold at major fish markets such as Sesimbra, Peniche and Póvoa de Varzim. In geographic areas where recent cetacean sightings are rare and information is sparse, such as Portugal, it becomes important to recur to alternative sources of data. Our contribution towards the compilation of relevant “forgotten science”, such as historical naturalistic observations, whaling data and observations of opportunity, will add new data to the occurrence of common dolphins in a poorly studied region.

KEYWORDS

Exploitation; Population assessment.

INTRODUCTION

Until very recently, little effort has been invested in documenting the occurrence and distribution of cetaceans frequenting or occasionally occurring in the Portuguese mainland shores. Exception is given for the resident population of bottlenose dolphins (*Tursiops truncatus*) in the Sado Estuary (e.g. dos Santos, 1998). Most accounts for the late 20th century have been given by oral information, anecdotes and a couple of non continuous studies (e.g. Sequeira, 1988; Wise *et al.*, 2005). Nevertheless, there are indications that common dolphins (*Delphinus delphis*), locally known as “toninhas” (Nascimento, 1945; Gama, 1957), were observed and captured in large numbers at Portugal mainland since several centuries ago and mainly during late 19th and 20th centuries. This specie is even considered the most abundant or common cetacean off Portugal (Teixeira & Duguay, 1981; Sequeira, 1988; Brito & Vieira, 2008). Surveys between 1997 and 1999 also presented common dolphin distribution (Wise *et al.*, 2005; Wise *et al.*, 2007) and data from 20th century stranding records indicate their regular presence along the Portuguese coast (Sequeira *et al.*, 1996; Sequeira *et al.*, 1997). We did not included these information in the present study as it as been published elsewhere; our search was for non published reports and historical records.

Most of historical or baseline information regarding cetaceans is obtained from whaling records and fishing statistics. The commercial exploitation of large whales was an important activity off Portugal mainland since the Middle Ages and continued along the centuries, even though there were peaks at certain times (Brito, 2009). These accounts are still under analysis but until the present moment there is no indication of a regular and directed capture of small cetaceans.

This paper contributes to the understanding of common dolphin historical occurrence through a review of a wide range of data (from the 13th to 19th century) and more recent information (captures and surveys during the 20th century and recent observations of opportunity). Our contribution towards the compilation of relevant “forgotten science”, such as historical naturalistic observations, whaling data and observations of opportunity, will add new data to the study of common dolphins in a poorly known region.

METHODS

An historical based research was conducted during the last years in order to obtain old records about the occurrence of cetaceans, and the importance of fishing and whaling activities at Portuguese shores, since the 13th century.

A search for Portuguese documents was conducted at the National Library of Portugal (Lisbon) and other regional libraries and archives (Nazaré, Peniche, Sesimbra and Setúbal). Our investigation also included non published scientific reports and some other grey literature such as non published thesis. National statistic books and fishing statistics since the end of the 19th century were consulted in the National Institute of Statistics (Lisbon).

RESULTS

We obtained a total of 160 independent accounts of common dolphins over time (since the 13th century to the present) in several locations along the mainland Portuguese coast (Fig. 1) as a result of a compilation of 8 historical accounts, 12 historical stranding/sighting records, 45 captures records, 67 scientific sightings and 28 recent observations of opportunity (Table I).

Historical records of common dolphins mainly refer to their presence during events of capture of other cetaceans or their economic value in old fish markets but give us an idea of where and when this specie occurred in the past. The same for the historical sightings, which were made by zoologists or other researchers of the time; in those cases, dolphins were spotted at sea and their approximate localization was recorded.

In the early 20th century, common dolphins were frequently captured off Sesimbra as indicated by the number of individual hand harpoons registered in the national statistics books. Fishing data indicates that, at least, between 1896 and 1906, dolphins might had been captured, but there are only references to 1902, 1904, and 1906 when, respectively 39, 41, and 41 harpoons were officially listed. Even though data was only available for some years, the absence of data does not mean the absence of harpoons in the other years, but probably the lack of registered information found on that specific fishery.

Between 1976 and 1978, a research for captured cetaceans in fish markets along the Portuguese shore was conducted (Teixeira, 1979) and resulted in a total count of 45 cetaceans (Fig. 2). Most captures were of small cetaceans (87% common dolphins), even though four baleen whales and other odontocetes were registered (Fig. 4). These captures occurred all across the coastline were made using hand harpoons and were rather opportunistic. Captured individuals were sold at the beach fishing markets together with all the captured fishes (Fig. 3 and Fig. 5).

After that period, two separate data sets are available (1980 and 1988) regarding scientific surveys conducted for cetacean detection and study. More recently a compilation of observations of opportunity was also made and the observation of common dolphins comprises 60% of the total occurrences (Table I).

A geographical plotting of common dolphin occurrence along Portugal mainland coast, considering all types of accounts, was made and its distribution is shown (Fig. 6). It is important

to refer that each mark indicates one of the 160 independent records collected and not number of individuals.

DISCUSSION

Although regular information on past and present numbers of dolphins living in the Portuguese mainland coast is unavailable, a qualitative assessment on the existing literature indicates that common dolphins have been regular components of coastal fauna at least since the 13th century. Common dolphins are distributed along the continental coast and a concentration of occurrences next to main topographic features such as submarine canyons seems to occur.

During the 20th century, cetacean captures were part of local non industrial fishery, as they were not the main target, rather opportunistic catches or even by-catches of other fisheries. Delphinids were not protected by law at that time and were caught with hand harpoons or accidentally drowned in fish nets, and sometimes were sold at major fish markets for instance Sesimbra, Peniche and Póvoa de Varzim. In Portugal mainland a legislation protecting cetaceans came up in 1981, and since then only sporadic captures or by-catches occurred.

Portugal is a geographic area where recent cetacean sightings are rare and information is sparse, so it becomes important to look for alternative sources of data. This paper, such as in other studies (e.g. Bearzi *et al.*, 2004), stresses the importance of documenting past events and historical trends that usually go unnoticed, owing to factors such as difficult access to relevant literature and scarcity of quantitative reports. In this case we were able to determine long temporal patterns of occurrence as well as some spatial gradients, which may indicate new and important spots for the future study and assessment of common dolphins and other cetacean species.

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REFERENCES

- Alves, J.L. 1993. *A linguagem dos pescadores da Ericeira*. Fac-símile da edição de 1965. Assembleia Distrital de Lisboa: 258 pp.
- Bearzi, G., Holcer, D. & di Sciara, G.N. 2004. The role of historical dolphin takes and habitat degradation in shaping the present status of northern Adriatic cetaceans. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 14: 363-379.
- Brito, C. 2009. Whaling on the mainland of Portugal since the 13th century: a first approach. In ECS Special Publication Series, nº 50 (Proceedings of the ECS Workshop Marine Mammal History), pp. 12-17. Ed. by Brito, C. and Evans, P.G.H., European Cetacean Society. 36 pp.
- Castro, A. 1966. *A evolução económica de Portugal nos séculos XII a XV*, Vol. IV. Portugália, Lisboa.
- Cavanilles, A.J. 1801. Description de dos géneros nuevos de plantas. *Anales de História Natural*, III (9): 229-233.
- dos Santos, M.E. 1998. *Golfinhos-Roazes do Sado: Estudos de Sons e Comportamento*. ISPA, Colecção Teses, 4: 279 pp.
- Gama, M.M. 1957. Mamíferos de Portugal: chaves para a sua identificação. *Memórias e estudos do Museu Zoológico da Universidade de Coimbra*, 246: 225 pp.

- Livro do Tombo da villa de Cezimbra e seu termo, e limite de Azeitam. De todos os privilégios, sentenças, e rendas, que o dito concelho tem, e alcansou.* Tresladados os originais por ordem do mesmo concelho. No anno de MDCCXXVIII (Historical Archive of Sesimbra, 1728).
- Monteiro, R. 2001. *Alguns mareantes desconhecidos da terra de Sesimbra e outros textos.* Câmara Municipal de Sesimbra: 198 pp.
- Nascimento, L.G. 1945. O delfim: um inimigo irreconciliável da sardinha. *Boletim da Pesca*, 8: 18-25.
- Nobre, A. 1895. Notes sur les poissons de l'Algarve. *Annaes de Sciencias Naturaes*, Vol. II, nº 4: 224-232.
- Nobre, A. 1899. Sobre a presença de *Delphinus delphis*, var. *Mediterranea*, nas costas do Algarve. *Annaes de Sciencias Naturaes*, Vol. VI: 50.
- Nobre, A. 1935. *Fauna Marinha de Portugal: Vertebrados (Mamíferos, Repteis e Peixes).* Porto: 574 pp.
- Silva, M.F. 1953. *Da actividade marítima portuguesa na primeira dinastia.* Dissertação de Licenciatura em Ciências Histórico-Filosóficas. Faculdade de Letras da Universidade de Lisboa: 132 pp.
- Sequeira, M.L. 1988. *Mamíferos marinhos da costa portuguesa: Padrões de distribuição e ocorrência das principais espécies.* Relatório de Estágio, FCUL, Lisboa: 187 pp.
- Sequeira, M., Inácio, A.; Silva, M. A., Reiner, F. 1996. Arrojamentos de mamíferos marinhos na costa continental portuguesa entre 1989 e 1994. *Estudos de Biologia e Conservação da Natureza.* ICN, Lisboa: 52 pp.
- Sequeira, M., Inácio, A., Silva, M. A. 1997. Cetacean strandings in Portugal: 1993-1995. *Eur. Res. Cetaceans*, 10: 136-140.
- Teixeira, A.M.A.P. 1979. Marine mammals of the Portuguese coast. *Sonderdruck aus Z. f. Säugetierkunde Bd. 44 H. 4. S.:* 221-238.
- Teixeira, A.M. & Duguy, R. 1981. Observations de delphinidés dans les eaux cotieres Portugaises. *Relatório de Actividades do Aquário Vasco da Gama*, 9: 9 pp.
- Wise, L., Ferreira, M., Silva, M., Sequeira, M. & Silva, A. 2005. Estudo das interacções entre mamíferos marinhos e a pesca de cerco na costa oeste portuguesa. Relatórios técnicos e científicos (Série Digital, <http://ipimar-iniap.ipimar.pt>), 25: 27 pp.
- Wise, L., Silva, A., Ferreira, M., Silva, M.A. & Sequeira, M. 2007. Interactions between small cetaceans and the purse-seine fishery in Western Portuguese waters. *Scientia Marina*, 71 (2): 405-412.

Figure 1 – Map of Portugal mainland showing approximate geographical localization of the fishing villages referred in the present study.

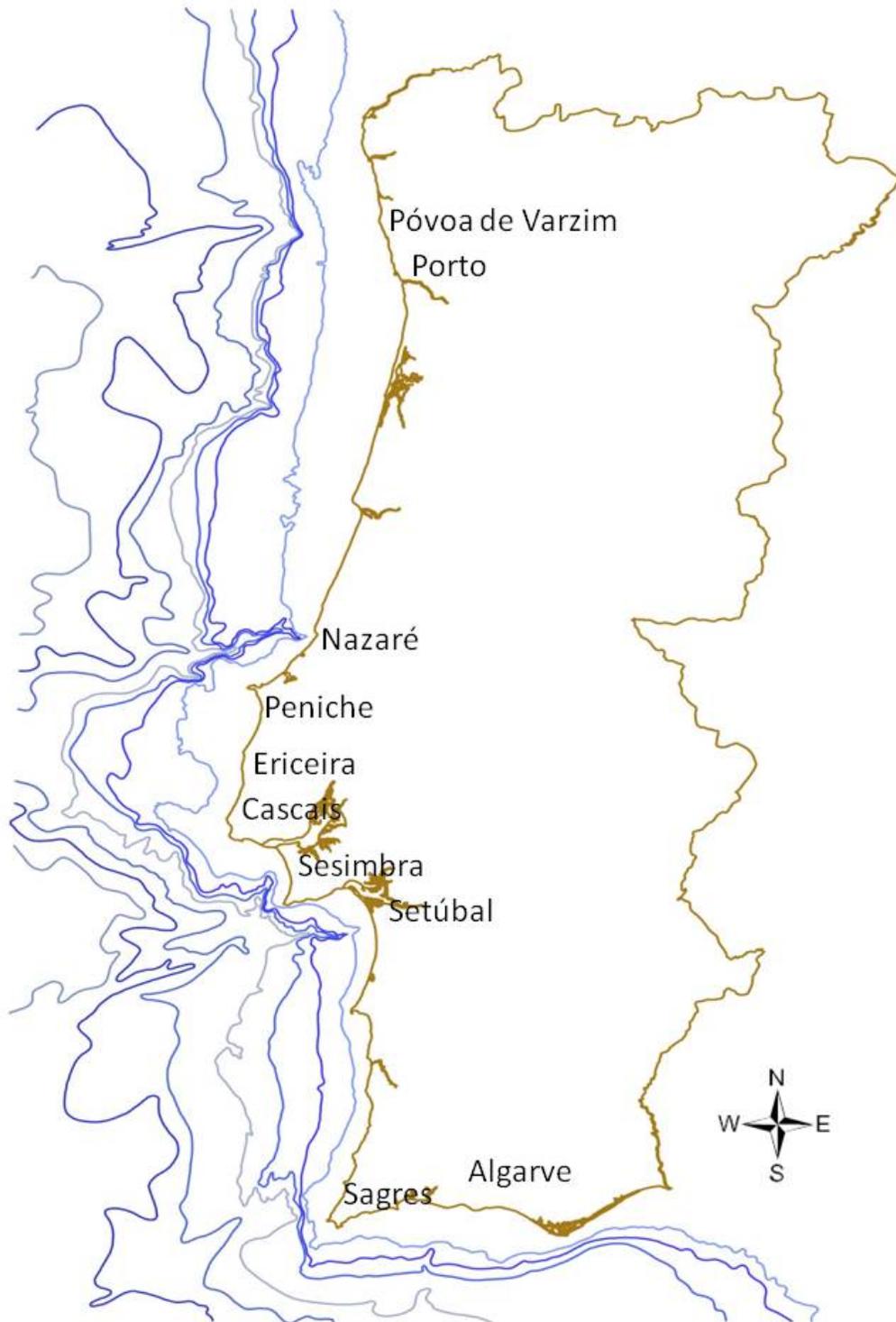


Table I – Records of the occurrence of common dolphins over time in Portugal mainland (n=160), according to historical accounts, historical sightings and strandings, captures, scientific surveys and recent observations of opportunity (* indicates number of sightings, but more than one individual may have been observed; ^ record of the observation of 3 individuals, one adult and 2 calves, indicates a certain degree of detail in early “scientific” observations; ■ number of records is the same as number of individuals).

Date	Region	Records	Type of sightings	Reference
1201	Sesimbra	1*	Historical account: “ <i>almadrava da toninha</i> ” (referring to siege nets for dolphins)	Monteiro (2000)
1258	Porto	1*	Historical account: “ <i>fishers must pay the king for the whale fishing and other animals such as toninhas and dolphins</i> ”	Castro (1966)
1305	Algarve	1*	Historical account: “ <i>a lown of 1500 dobras to be paid through a part of the value of captured tunas, swordfishes and toninhas</i> ”	Andrade (1813)
1375	Sesimbra	1*	Historical account: “ <i>between Sines and Sesimbra we fish tuna, swordfish, dolphins, toninhas, some whale or small whale or serea or coca or roaz or musaranha or other large fish</i> ”	Silva (1953)
16 th century	Ericeira	1*	Historical account: “ <i>in the 16th century, rays, hakes and other fishes were the most common captures, besides the toninhas</i> ”	Alves (1993)
1728	Sesimbra	1*	Historical account: “ <i>fishers must pay to the church from all fishes and sardines and toninhas, that they fish and take from the coast of the sea</i> ”	Tombo da Vila de Sesimbra (1728)
1751	Porto	1*	Historical account: “ <i>the dolphin (delfinus Gen.) followed us for all the sea</i> ”	Cavanilles (1801)
1895	Algarve	1^	Historical sighting: indication of number of individuals, behavior and other aspects	Nobre (1895)
1897	Porto	1■	Historical stranding	Nobre (1899)
1935	Âncora; Viana; Póvoa de Varzim, Leça da Palmeira;	11*	Historical sighting	Nobre (1935)

	Foz do Douro; Buarcos; Peniche; Setúbal; Sesimbra; Faro; Algarve.			
1976/1978	Póvoa de Varzim; Peniche; Cascais; Sesimbra; Anção; Sagres	45 [■]	Incidental captures or bycatches	Teixeira (1979)
1980	S. Martinho do Porto; Peniche; Ericeira; Sesimbra; Sines	9 [♦]	Scientific sightings	Teixeira & Duguay (1981)
1987	Mainland Portugal	58 [♦]	Scientific sightings	Sequeira (1988)
2002/2008	Póvoa de Varzim; Nazaré; Peniche; Cascais; Sesimbra; Sagres	28 [♦]	Observations of opportunity	Personal communication to the authors

Figure 2 – Number of captured common dolphins in some fishing villages along the Portuguese coast (n=45), between 1976 and 1978.

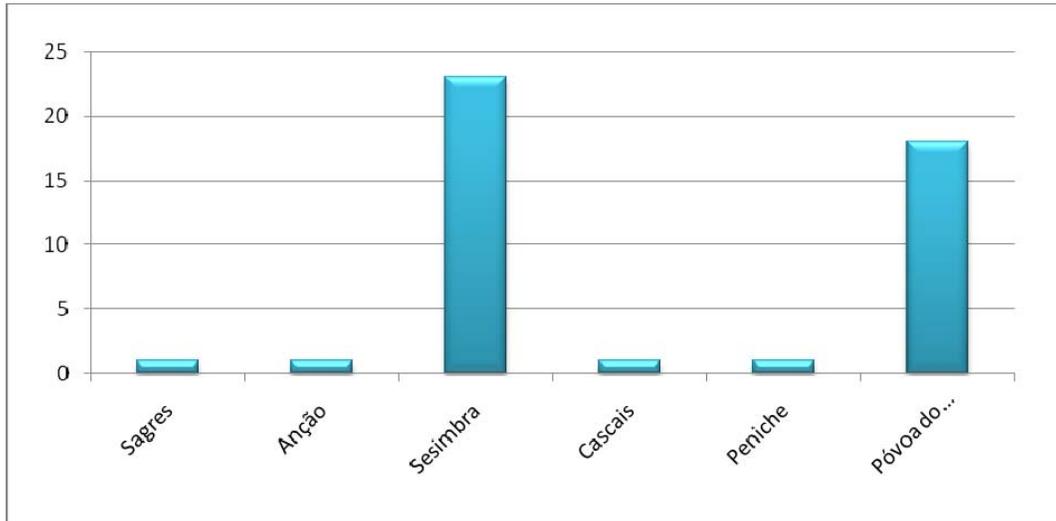


Figure 3 – Photograph of the fish market in the village of Sesimbra at the beach, in the 1960s, showing six captured common dolphins. (Image obtained at the Historical Archive of Sesimbra, Portugal)



Figure 4 – Number of captures of other cetaceans species along fishing villages in Portugal mainland (n=9), between 1976 and 1978.

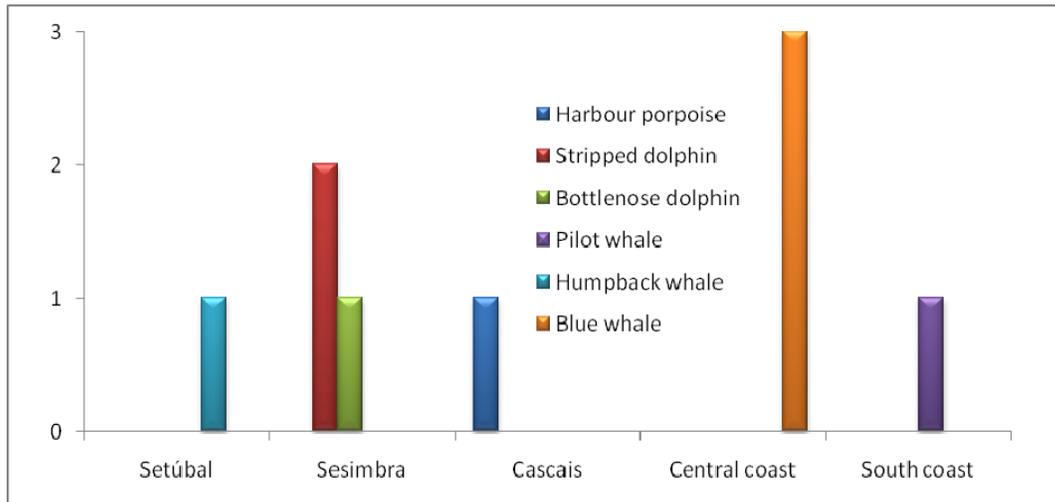


Figure 5 - Photograph of the fish market in the village of Sesimbra at the beach, in the 1960s, showing a captured bottlenose dolphin with a harpoon mark visible on the side. (Image obtained at the Historical Archive of Sesimbra, Portugal)



Figure 6 – Approximate geographical localization of all different type of accounts regarding the occurrence of common dolphins (n=160): red dots – historical accounts/sightings/strangings; green dots – 20th century scientific sightings following Teixeira & Duguy (1981) and Sequeira (1988); pink stars – 20th century local captures following Teixeira (1979); blue stars - recent observations of opportunity.

