

THE MINKE WHALE AROUND THE IBERIAN PENINSULA

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ABSTRACT.

Based upon the information taken from the whaling statistics, strandings and sightings around the Iberian Peninsula, 31 records of the appearance of the minke whale were compiled and analyzed.

There is an increasing number of records in recent years. The information available shows that all the sightings were made in the period between April and November irrespective of the position of the observation, while the strandings occur all the year round. All the stranding records come from the coast of the Bay of Biscay and the Atlantic front with none from the South Atlantic nor Mediterranean coasts.

Most of the animals stranded measured less than 5 m. total length, and some of them probably, hadn't reached six months of age.

The occurrences of minke whale in the area are discussed, dismissing the possibility that this may be a common species in the Iberian continental shelf.

Some evidence is presented, supporting the hypothesis of a relationship between the animals found in these waters and a westerly migrational pattern of the species.

INTRODUCTION.

The minke whale (Balaenoptera acutorostrata, Lacépède) is a species distributed worldwide. In the North Atlantic it may be found from the American to the European coasts, crossing the line of the polar ice in the North. It is known to appear in different European coastal areas (Jonsgard, 1951). Modern fishery of this species started along the Norwegian coast in the 20's and later extended to the Barents Sea, Iceland, Faroe Islands and other North Atlantic areas (Jonsgard, 1977). Its occurrence in the British Isles is known from the information obtained from the strandings (Fraser, 1974) and sightings in the coastal waters (Evans, 1980). It also frequents the French Atlantic coastal line, where numerous strandings occur (Duguay and Robineau, 1973).

The southern limit of its dispersal area in the North East Atlantic is not so well known. Slijper (1962), referring to the general distribution, mentions that this species seems "to avoid very warm waters, say, between 25° N and 25° S". Duguy (1975) compiled abundant information about the sea mammals along the African coast between 12° N and 28° N, but he couldn't find any reference to this whale in these latitudes.

Neither does it appear amongst the cetaceans of the Moroccan coasts referred to by Aloncle (1964). It is rarely found in the Mediterranean where it may penetrate in restricted areas (Duguy and Cyrus, 1973; Duguy et al., 1983). According to Clarke (1981) it is a rare visitor to the Azores Islands.

Its presence in Iberian waters has been known of for some time (Seabra, 1910; Cabrera, 1914). Later, several authors studied its appearance in different areas of the Iberian coast line (Casinos and Vericad, 1976; Teixeira, 1979; Duran, 1980; Inacio, 1983; Nores and Perez, 1983), although no study has been made where the situation of the minke whale along the whole of the Iberian coast has been analyzed.

The aim of this paper is to fill the existing gap, taking into account the records of recent years and trying to relate this data with other information concerning its distribution in the N.E. Atlantic.

MINKE WHALE RECORDS IN THE AREA.

Three sources of information are used in this paper: whaling data, sightings off the Iberian coast and strandings.

In each case the same geographical criteria is used, going round the coast from the Bay of Biscay to the limit with the French coast in the Mediterranean.

Whaling data.

Whale hunting in the Iberian Peninsula developed intermittently this century after its start in the 20's. The land factories were placed on the Galician coast (NW), in Setubal (Portugal) and in the area of the Straits of Gibraltar. The floating factories, which existed in the first period of the exploitation and in the same areas as the land factories, worked in the same way. Fishing was centered around the sperm whale and the fin whale, any reference to other species being quite rare. Despite the whaling activity carried out on the Galician coast at different times, no catches of B. acutorostrata have been registered in this region (Aguilar and Lens, 1981). Jonsgard (1977) gives the catch of one specimen in the Portuguese factory of Setubal in 1951. None of the authors that write about whaling activity in the Straits of Gibraltar mentions the capture of this species (Rodriguez Santamaria, 1923; Teran, 1949; Aloncle, 1964). Only De Buen (1922) mentions the hunting of "ballenatos" in this area, identifying them as belonging to the species B. acutorostrata. However, one of the photographs used in his paper, clearly shows the typical coloring of the baleens of B. physalus, suggesting that the specimens captured were wrongly identified and consequently, the term "ballenatos" used by Cabrera (1914) and other authors for B. acutorostrata does not apply to the animals caught in the Gibraltar Strait.

Sightings.

Fischer (cited by Cabrera, 1914) describes the sighting of two minke whales on the Santander coast in 1880. This sighting is later recorded by Casinos and Vericad (1976); Duran (1980); Ortega (1981) and Nores and Perez (1983). Also in the Bay of Biscay Nores and Perez (1983) tell of a specimen sighted two or three miles off the Asturian coast. Another sighting was made by a fishing boat off the coast of Galicia (Duran, 1980) (Fig.1).

Between 1981 and 1985 different sightings and marking cruises were carried out. The most intensely explored area was that situated to the NW and W of the Peninsula, the fin whale being the most frequent mysticete, although occasionally other species were seen. The minke whale was sighted on three of the cruises carried out at this time (Aguilar *et al.*, 1983; Sanpera *et al.*, 1985; Sanpera, pers. comm.). In none of the other areas explored: Gibraltar Strait, the African coast down to 34° N and the Spanish Mediterranean coast, were animals of this species seen (Aguilar *et al.*, 1984; Sanpera *et al.*, 1984).

The observations made from meteorological vessels stationed in oceanic areas off the NW Peninsula are also of interest for this paper, telling of several sightings of *B. acutorostrata* at different times and geographical points (Duguay and Aloncle, 1974; Duguay, 1977; 1979; 1982; Duguay and Desportes, 1983; 1984) (Fig. 1).

Strandings.

Not all strandings are produced by natural causes, as some animals are caught close to the shore. Rios Rial (mentioned by Cabrera, 1914) tells of the capture of a minke whale in the Cantabrian Sea, off S. Sebastian, at the end of the last century. The same record appears in Casinos and Vericad (1976) and Ortega (1981). Something similar has been described in recent years on the Santander coast (Rey and Cendrero, 1981; Cendrero, pers. comm.). Also in the Bay of Biscay but this time in the Asturian coast, references to another two stranded specimens were found (Gomez De Llarena, 1933; Nores and Perez, 1983). The latter mentioned a probable record on this coast, although there is no description that would permit the animal to be identified, and for this reason it has not been included in this paper.

In recent years the appearance of the minke whale along the coast of Galicia has been registered on three occasions. Two of these cases were beach strandings (Duran, 1981) whilst the third was hauled into port by a fishing boat (Rey and Lens, in prep.). On the Portuguese coast two records exist for the same locality (Peniche), one of which corresponds to an animal caught by a fishing boat (Teixeira, 1979) and the other to a stranding (Inacio, 1983). Teixeira (1979) tells of the existence of the mould of a foetus of this species from the Portuguese coast but from an unknown locality. The same author tells about a jaw of an animal of this species, but does not consider the observation as very clear, and so it has not been included in the present paper. There is information about another stranding in Setubal at the beginning of the century (Cabrera, 1914; Teixeira, 1979). Further South off Cape Sines there was a stranding of a minke whale (Reiner, 1980) (Fig. 1).

The only information found about its appearance along the Spanish Mediterranean coast comes from Cabrera (1914, who cites Yañez). It was a specimen stranded in Barcelona in 1839. Casinos and Vericad (1976) include it in their paper, the same as Duguay *et al.* (1983) although the latter consider the record old and dubious. For the same reasons it will not be taken into account in this paper.

HISTORICAL ACCOUNT.

The aforesaid-mentioned records are given in chronological order in Table 1, leaving out those that are not sufficiently reliable. The most relevant information concerning each occurrence is given in schematic form, as well as the oldest reference consulted on each one.

The first observations made about this species in the Iberian Peninsula go back to the end of the last century (Cabrera, 1914). Since then, different cases have been described, spread out irregularly throughout the period considered (Table 2). In recent years there has been a considerable number of appearances of this whale, compared with the few observations registered previously. Of the 14 records of strandings known of during the period from 1880 to 1986, six correspond to strandings that took place after 1980, the records between May 1980 and June 1981 being specially remarkable.

At the same time, the monitoring of cetaceans stranded along the coast passed from a sporadic observation before 1970, to systematic controlling with the organization of different groups along the Portuguese and Spanish coast (Anonymous, 1986).

Sightings are also more frequent in recent years. This increase of animals seen, coincides with several sighting cruises and with the increase in reports by occasional observers (meteorological vessels and fishing boats).

SEASONAL OCCURRENCE

The date of 24 of the records is known (Table 3). Most of them specified the day the record was made which, in the case of some strandings, took place several days after the animal had come ashore.

The strandings happen throughout the year and there is no appreciable difference between the seasons, whereas the sightings near the coast were only made between April and November. Something similar may be seen when studying the sightings made in areas further offshore (around the point 47° 00' N - 17° 00' W). Although observations at this point were carried out all through the year, minke whale sightings only occurred between April and November, no animals having been detected during the winter months.

GEOGRAPHICAL DISTRIBUTION

All the occurrences of this species in the Iberian Peninsula come from the North and West Atlantic coast (Fig. 1). Some strandings repeat at the same point (Santander, Peniche), whilst there are also relatively large zones (the northern part of the Portuguese coast) where no strandings are registered. On the whole, the number of records in the Bay of Biscay and along the Atlantic front are quite similar. The most southerly locality registered is Sines (Portugal) at 38° N.

Most of the sightings were made in the NW of the Iberian Peninsula, between 42° N and 48° N and 10° W and 18° W, coinciding with the area where most of the searching effort in the sighting cruises was made and where the meteorological vessel is stationed.

There is a lack of stranding records along the Peninsula coast line between Cape S. Vicente and the French coast in the Mediterranean that cannot be due to a deficient coverage of the coast, as several groups made stranding observations in this area (Anonymous, 1986). Neither were there sightings reported from this part of the coast.

LENGTH DATA

The length data of 15 specimens is known. In Figure 2 the length frequency distribution, rounded to the nearest 0.5 m. is shown. Most of the animals stranded are under 5 m. total length. Only one of the specimens over this size was a stranding, the rest being animals observed at sea.

Assuming that the relation between length and age is similar to that found by Christensen (1981) on the Norwegian coast, the majority of the animals belong to the age groups 0+ and 1+ and several of them are probably not yet six months old.

The abundance of young individuals in the strandings coincides with the absences of adults along the Iberian coast described earlier by Cabrera (1914). The sex of nine stranded animals was determined, there being a high proportion of females (7:2).

DISCUSSION.

As has been shown there is a parallel increase between the number of observations of this species in the last few years and the number of observers in the same period. According to this, the last period would reflect more realistically the significance of the minke whale on these shores, the consequence of a better, broader, covering of the coast. But, other factors may be contributing to the increase of the observations, like the changes in environmental conditions or the increase in fishing activities on the continental shelf.

There are differing opinions about the appearance of the species in different parts of the Atlantic coast. Ortega (1981) points out that it only reaches the Cantabrian coast sporadically. Nores and Perez (1983) considered it to be relatively abundant on the Asturian shore, while Duran (1980) suggests that it should not be considered unusual on the Galician coast. Teixeira (1979), does not believe it to be a very common species, judging by the information available for the Portuguese coast. However, the analysis of all the records used in this paper suggests that there should not exist substantial differences in the distribution of the species between different areas of the Atlantic coast.

Casinos and Vericad (1976) in their paper on the cetaceans of the Spanish coast, suggest differentiating between two geographical areas, the South Atlantic and Mediterranean coasts, and the Bay of Biscay and the NW. This criteria serves to describe the distribution of the minke whale in the Iberian Peninsula if the Portuguese shore down to Cape S. Vicente is included in the Atlantic area. In fact, all the records come from the Atlantic side, whilst none have registered in the South Atlantic and Mediterranean area.

The absence of records from the North African coast and the fact that it rarely penetrates in the Mediterranean Sea, could indicate that the Southern extent of the range along the NE Atlantic coasts may be found in Iberian waters, close to the Cape S. Vicente.

One interpretation of these records could be to consider this species as typical of the Iberian shelf, as its preference for coastal habitat is well known. The lack of any specific exploitation on this coast, and even the absence of data concerning its capture as an accidental or secondary species, (with the exception of that given by Jonsgard, (1977)), make us dismiss this interpretation. There is evidence that suggests that its appearance in these waters may be related to a migratory movement fairly close to the Iberian Peninsula.

According to different authors (Jonsgard, 1951; Evans, 1980) the minke whale migrates in spring to the North going West of the British Isles in search of feeding grounds and reaching the North Sea and the Norwegian coast where it is more frequent in summer. The return South takes place in autumn, and may follow a similar route looking for warm waters where it will spend the winter. It is in these areas that the pairing and breeding take place, from December to May and from October to March respectively (Mitchell, 1975 b).

Sightings in British waters only occur between June and October (Evans, 1981), none being recorded during the winter months. The strandings take place all year with peaks in August-October and May (Fraser, 1974). This seems to bear close relation with the data given in this paper. The sightings around point 47° 00'N - 17° 00'W in the months of April and May could indicate the passing of a migratory movement from the breeding areas to richer feeding grounds further North. Throughout the summer and autumn some sightings occur, but none are detected between December and March, either at this point or in areas closer to the shore. This could suggest that in these months the majority of the animals are to be found further South, close to the breeding grounds, from where the spring migration will take place.

As along the British coast, strandings in the Iberian shores occur all through the year. Both this and the presence of many young animals may be due to the proximity of the breeding grounds and to the duration of the breeding season.

Most of the Iberian specimens are no more than 5 m. long, whilst the animals stranded on British shores are rarely less than this length (Fraser, 1974). This increase in the animals' size with the latitude suggests a length segregation in the distribution of the young individuals. This same tendency in some young animals, which seem to remain in the lower latitudes of the distribution area, has been described on the East coast of North America (Schwartz, 1962; Sergeant, 1963).

There exists the possibility that the strandings could be caused in part by the action of dominant winds and currents, which carry the dying animals towards the coast. However, it seems that the occurrences of B. acutorostrata on the Iberian Atlantic shelf are of lost individuals which, in an area relatively close to the pairing and breeding grounds, stray from the migratory route on the West of the Iberian Peninsula.

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Table 1. Minke whale occurrences around the Iberian Peninsula.

Record number	Date	Locality	Length (cm.)	Sex	Authority
1	21-07-1880	Santander			Cabrera, 1914
2	about 1885	S. Sebastian			Cabrera, 1914
3	1905	Setubal	317	F.	Cabrera, 1914
4	1907	Santander	300	F.	Cabrera, 1914
5	1926	Coast of Portugal	155		Teixeira, 1979
6	27-10-1933	Gijon	500	F.	Gomez de LLarena, 1933
7	1951	Setubal			Jonsgard, 1977
8	1967	Peniche	400		Teixeira, 1979
9	1972-1974	45°00'N-16°00'W			Duguy and Aloncle, 1974
10	18-11-1975	46°50'N-17°00'W			Duguy, 1977
11	03-05-1977	47°15'N-17°13'W			Duguy, 1979
12	20-07-1977	47°15'N-16°40'W			Duguy, 1979
13	08-09-1977	47°00'N-17°00'W			Duguy, 1979
14	20-03-1978	Santoña	400		Rey and Cendrero, 1979
15	08-1978	Tapia	800		Nores and Perez, 1983
16	18-05-1980	47°00'N-17°00'W			Duguy, 1982
17	30-07-1980	Sines	330	F.	Reiner, 1980
18	19-12-1980	Ferrol	337	F.	Duran, 1980
19	13-01-1981	Santander	461	F.	Rey and Cendrero, 1981
20	02-04-1981	Pto. do Son	330	M.	Duran, 1980
21	16-04-1981	47°09'N-17°02'W			Duguy and Desportes, 1983
22	04-1981	42°35'N-10°20'W			Duran, 1980
23	27-04-1981	Peniche	450	M.	Inacio, 1983
24	27-06-1981	Villaviciosa	900		Nores and Perez, 1983
25	03-08-1981	47°03'N-17°03'W			Duguy and Desportes, 1983
26	03-09-1981	41°59'N-10°53'W			Aguilar <i>et al.</i> , 1983
27	04-10-1981	47°50'N-8°00'W			Duguy and Desportes, 1983
28	05-09-1982	47°00'N-17°00'W			Duguy and Desportes, 1984
29	19-07-1983	45°57'N-11°54'W	700		Sanpera <i>et al.</i> , 1985
30	22-08-1984	Portonovo	450	F.	Rey and Lens, in prep.
31	11-08-1985	43°11'N-13°30'W	750		Sanpera, pers. comm.

Table 2. Historical evolution of the records.

Period	Whaling	Sightings	Strandings
1880-1889		1	1
1890-1899			
1900-1909			2
1910-1919			
1920-1929			1
1930-1939			1
1940-1949			
1950-1959	1		
1960-1969			1
1970-1979		5	2
1980-1986		10	6
Total	1	16	14

Table 3. Seasonal occurrence.

	J	F	M	A	M	J	J	A	S	O	N	D
Sightings at 47°00'N-17°00'W				1	2		1	1	2		1	
Other sightings				1		1	2	1	1	1		
Strandings	1		1	2			1	2		1		1
Total	1		1	4	2	1	4	4	3	2	1	1

Fig.1. Geographical distribution of the records used in this paper.

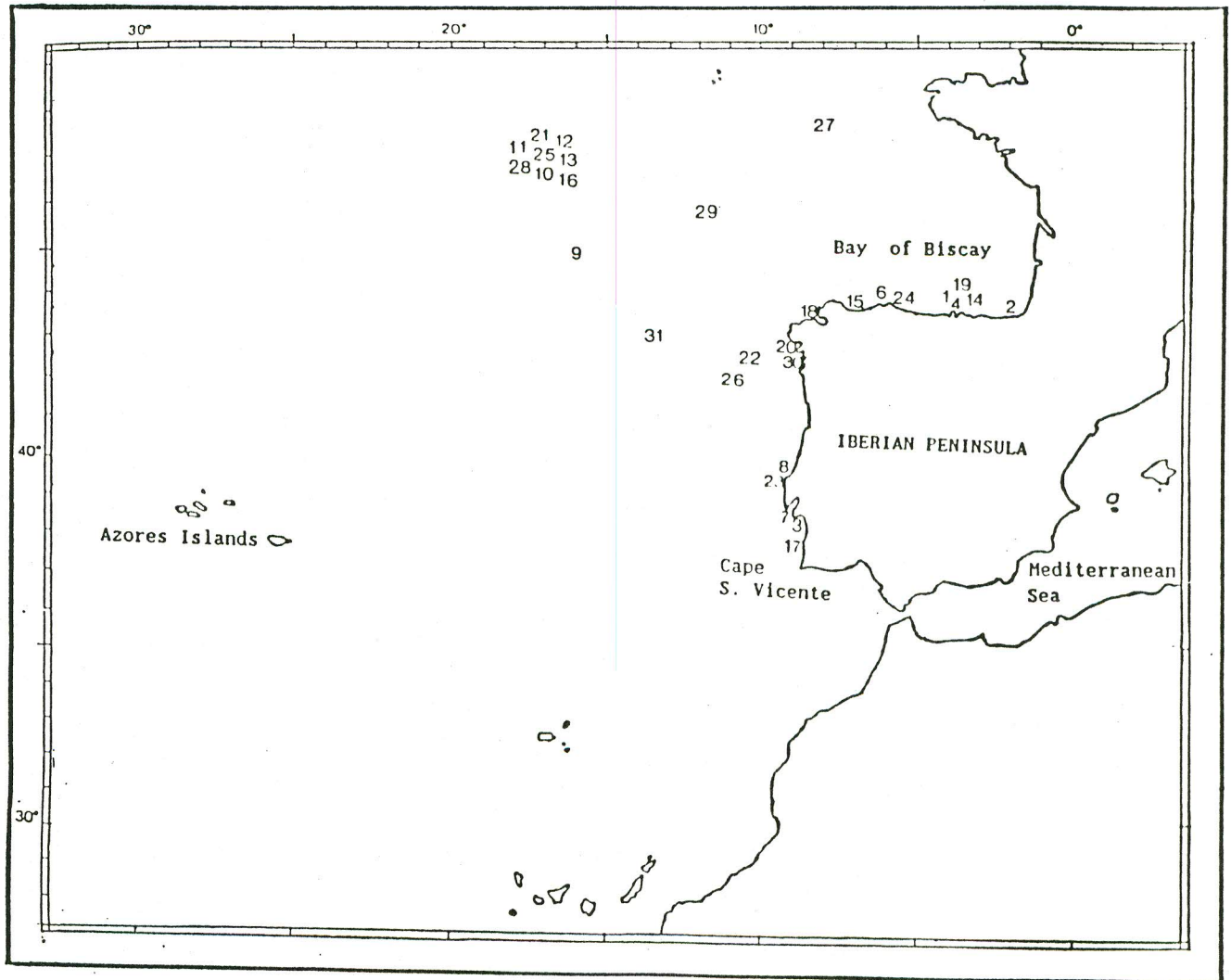


Fig. 2. Length frequency distribution of the minke whale in Iberian waters.

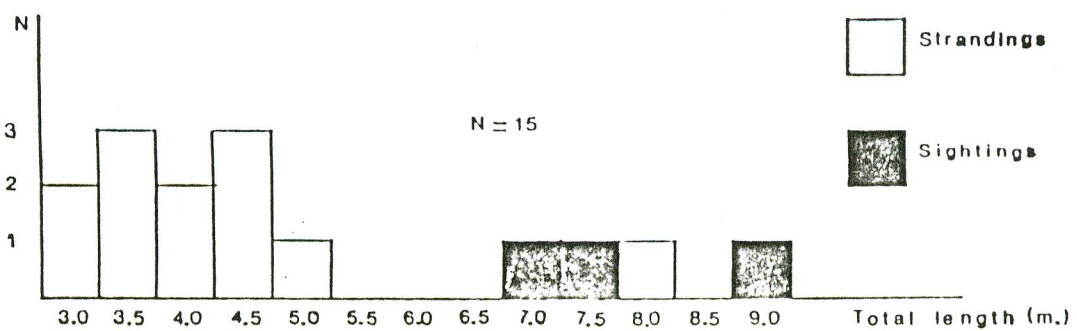


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