

First record of a live blue whale (*Balaenoptera musculus*) in the Iberian Peninsula after three decades

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The blue whale (*Balaenoptera musculus* Linnaeus, 1758) is a cosmopolitan species found worldwide (Yochem & Leatherwood 1985), separated into populations from the Southern Hemisphere, North Pacific and North Atlantic, where eastern and western subdivisions are recognized (Gambell 1979). On the north-east Atlantic the northernmost observations were made north of Svalbard and the southernmost in Cape Verde Islands and Senegal (Rice 1998). Sightings in this north-east Atlantic area are very rare outside the waters around the Azores and Iceland (Wall *et al.* 2009), although some individuals have been recorded in French waters of the Bay of Biscay (Laran *et al.* 2017).

In the adjacent and jurisdictional waters of the Iberian Peninsula the main information about the species was historically provided by the whaling industry, with capture records from the Strait of Gibraltar, Portugal and Galicia. It is known that industrial whaling along the twentieth century seriously reduced blue whale populations worldwide, and even so many years after that the species is still considered as endangered by the International Union for Conservation of Nature (Reilly *et al.* 2008). In the North Atlantic at least 10,730 individuals were hunted between 1868 and 1965 (Jonsgard 1977, Sigurjónsson & Gunnlaugsson 1990, Aguilar 2013). In 1966 the commercial hunting of the species was banned by the International Whaling Commission (IWC), but as Spain was not a member until 1979, 15 blue whales were still hunted in Iberian waters between 1966 and 1978 (Aguilar 2013). There was another individual captured in 1984 and processed in the Caneliñas factory (Cee, A Coruña) which caused identification doubts, but was finally determined as

an hybrid between a female blue whale and a male fin whale (Bérubé & Aguilar 1998).

In order to improve the scientific knowledge on the cetaceans populations in the 1980s from the Iberian Peninsula to southwest Ireland, five boat surveys for sightings and individual marking (called “Ballena”) were carried out annually between 1981 and 1985 by a scientific team from the University of Barcelona. A total of 13 blue whales were observed with distances between 120 and 667 km to the closest Iberian Peninsula coast, being the last one in Iberian waters one recorded in October 1984 (University of Barcelona database). The “Sur 82” survey was carried out by the same team in 1982 along the Portuguese coast, Strait of Gibraltar and SE Spain, with no records of blue whales (Aguilar *et al.* 1984). Researchers of the Instituto Español de Oceanografía wrote some technical reports about the entries of sightings made by the whalers in the log-books of the whaling ships during the last hunting surveys in Spanish waters, confirming sightings of blue whales in 1983, 1984 and 1985 between the Galician coast and the Galician Bank seamount (Lens *et al.* 1984, Quiroga *et al.* 1985, Quiroga & Lens 1986).

In the last thirty years after the worldwide moratorium on commercial whaling, several surveys were carried out along the Atlantic European waters to collect information on distribution and abundance of cetacean species, some of them including Iberian waters, but in none of them blue whales were sighted: NASS 1987 and NASS 1989 (Lens *et al.* 1989, Lens 1991), SCANS II in 2005 (Hammond *et al.* 2013) and CODA in 2007 (Hammond *et al.* 2009). Another boat surveys were carried out by CEMMA between 2006 and

2011 in the Galician Bank, Galician coast and Bay of Biscay areas, with no blue whales records (Martínez-Cedeira *et al.* 2009, Llavona *et al.* 2011, López *et al.* 2011).

Regarding stranding records of the species along the coast of the Iberian Peninsula between the 1980s and 2016, only one individual was found dead, in Ribeira (A Coruña) in 2005 (Covelo *et al.* 2009) with just some bones and flesh remains of the carcass, or body condition code 5 according to Geraci & Lounsbury (1993), that was identified as blue whale using genetic analysis (Segura-García pers. comm.).

Considering all this information about whaling, scientific cetacean surveys and strandings, the last blue whales that were recorded alive in waters of the Iberian Peninsula were the three animals sighted in 1985 by the whalers.

On 23th September 2016 a commercial cetacean and seabirds survey was carried out from Santurtzi on the southeast Bay of Biscay, at the Cap Breton Canyon. At 11:31 UTC the observers located at the highest point of the ship detected a very tall and broad spout produced by a single large whale, about 500 meters from the boat, with good weather conditions (Douglas scale 3 and Beaufort scale 3 with wind from the East). The coordinates were 43°43.350'N 002°50.039'W (31 km to Cape Matxitxako). In the next surfacing and breath movement it was identified as a blue whale. Diagnostic characteristics as the mottled pigmentation pattern, the very small and far back located dorsal fin, prominent splashguard and the flukes showed before diving (Carwardine 1995, Shirihai & Jarrett 2006) were observed and both digital photographs (Figs. 1 and 2) and video were taken using DSLR cameras equipped with telephoto zoom lens. It was observed for forty-three minutes, with cycles of surfacing five to seven times before diving for two to five minutes. When surfacing, it was easy to follow because of the turquoise blue color under the water, and when diving the four times it fluked. This is not an usual behaviour, only 15% of observed blue whales in the St. Lawrence and Sea of Cortez show the fluke before diving (Sears & Calambokidis 2002). During all the sighting process the indications of the Spanish legislation regarding cetacean observation (Real Decreto 1727/2007) were followed. One fin whale (*Balaenoptera physalus*), two Cuvier beaked whales (*Ziphius cavirostris*) and a pod of striped dolphins (*Stenella coeruleoalba*) were also observed during the survey.

The blue whale was moving to East direction, but we consider that this individual should be starting migration to southern wintering areas, since like other baleen whales, blue whales generally make seasonal migrations from feeding areas in high latitudes to low-latitude areas in winter, although the winter distribution is not well understood for many populations (Sears & Calambokidis 2002, Reeves *et al.* 2004). Most of the whales sighted in winter and spring off the Azores and Canary Islands migrate north along the mid-Atlantic ridge to Iceland, while others probably migrate along the European coast, around Ireland to either Iceland or Norway (Sears & Perrin 2009, Silva *et al.* 2013). The observed whale probably belongs to this second group of coastal migrants, as Charif & Clark (2009) suggest that most individuals detected acoustically between September and January in the British Islands were migrating to the south or southwest, and on their journey to southern areas they are supposed to migrate around Madeira islands, where blue whales were watched in September in different years (Freitas *et al.* 2012). Photos of the whale dorsal fin and body mottled pattern were sent to researchers of the Mingan Island Cetacean Study (MICS) to



Figure 1. Mottled pigmentation and the small and far back dorsal fin.



Figure 2. Showing the flukes before diving.

be incorporated to existing catalogues of more than 500 blue whales along the North Atlantic Ocean. Once checked, there were no previous records for this individual.

Despite the global population of blue whales is slowly increasing in the last decades, the number is still too low, between 3-11% of the 1911 population size (Reilly *et al.* 2008). Sears & Perrin (2009) estimated that there are only from 600 to 1,500 individuals in the North Atlantic, and Pike *et al.* (2009) estimated only 1,000 individuals just in the Central and Northeast Atlantic. We consider that this new record is just and anecdotic event and is not related to an increased population or dispersion of the species.

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