

# Collisions between ships and whales in the Canary Islands. The case of Tenerife.

Manuel Carrillo and Anna Taverna  
Tenerife Conservación . Cetacean Research & Educational Society  
C/ Maya nº 8.4. 38200. La Laguna. Tenerife. Spain  
[www.canariasconservacion.org](http://www.canariasconservacion.org)  
e.mail: canariasconservacion@yahoo.es

The monitoring and study of the stranded cetaceans in the Canary Islands has been carried out in a systematic manner since 1991, when the stranding of two specimens of sperm whale *Physeter macrocephalus* was reported for the first time. The animals were two adult females with the bodies divided in halves, similar to another collision occurred in 1985 (Martín y Carrillo 1992). As a consequence of the social alarm that the collisions between the small fast ferries (jet-foil) and cetaceans caused, in 1993, the University of Las Palmas de Gran Canaria (ULPGC) was introduced to the research, with the financial support of the Transmediterranea Company, in order to determine the migratory patterns of the big whales in the Canary Islands. The results confirmed that the waters near the port of Santa Cruz de Tenerife are a high density area of cetaceans, emphasizing the presence of a resident population of sperm whale (André, M. 1998). However, the research provided little information about the distribution and seasonality of the sightings.

From 1999, coinciding with an increase of shipping traffic and the development of newer faster vessels, the situation changed remarkably. A notable increase of stranded cetaceans with clear signs of ship strikes has been reported (Aguilar *et al.* 2000, 2001, Herrera *et al* 2000). To this regard and with the aim to identify the potential risk of the collisions, a model of risk for the high shipping traffic areas in Tenerife was developed (Tregenza *et al.* 2000, 2002) as well as general tables for collisions for all the Canary Islands (Government of Canary Islands, ULPGC, Tenerife Conservation and SECAC 2009). The analysis of the different stranded animals clearly confirms that the most affected species by ship strikes is the sperm whale (Carrillo & Tejedor, 2006; De Stefanis & Urquiola 2006; Carrillo, M. 2007; Carrillo & Ritter 2008).

Complementary to the analysis of the collisions between vessels and cetaceans, we also go through all the mortality factors and the seasonality of 284 records of stranded cetacean in Tenerife, the island in the Canary's were not only most cases of stranded animals but also ship strikes are reported (Arbelo, M. 2007). The analysis of the stranded cetaceans during the period from 1991 to July 2010 shows that in 103 of the cases (36.3%) no signs of anthropogenic interactions were found, reporting these deaths as a natural factor. In 70 of the cases (24.6%) wounds, fractures, net marks, fishing devices or anomalous stomach contents (plastics) were observed, which could be associated to the death of the animal, thus, the mortality factor is related to anthropogenic interaction. In 111 of the cases (39.1%) the mortality factor has been classified as undetermined due to the difficulty to examine the specimens or as a consequence of the high level of decomposition.

From the 70 cases of the specimens classified with a mortality factor of anthropogenic interaction, 43 of them showed serious injuries, massive traumas, fractures of hard bones or bodies divided in halves. These animals show clear signs of collision and have been reported as due to shipping traffic mortality factor. This represents 61.4% of the cases of anthropogenic interactions and 15.1% of all cases of stranded cetaceans in the island of Tenerife. The annual distribution of the different cases shows that until 1998, when jet-foils began to appear, 0.6 cases of collision were registered every year and from thereon (to present), the average has increased to 3.1 cases every year. Although cases are registered all year round, seasonality shows that the majority of collisions occur between June and July, with 8 cases registered in both months. In terms of affected species by ship strikes, at least 7 species have been reported: sperm whale (*P.macrocephalus*), short fin pilot whale (*Globicephala macrorhynchus*), pygmy sperm whale (*Kogia breviceps*), dwarf sperm whale (*Kogia simus*), Cuvier's beaked whale (*Ziphius cavirostris*), Gervais's beaked whale (*Mesoplodon europaeus*) and fin whale (*Balaenoptera physalus*). The sperm whale, with 21 registered cases, is the most affected species and represents a 48.8% of the total cases of collision in the island of Tenerife. Furthermore, the sperm whale is listed as vulnerable in the Catalogo Nacional de Especies Amenazadas and in the IUCN Red List of Threatened Species (CNEA 1990, IUCN 2010). However, differently to other places where collisions are well documented (NMFS 2007; Tejedor *et al.*, 2007), in Canary Islands nothing has been done to date in order to minimize the risk of ship strikes

In order to better protect this species, it is essential to address and mitigate those human activities that result in mortality. In 2007, Tenerife Conservation carried out a revision of the available data of sightings, stranded cetacean and threat factors of the protected species of cetacean in the Canary's and developed a report for the government of the Canary Islands with the aim to establish a conservation plan for the sperm whale. Therefore, we propose the following measures:

- To determine the distribution and estimate the size of the population of sperm whale and other cetacean in the areas of high vessel traffic (Tenerife-Gran Canaria and Tenerife-La Gomera, Red Natura 2000), in order to establish the relative probability of vessel and cetacean encounter.
- The placement of dedicated on board observers (look-outs) on all fast and high speed vessels.
- Experimental on-board application of technical mitigation measures to test their feasibility and effectiveness.

- The introduction of a mandatory reporting scheme for collisions, thereby making use of the database being developed by the IWC Vessel Strike Data Standardisation Group (Van Waerebeek and Leaper, 2007).
- To propose to the vessel operators and crew an immediate recommendation to avoid causing injury or dead to cetacean.
- It would be also important to improve the monitoring of floating dead cetacean that occasionally would not be recovered and might be cases of ship strikes.

### Literature Cited

- Aguilar, N., Carrillo, M., Delgado, I., Díaz, F. & Brito, A. 2000. Fast ferries impact on cetaceans in the Canary Islands: collisions and displacement. Proc. 14th Ann. Conf. European Cetacean Society, Cork, Ireland, 164.
- Aguilar N., Díaz F., Carrillo M., Brito A., Barquín J., Alayón P., Falcón J. and González G. 2000. Evidence of disturbance of protected cetacean populations in the Canary Islands. IWC. SC/53/WW1. London.
- André M. 1998 El cachalote, *Physeter macrocephalus* en las Islas Canarias. PhD thesis, University of Las Palmas de Gran Canaria, Spain.
- Arbelo M.A. 2007. Patología y causas de la muerte de los cetáceos varados en las Islas Canarias. PhD thesis, University of Las Palmas de Gran Canaria, Spain
- Carrillo, M & Tejedor, M. 2006. Marine traffic and the conservation of sperm whale *Physeter macrocephalus* populations in Canary Islands. Cetacean Stranded Canarian Net 1980–2004. 20th annual conference of the European Cetacean Society. Gdynia, Poland
- Carrillo, M. 2007. diversidad de cetáceos en la makaronesia y factores de amenaza. 2007 WATCH- Year of dolphin. UNESCO- Convención Especies Migratorias (CMS) -Gobierno de Canarias. Tenerife.
- Carrillo, M & Ritter, F. 2008. Increasing numbers of ship strikes in the canary islands: proposals for immediate action to reduce risk of vessel-whale collisions. IWC Scientific Committee. SC/60/BC6
- Catálogo Nacional de Especies Amenazadas (CNEA) 1990. Ministerio del Medio Ambiente, Rural y Marino. Real Decreto 439/1990, de 30 de marzo (B.O.E. nº 82, 5 abril 1990)
- De Stephanis, R. and Urquiola, E. 2006. Collisions between ships and cetaceans in Spain. Int. Whal. Commn. Scientific Committee SC/58/BC5.
- Gobierno de Canarias 2009. Activities on cetaceans carried out by the Canary Islands Government in 2008 and review of historic data records of cetaceans and ship strike in the Canary Islands. IWC/61/cc16-(sp)
- Herrera, R, Carrillo, M and V.Martín. 2000. El tráfico marítimo y su implicación en la conservación de los Cetáceos en las Islas Canarias. Revista Medio Ambiente Canarias, revista de la Consejería de Política Territorial y Medio Ambiente del Gobierno de Canarias.
- IUCN 2010. IUCN Red List of Threatened Species. Version 2010.3.
- NMFS/NOAA 2007. Notice to lessees and operators (NTL) of federal oil, gas, and sulphur leases in the outer continental shelf, Gulf of Mexico OCS region. Vessel strike avoidance and injured/dead protected species reporting. NTL Nº2007-G04
- Martín, V & Carrillo, M 1992. Programa de estudios de cetáceos varados en Canarias. Informe técnico. Gobierno de Canarias. 68 pp.
- Tejedor, A., Sagarminaga, R., Canadas, A., De Stephanis, R. & Pantoja, J. 2007 Modifications of Maritime Traffic off southern Spain. Int. Whal. Comm. Document SC/59/BC 13.
- Tregenza, N, Aguilar, N., Carrillo, M., Delgado, I., Díaz, F., Brito, A. and Martin, V. 2000. Potential Impact of fast ferries on whale populations a simple model with examples from the Canary Islands. European Research on Cetaceans, 2000. 14:195-197.
- Tregenza, N., Aguilar, N., Carrillo, M., Delgado, I., and Diaz, F. 2002 .Collisions between fast ferries and whales in the Canary Islands: observational data and theoretical limits. IWC Scientific Committee. SC/54/BC4 7pp.,
- Van Waerebeek, K. and Leaper, R. (compilers) 2007. Report from the IWC Vessel Strike Data Standardization Group. Document SC/59/BC12.