

Workshop on reducing risk of collisions between vessels and cetacean. IWC - ACCOBAMS

Regional case studies: The Mediterranean Sea and Canary Islands
Beaulieu sur Mer, 21 - 24 September 2010

Collisions between ship and whales in the Canary islands. The case of Tenerife.



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Tenerife Conservación
Cetacean Research and Educational Society
La Laguna - Tenerife





➞ CETACEAN IN CANARY ISLANDS



➞ CANARIAN STRANDING NETWORK



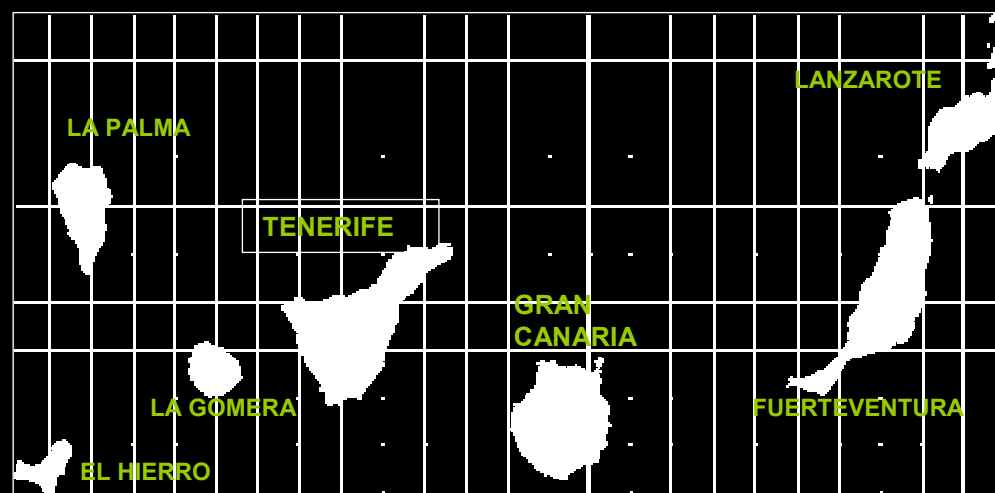
➞ SHIP STRIKES



➞ MINIMIZE THE RISK OF SHIP STRIKES

Cetáceos en Canarias

<i>Balaenoptera acutorostrata</i>	rorcual aliblanco	minke whale
<i>Balaenoptera borealis</i>	rorcual norteño	sei whale
<i>Balaenoptera edeni</i>	rorcual tropical	Bryde's whale
<i>Balaenoptera musculus</i>	ballena azul	blue whale
<i>Balaenoptera physalus</i>	rorcual común	fin whale
<i>Delphinus delphis</i>	delfín común	common dolphin
<i>Eubalaena glacialis</i>	ballena franca	northern right whale
<i>Globicephala macrorhynchus</i>	calderón tropical	short-finned pilot whale
<i>Globicephala melas</i>	calderón común	long-finned pilot whale
<i>Grampus griseus</i>	calderón gris	Risso's dolphin
<i>Hyperoodon ampullatus</i>	zifio calderón boreal	northern bottlenose whale
<i>Kogia breviceps</i>	cachalote pigmeo	pygmy sperm whale
<i>Kogia simus</i>	cachalote enano	dwarf sperm whale
<i>Lagenodelphis hosei</i>	delfín de Fraser	Fraser's dolphin
<i>Megaptera novaeangliae</i>	yubarta	humpback whale
<i>Mesoplodon densirostris</i>	zifio de Blainville	Blainville's beaked whale
<i>Mesoplodon europaeus</i>	zifio de Gervais	Gervais's beaked whale
<i>Mesoplodon bidens</i>	zifio de Sowerbys	Sowerbys beaked whale
<i>Orcinus orca</i>	orca	killer whale
<i>Phocoena phocaena</i>	marsopa	harbour porpoise
<i>Physeter macrocephalus</i>	cachalote	sperm whale
<i>Pseudorca crassidens</i>	orca bastarda	false killer whale
<i>Stenella coeruleoalba</i>	delfín listado	striped dolphin
<i>Stenella frontalis</i>	delfín moteado atlántico	atlantic spotted dolphin
<i>Stenella longirostris</i>	delfín acróbata	spinner dolphin
<i>Steno bredanensis</i>	delfín de dientes rugosos	rough-toothed dolphin
<i>Tursiops truncatus</i>	delfín mular	bottlenose dolphin
<i>Ziphius cavirostris</i>	zifio de Cuvier	Cuvier's beaked whale





Balaenoptera musculus
(Linnaeus, 1758)



Balaenoptera physalus
(Linnaeus, 1758)



Phocaena phocaena
(Linnaeus, 1758)



Stenoptera ciliata
(Linnaeus, 1758)



Stenoptera ciliata
(Linnaeus, 1758)



Phocaena phocaena
(Linnaeus, 1758)



Balaenoptera musculus
(Linnaeus, 1758)



Phocaena phocaena
(Linnaeus, 1758)



Orcinus orca
(Linnaeus, 1758)



Phocaena phocaena
(Linnaeus, 1758)



Phocaena phocaena
(Linnaeus, 1758)



Phocaena phocaena
(Linnaeus, 1758)

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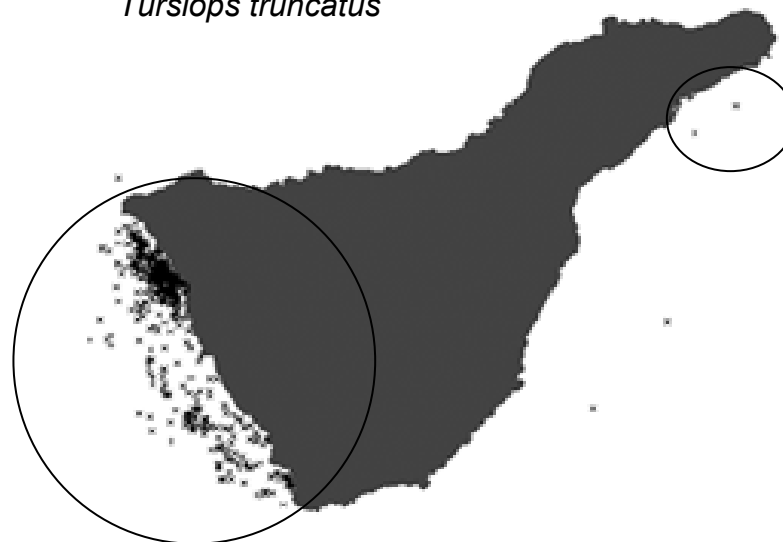
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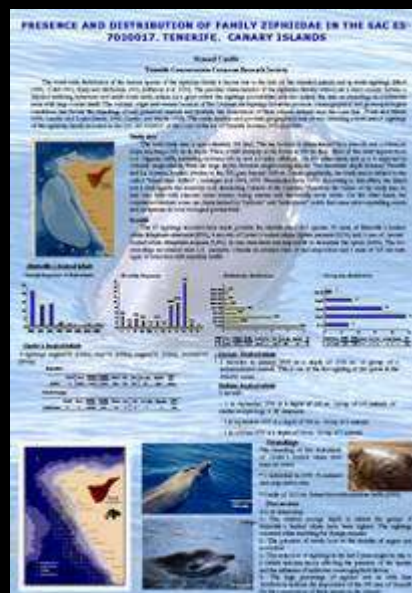
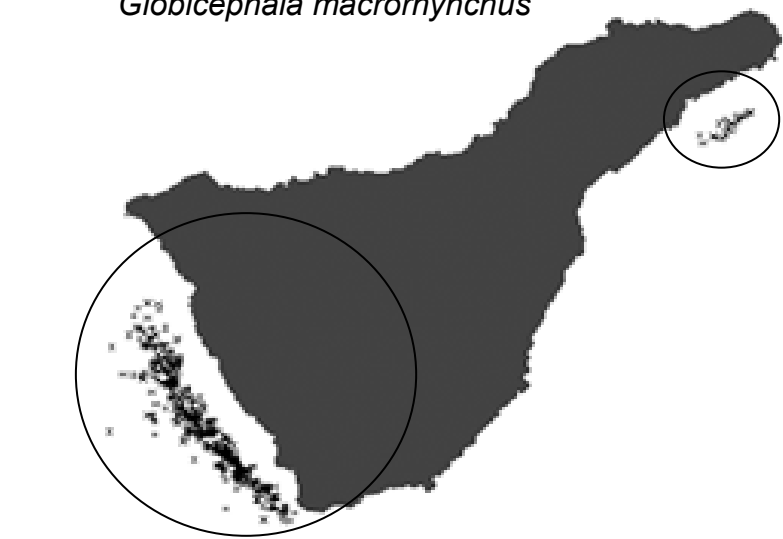




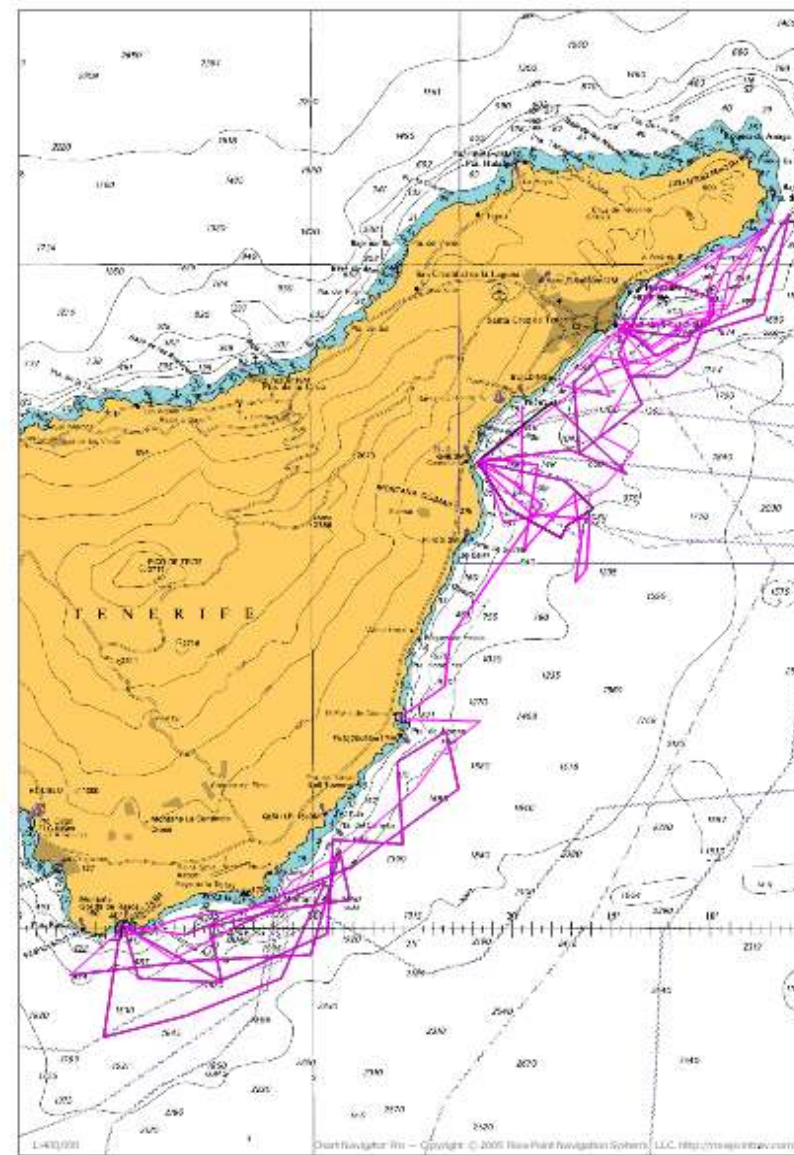
Tursiops truncatus

**B**

Globicephala macrorhynchus



Monitoring the presence of beaked whales (Family Ziphiidae) and other species of cetacean and turtles in the area between Tenerife and Gran Canaria. 2008



Project: acoustic and visual census of cetacean and turtles realised in the area between Tenerife – Gran Canaria. **Objectives:** To provide information about the presence, seasonality and distribution (occasional or resident) of the species of cetacean and turtles as well as to detect the critical distribution areas like nurseries, feeding areas or migratory paths. It is aimed to use techniques of geographic information system (S.I.G.).

Avísenos cuando encallen

www.canariasconservacion.org



Cabildo de La Gomera



Cabildo de La Palma



Cabildo de Tenerife



Cabildo de El Hierro



Dirección General de Medio Natural y Gestión de Canarias



TENERIFE CONSERVACIÓN

El estudio de las ballenas y delfines, que por distintos motivos varan todos los años en nuestras costas, proporcionan una valiosa información sobre la vida de estos animales y de su estado de conservación. Por esta razón, si tiene alguna noticia sobre el varamiento de un ejemplar, comuníquelo a la Policía Local, Guardia Civil o llame lo antes posible a los teléfonos de:

Emergencias **112**

Medio Ambiente de los Cabildos Insulares:

Tenerife: 922 25 00 02

La Gomera: 922 87 05 52

El Hierro: 922 55 00 17

La Palma: 922 42 01 87

RED CANARIA DE CETÁCEOS VARADOS

699 692494

CANARIAN STRANDING NETWORK



Gobierno de Canarias
Consejería de Medio Ambiente
y Ordenación Territorial

Dirección General del Medio Natural
Consejería de Medio Ambiente y Ordenación Territorial
Government of the Canary Islands



Tenerife Conservación
Cetacean Research & Educational Society
La Laguna, Tenerife
(Occidental Islands)



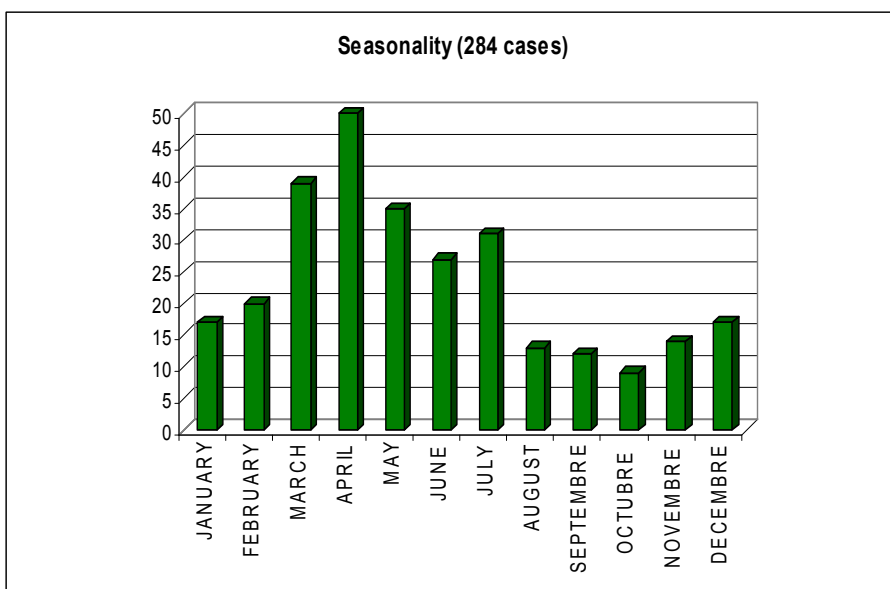
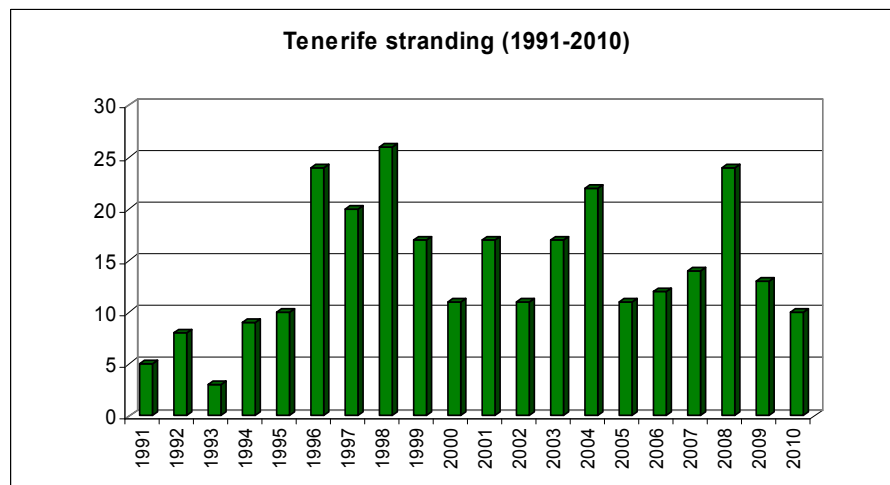
Society for the study of cetacean in the Canary
Archipelago. SECAC
Arrecife, Lanzarote
(Oriental Islands)



Veterinary Histology and Pathology, Institute for Animal
Health (IUSA), University of Las Palmas de Gran
Canaria (ULPGC)

Stranded cetacean in Tenerife island

The monitoring and study of the stranded cetacean in Tenerife Island 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. During the past 20 years we registered 284 stranded cetacean in our database, all of them in the island of Tenerife.



Total annual strandings in Tenerife.
(n=284 cases)

Distribution and seasonality of
strandings in Tenerife.



Mortality factors

Postmortem tests not only give information about the biology of the species but also allows us to detect marks, injuries or anomalous stomach contents which can help to determine the mortality factor of the specimens and the threats affecting the populations of cetacean in the Canary Islands.

⇒ **Natural.** n=103 cases. (36,3%): No marks or anomalous injuries but the ones from the stranding.

⇒ **Anthropogenic interaction** n=70 cases. (24,6%)

* Fishing devices: net marks, hooks, (n=20)

* Waste: tangled or ingested. (n=7)

* Anomalous injuries: bodies divided in halves, deep cuts and fractures of hard bones (n= 43 cases)

⇒ **Undetermined.** n=111 cases (39,1%): due to the difficulty to examine the specimens or as a consequence of the high level of decomposition.

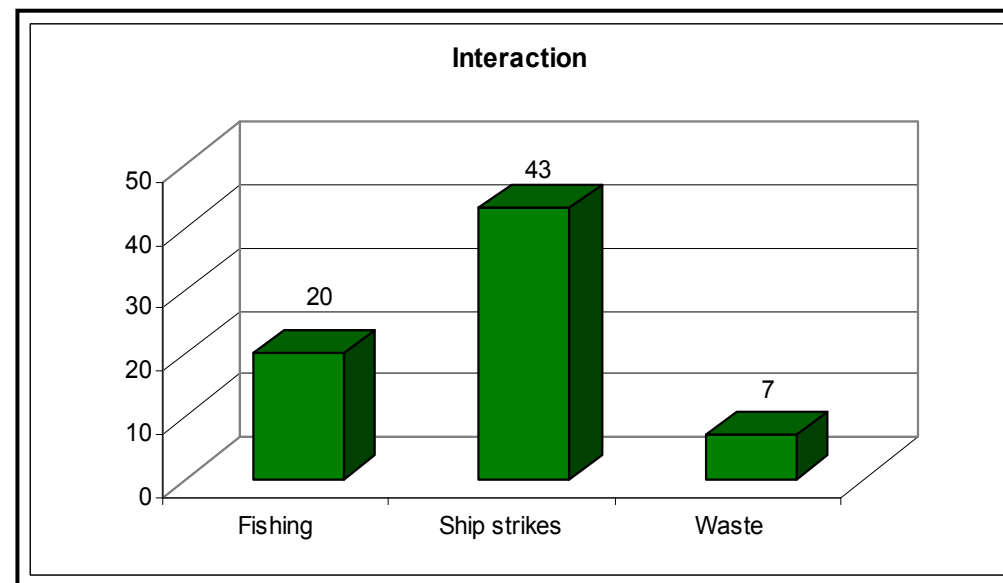
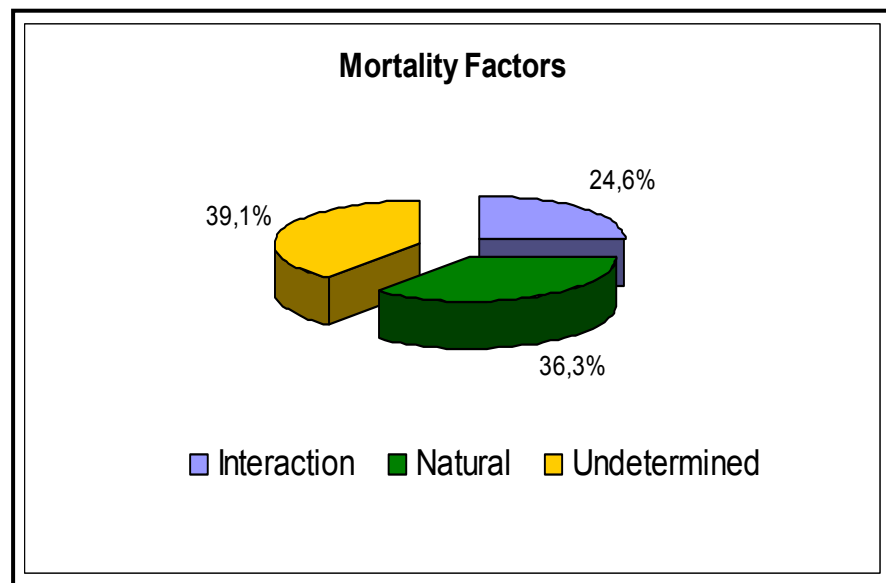




Fig.1



Fig.2



Fig.3



Tt-180108
M.Carrillo 2008

Fig.4



Fig.5



Fig.6



Fig.7

Fig.1. Plastics in sperm whale stomach

Fig.2. Net on short finned pilot whale dorsal fin.

Fig.3. Bottles and containers in sperm whale stomach.

Fig.4. Hook and *Anisakis sp* in Atlantic spotted dolphin stomach.

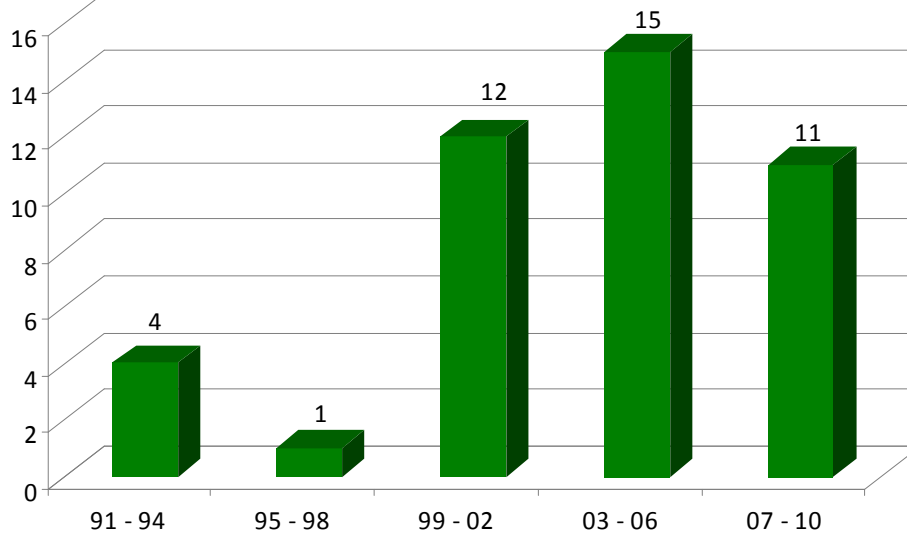
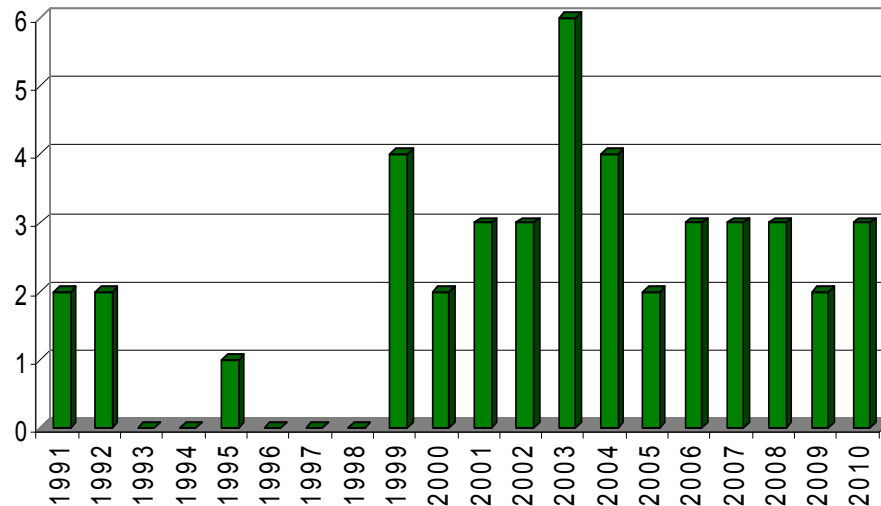
Fig.5. Projectile in muscle of Cuvier's beaked whale.

Fig.6. Sharp injuries in Atlantic spotted dolphin.

Fig.7. Rope and cartridge in Risso's dolphin stomach.

What do we know from ship strikes in Tenerife?

Ship Strikes 1991-2010



Even though the official data published by the government of the Canary Islands (IWC 2009) does not include some cases registered in our database, 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

It is necessary to point out the probability that in some cases the collision was not the mortality factor and the animal was already floating dead when the ship strike occurred.

Annual distribution

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.

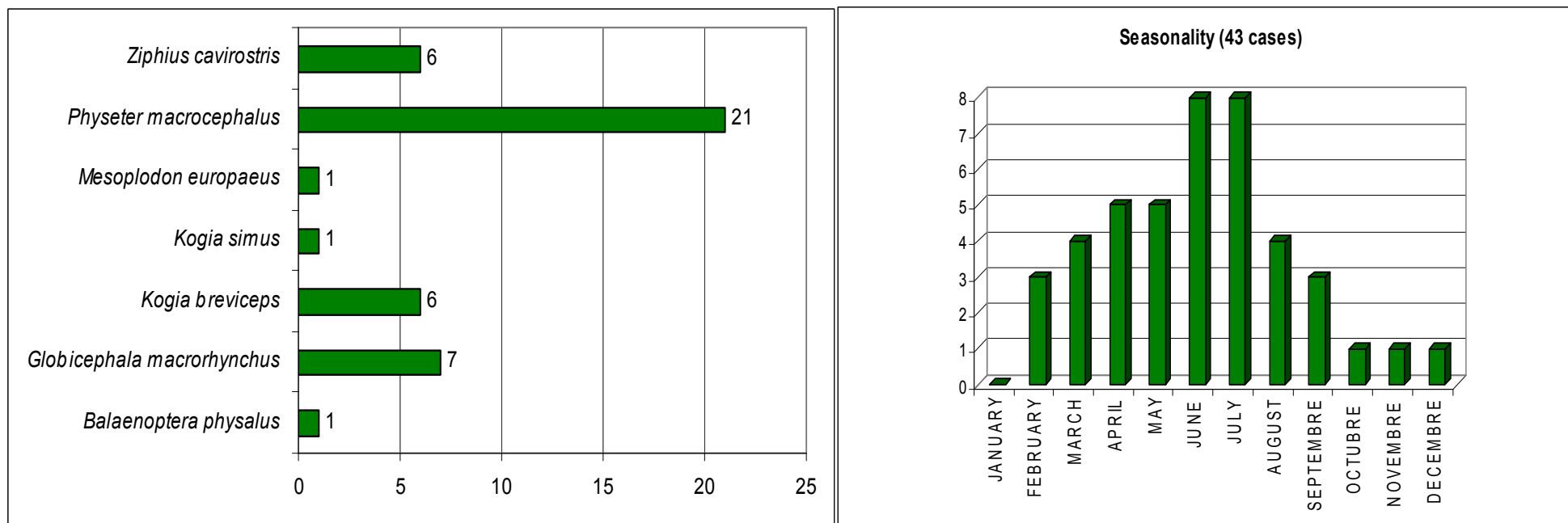
Seasonal distribution.

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

Strikes by Species.

From our database, 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).



Pygmy sperm whale (*Kogia breviceps*)



Fig.8

Fig.8. Kbr.0702.(2002)



Fig.9

Fig.9. Kbr.2804(2003)



Fig.10

Fig.10. Kbr.300603 (2003).



Fig.11

Fig.11. Kbr.270410. (2010)



Fig.12



Fig.13



Fig.14

Beaked Whales. Family Ziphiidae

12-*Mesoplodon europaeus* Meu.1411.(2003)

13. *Ziphius cavirostris*. Zca. 0906.(2000)

14. *Z. cavirostris*. Zca 3005 (1992).

15. *Z. cavirostris*. Zca. 0605 (2004)

16. *Z. cavirostris* Zca. 3112 (2004)



Fig.15



Fig.16



Fig.17



Fig.18



Fig.19



Fig.20



Fig.21

Sperm whale. Fig.17. First documented collision of sperm whale. Tenerife 4th of July (1991) . Fig.18. Pma.0507 (2003). Fig.19: Pma.2705 (2008) Fig.20. Pma.1605 (2007). Fig.21. Pm 2108 (2001)



Pma-1206 (2000)



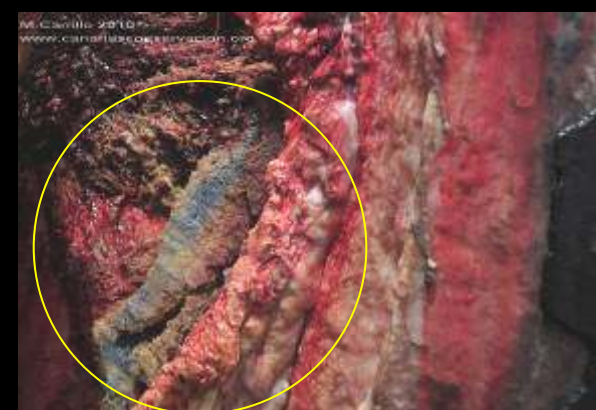
Pma-2409 (2001)



Pma-1207 (1995)



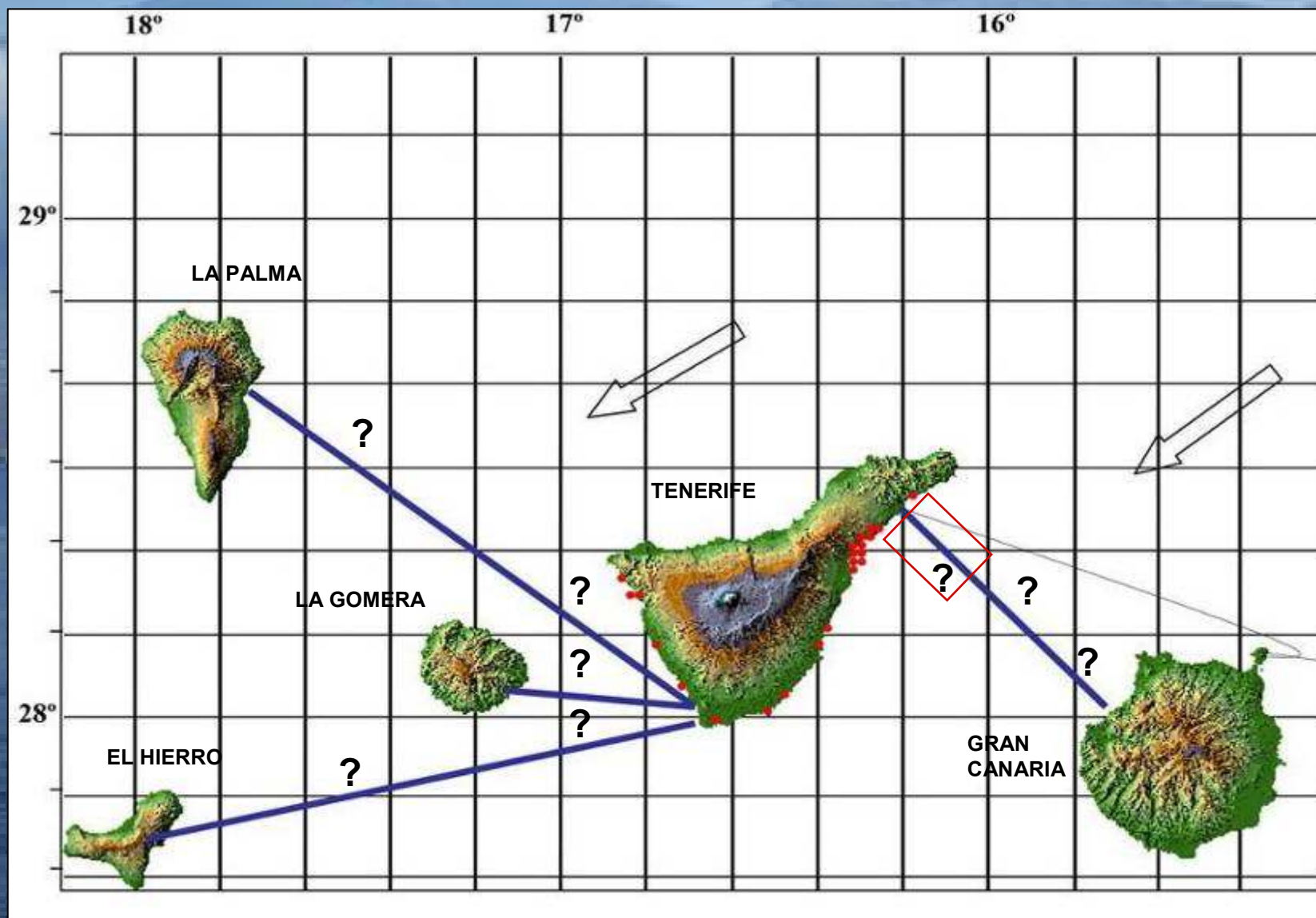
Pma-2309 (2001)



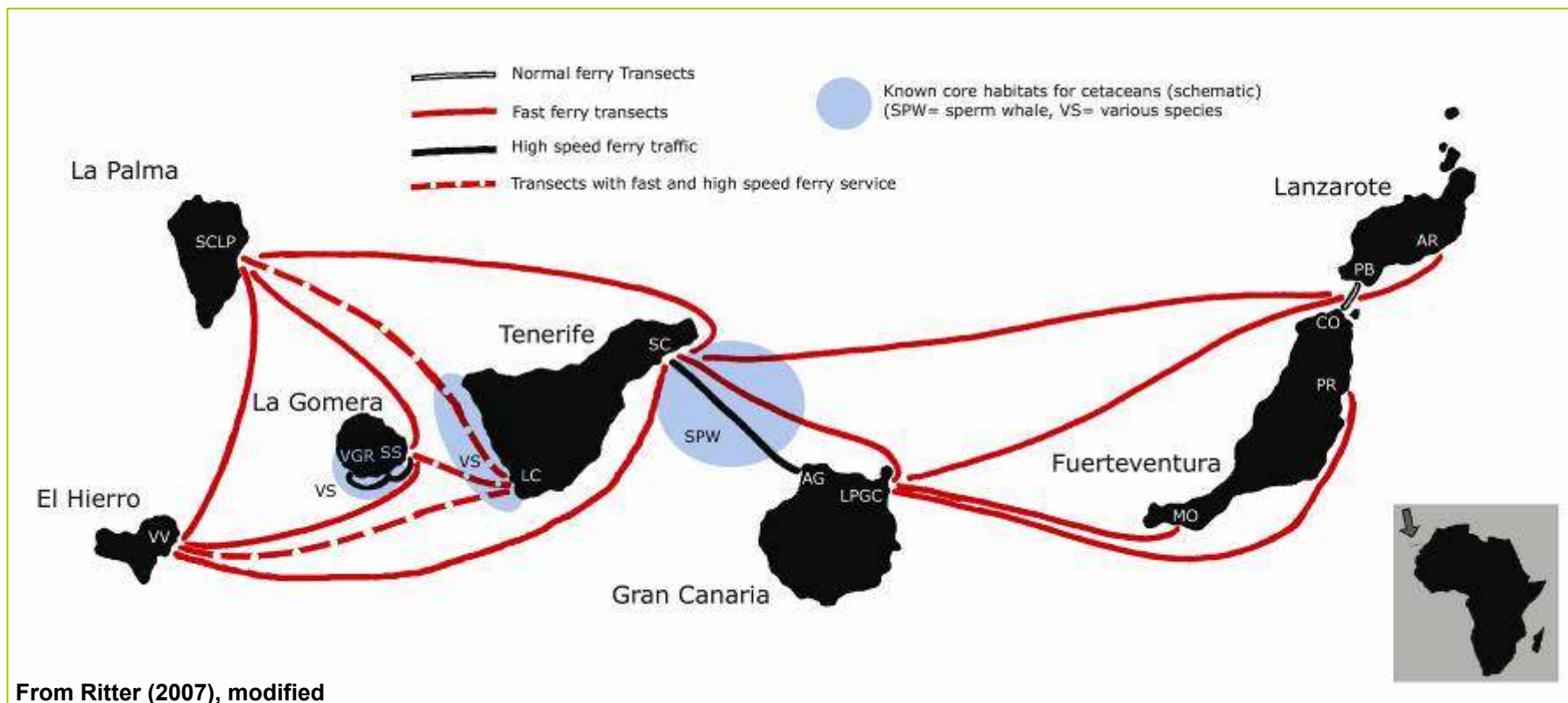
Last collision registered: *P macrocephalus*, with anti-fouling paint in the skull. Santa Cruz de Tenerife. 7th July 2010.

Distribution of ship strikes stranding (●) in Tenerife and ferries lines in Canary Islands

We are unaware of the kind of vessel, the speed and the exact place where collisions occur. The available information comes from the registered stranding cases.



Ferry Transects in the Canary Islands.



Commercial, fast and HSC ferries today are almost the only means to travel between the islands at sea. This is illustrated in the map, which represents an overview over the inter-island ferry transects, and the types of ferries operating on each transect. Ritter (2007) calculated, that there were around 29,000 transects between the islands and almost 1.5 million kilometres were covered in 2007, the vast majority by fast and high speed ferries. As it can be seen there is a considerable overlap with important cetacean habitats, as well as with Special Areas of Conservation under the EU Habitat Directive. Based on several cetacean studies conducted in the Canary Islands, Ritter (2007) also identified (small scale) high risk areas for vessel whale collisions, located between the islands of Tenerife and Gran Canaria as well as La Gomera and Tenerife.

The sperm whale

The information about the sperm whale in the Canary Islands comes basically from the stranding studies and from the work realized by the ULPGC between 1993-1996 which results provide an estimation of the population size and the average of residence and show an important impact of shipping traffic in the conservation of the populations. In terms of population size and based on acoustic techniques and direct observations, the results show that at least 27 groups of sperm whale (0.0016 groups/km²) of 12-17 specimens appear in Canary islands. That is about 324-459 specimens of sperm whale. Furthermore, it is also determined that during spring time and autumn, more precisely during march and october, there is an increase of the number of sperm whales in the islands (André, M.1998).

Although the population size data has to be taken carefully, it can be related to the number of sperm whale stranded with clear signs of collision (n=21). It can be shown that only the collisions registered in Tenerife can affect the 4.5-6.4% of the population of sperm whales in the Canary Islands. Thus, it can be stated that ship strikes are the major threat of sperm whales present in the islands, specially taking in account that those collisions affect mainly to females and calves, which is a delicate fraction of the population.

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 GESPLAN (Government of the Canary) with the aim to establish a conservation plan for the sperm whale and other species of cetacean potentially threatened.

**Strategy for the development of
the conservation plan for the
sperm whale**

Physeter macrocephalus

Tenerife Conservación.2007



Viceconsejería de Medio
Ambiente

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Medio Natural



To reduce ship strikes is possible.

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 Standardization Group (Van Waerebeek and Leaper, 2007).
- To propose to the vessel operators and crew an immediate recommendation to avoid causing injury or death 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.





Convention on the Conservation of Migratory Species of Wild Animals

Secretariat provided by the United Nations Environment Programme



Western African Talks on Cetaceans and their Habitats Adeje, Tenerife, Spain, 16-20 October 2007



STATEMENT OF THE MACARONESIA INITIATIVE

We invite the government of Cabo Verde, Spain and Portugal to consider the establishment of specific agreements in the area of the Macaronesia, in terms of different conventions and international programs promoting the conservation of cetacean, emphasizing between others, the one that offers the IV article of the convention of Bonn.

Acknowledgements



Dirección General del Medio Natural
Government of the Canary Islands



Ministerio de Defensa
Gobierno de España



Ministerio de Medio Ambiente y Rural y Marino
Gobierno de España





Globicephala macrorhynchus © J.Alemany

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