Short Note

Galemys, 38: xx-, 2026
ISSN 1137-8700
e-ISSN 2254-8408
DOI: 10.7325/Galemys.2026.N1

Stranding and Bycatch Records of the Atlantic White-Sided Dolphin and the White-Beaked Dolphin in the North of Spain

Registros de varamientos y capturas accidentales del delfín de flancos blancos del atlántico y del delfín de hocico blanco en el norte de España

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The Atlantic white-sided dolphin *Leucopleurus acutus* (J. E. Gray, 1828) (AWSD, Fig. 1a) and the white-beaked dolphin *Lagenorhynchus albirostris* (J. E. Gray, 1846) (WBD, Fig. 1b) are two delphinid species that used to be classified in the same genus (*Lagenorhynchus*), but recent studies supported the proposal of the reassignment of the first one (Vollmer *et al.* 2019, Galatius *et al.* 2025). These are two pelagic species inhabiting temperate to subarctic waters of the North Atlantic Ocean, with an overlapping distribution range in the East Atlantic from Svalbard to the north coast of France (Wang *et al.* 2014, Evans 2020). However, both species occupy different isotopic niches, evidencing spatial and trophic segregation of resources (Plint *et al.* 2023); the AWSD occurs over the continental slope and deeper waters, and the WBD over the continental shelf, mainly within the 200 m isobath (Evans & Waggitt 2020). Both species are currently listed as Least Concern (LC) according to the IUCN Red List criteria (Hammond *et al.* 2008, Kiszka & Braulik 2018). Nevertheless, Lambert *et al.* (2014) predict that the WBD may be one of the species most affected by the habitat alterations due to ocean warming in the next 70 years, and it has been reported that the abundance of the two species in the North Atlantic has decreased over the past decades (Evans & Waggitt 2020).

The last review on the occurrence of these species in the north of Spain was conducted four decades ago (Penas-Patiño & Piñeiro 1989). So, the aim of this note is to complete a new compilation in order to assess if the incidence of these species' presence in that area has varied significantly over time.

The recording and analysis of cetacean strandings in a studied area allow us to improve our knowledge on the species that inhabit or occasionally visit that area, as well as the variations between them in terms of frequency or seasonality. Although new technologies are being developed for the direct study of cetaceans at sea, the analysis of stranding data remains to be a valuable tool for studying the species diversity, distribution, or even population demographics (Pyenson 2011, Lennon *et al.* 2025).

Figure 1. a) Atlantic white-sided dolphin bycaught by a trawler on 31/01/2006 (Photo: CEPESMA). **b)** White-beaked dolphin stranded and reintroduced alive, 05/07/2020 (Photo: beach lifeguards).

In this area, it is known that bycatch is one of the greatest threats to marine mammals (Torres-Pereira *et al.* 2023, Peltier *et al.* 2024). These bycatch incidents are usually recorded by stranding networks, which is why they are also included in this compilation.

After reviewing bibliographic information and stranding databases, a total of 12 records of AWSD and 2 records of WBD were found between 1982 and 2023 in the north coast of Spain (Table 1). These include the 3 records previously listed by Penas-Patiño & Piñeiro (1989).

Although the number of WBD records is limited, a discernible spatial pattern can be identified in the geographic distribution of the two species. The two WBD were located at the eastern half of the north coast of Spain. In contrast, 83% (10/12) of the AWSD observations were confined to the western half (Fig. 2). This could be explained by the differential habitat use discussed previously, with the WBD following shallower waters within the continental shelf, across the coast of France and the eastern coast of northern Spain, while the AWSD can traverse deeper areas, making direct movements through the Bay of Biscay, without being limited to a specific depth. Regarding possible changes over the years, a decrease in the frequency of AWSD records has been observed in recent decades in the area (Fig. 3a), which would be consistent with the decrease of abundance of the species in the North

Table 1. Atlantic white-sided dolphin (AWSD) and white-beaked dolphin (WBD) stranding and bycatch records in the north of Spain. Listed by species, and chronological order. F: female. M: male. [(1)]Pregnant. [(2)]Incomplete individual without the caudal peduncle.

SPECIES	DATE	LENGTH (cm)	SEX	LOCATION	REFERENCE / COMMUNICATOR
AWSD	25/04/1982	209	-	Ponzos, Ferrol	Penas-Patiño & Piñeiro 1989
AWSD	20/03/1988	144,5	M	La Espasa, Caravia	Pis-Millán 1988
AWSD	09/06/1990	279	M	San Antolín, Llanes	García-Castrillo *et al.* 1991
AWSD	05/05/1991	235	F [(1)]	Peñarronda, Castropol	Arronte *et al.* 2005
AWSD	12/04/1994	240	M	A Frouxeira, Valdoviño	
AWSD	01/05/1995	113 [(2)]	M	Bycatch evidences. As Torradas, Malpica	
AWSD	20/03/1997	189,5	M	Bycatch. Drifnet. 4 nm NNE from Lastres, Colunga	Pérez *et al.* 1997
AWSD	09/04/1997 /04/1997	246	M	San Juan de la Arena, Soto del Barco	Pérez *et al.* 1997
AWSD	06/06/1999	245	F	A Covasa, Ribeira	
AWSD	13/04/2004	143	M	A Frouxeira, Valdoviño	
AWSD	31/01/2006	227	F	Bycatch. Trawl net. 43º36'N, 004º45'W	Luis Laria pers. comm.
AWSD	25/11/2023	272	M	Estorde, Fisterra	
WBD	10/05/1982	270	M	Oyambre, Comillas	García-Castrillo 1987
WBD	05/07/2020	-	-	Vega, Ribadesella	Álvarez-Morales *et al.* 2022

Atlantic (Evans & Waggitt 2020). The records were mostly concentrated in spring (75%, Fig. 3b). The number of records of WBD is again too small to allow any conclusions.

Of the 12 AWSD, the sex of 11 of them is known: 8 males and 3 females. Of the 7 males whose length is known, 4 were adults (≥240 cm, according to Plugiares-Bonner *et al.* 2021) and 3 were juveniles. The combined testes weight is only available for the 2023 adult male, 333 g. All the 3 females were adults (≥199.5 cm, according to Plugiares-Bonner *et al.* 2021), and one of them was pregnant with a 90 cm fetus (Arronte *et al.* 2005). The only male WBD with a known length was an adult (>230-260 cm, according to Galatius & Kinze 2016).

All available information and photographs collected from the previously unpublished individuals were also reviewed. The AWSD observed in Malpica in 1995 suffered amputation, missing the caudal peduncle, which is considered a by-catch evidence (Plugiares *et al.* 2007, MITECO 2022). Another AWSD was captured by a trawl net in 2006. Considering these together with the individual reported by Pérez *et al.* (1997), the bycatch rate for the species will be 25%.

The AWSD stranded in Valdoviño in 2004 presented three open oval-shaped wounds (Fig. 4): one dorsal, anterior to the dorsal fin; another on the left costal region; and one ventral, anterior to the genital slit. The underlying musculature was exposed in all three wounds, having penetrated the 1 cm of blubber. The costal wound measured 6.1 x 4.7 cm. This size and the wounds shape are consistent with bites inflicted by a cookiecutter shark (*Isistius* sp.). These shark species are known to prey on fishes and marine mammals, causing circular or oval wounds (Muñoz-Chápuli *et al.* 1988, Dwyer & Visser 2011). Given this situation, we must evaluate how two species with such different distribution ranges could coincided in the same place, since the cookie-cutter sharks supposedly have circumtropical distribution (Compagno 1984), and their northernmost records were reported in the Azores islands (Barcelos *et al.* 2024). So, there is a possibility that these sharks

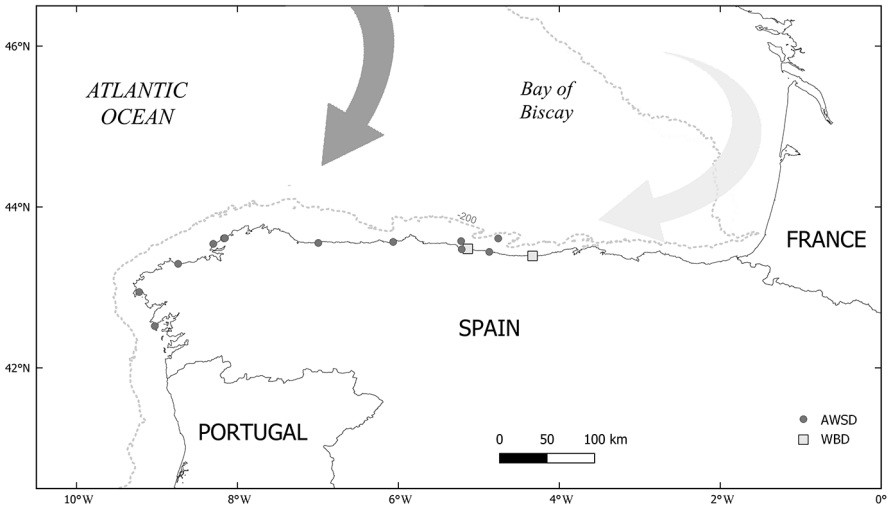

Figure 2. Atlantic white-sided dolphins (AWSD) and white-beaked dolphins (WBD) records in the north of Spain. Dashed line: 200 m isobath. The arrows indicate the inferred movements for each species.

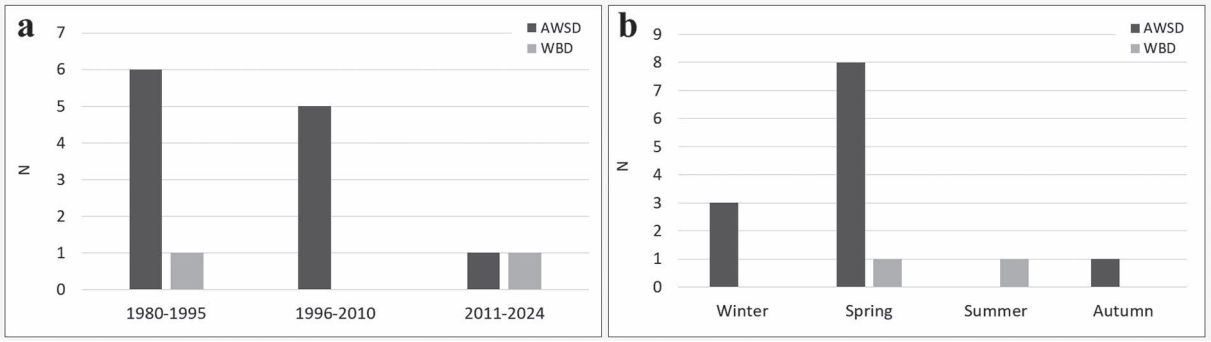

Figure 3. **a)** Records over the years. **b)** Records by season. AWSD: Atlantic white-sided dolphin. WBD: white-beaked dolphin.

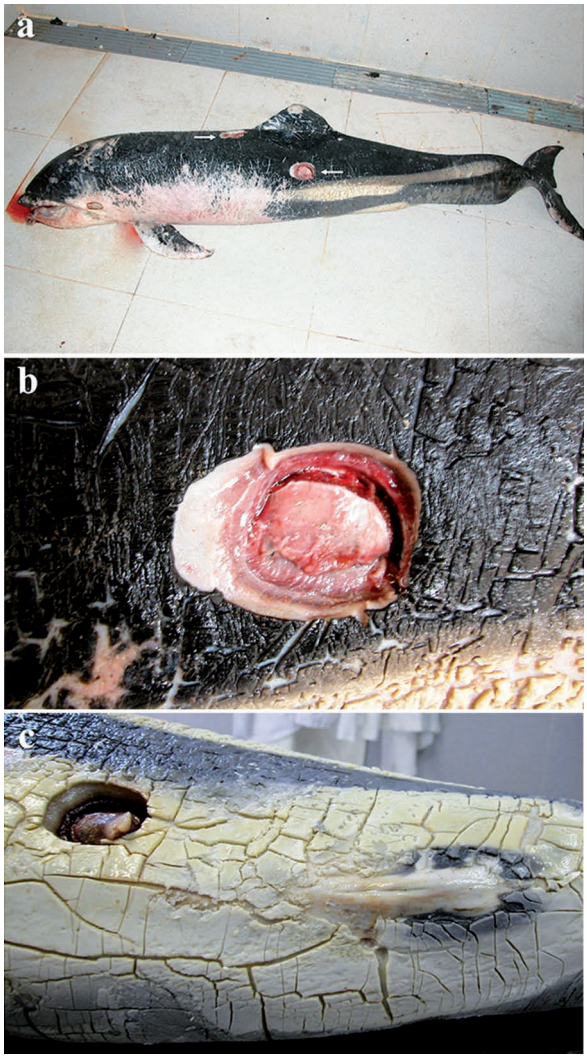

Figure 4. Atlantic white-sided dolphin with oval wounds. **a)** General view. Arrows indicate dorsal and costal wound. **b)** Costal wound. **c)** Ventral wound.

could reach further north. Dwyer & Visser (2011) listed 49 cetacean species with cookie-cutter shark bites from a review of the scientific literature, but the AWSD was not among them, so this may be the first record of such an interaction between these species.

Acknowledgements

We would like to thank the CEMMA volunteers who assisted with field work with those previously unpublished individuals: Juan Ignacio Díaz, Avelino Barreiro, Jose Martínez-Cedeira, Moncho Mascato, and Mara Caldas. We are also grateful to reviewers José Antonio Pis Millán and Carlos Nores for their suggestions and data, that completed and improved this note. The Galician stranding network is supported by the Biodiversity Foundation of the Spanish Ministry for Ecological Transition, through the Revargal project, which is financed by the European Union - NextGenerationEU through the Recovery, Transformation and Resilience Plan; and is also funded by the Xunta de Galicia - Galician Ministry of the Environment. Both administrations also provide the legal permits for the collection of biological samples of protected species.

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Recibido: 29 de octubre de 2025
Aceptado: 6 de febrero de 2026

Editor asociado L. Javier Palomo