



Beaked Whales

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Ziphiidae: a successful family

2nd most speciose family of cetaceans

24 beaked whale species

5 described in last decades

1 or + spp in all oceans

BEAKED WHALES (Ziphiidae)
Mysteries of the Deep

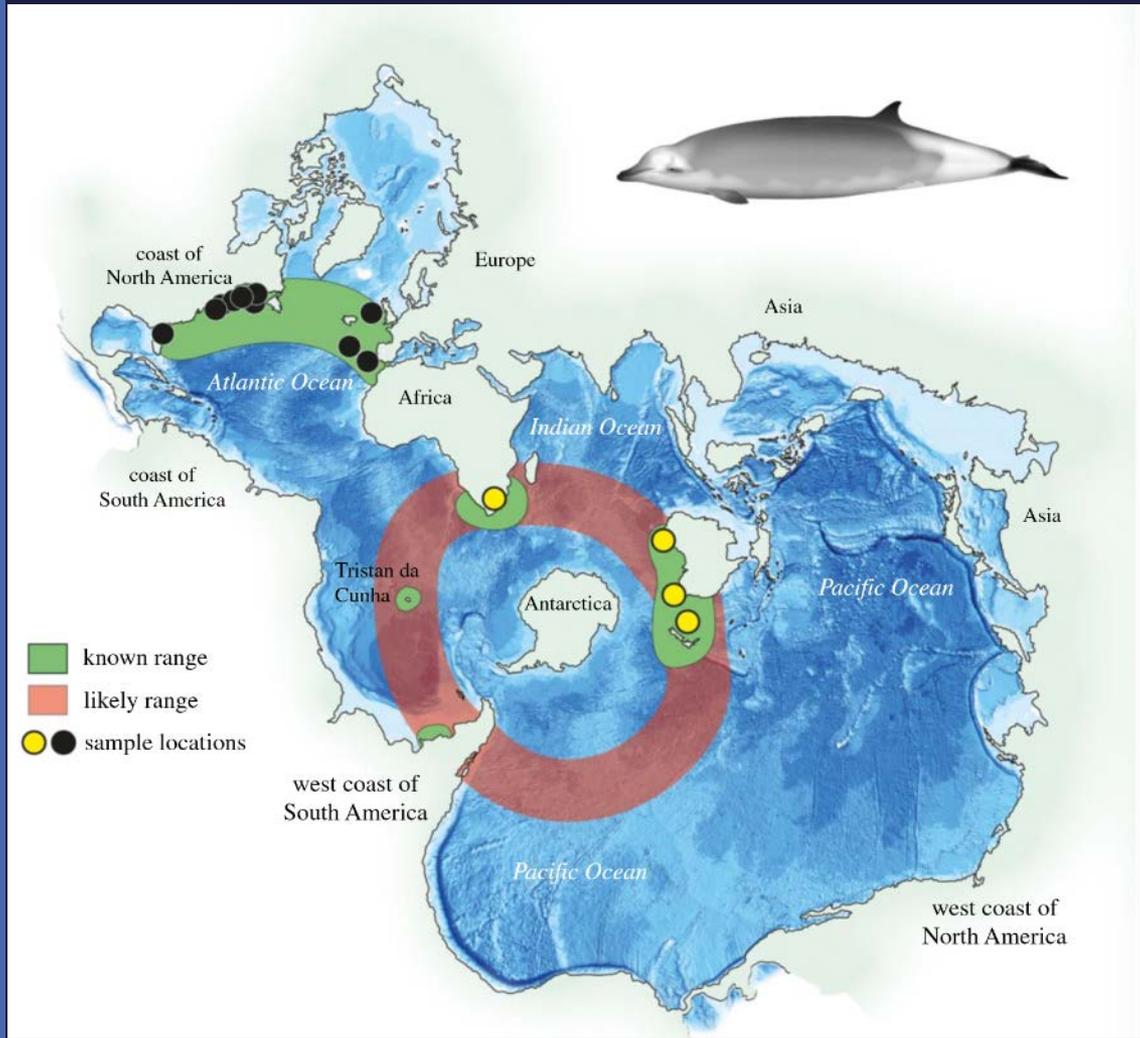
Deep-sea being collectively abundant, globally widespread, and remarkably diverse, beaked whales (family Ziphiidae) are the least known large animals on the planet. Named for their extended, dolphin-like beak, 24 species in 6 genera are currently recognized, representing more than one-quarter of the 91 known species of cetaceans in the world. Two new species were described in the past 3 years alone, and eleven are probably ones left to discover. They live in deep, offshore waters when they are mature adults, in some cases plunging 3,000 meters (10,000 feet) for over 3.5 hours. They feed on squid, deep-sea squid and fishes, using various feeding tactics: they slash and stab, and females of most species remain toothless their entire lives. Most males, however, retain a single tooth in each lower jaw that is enlarged for use as a tool in pairing, reaching for access to breeding females. The size and location of these teeth is species specific, ranging from tiny to massive and from the tip of the lower jaw to halfway back. Within groups, adult males can usually be identified by the long, linear tooth-like scars that they reflect on each side. These scars range from relatively light scratches in deep barrows, depending on the size and location of the tooth and how aggressively the individual species waddles them. Beaked whales spend very little time at the surface, where killer whales and large sharks are the main threat, and live the bulk of their lives in total darkness. Almost everything known about the feeding ecology and behavior of most species has been gleaned from dead animals stranded on beaches, several species have never been identified alive in the wild. For the most part, the lives of beaked whales remain deep, dark secrets.

Species shown:

- Berardius:** Arnoux's beaked whale (*Berardius arnuxi*), Sato's beaked whale (*Berardius minibus*), Baird's beaked whale (*Berardius bairdi*)
- Hyperoodon:** Northern bottlenose whale (*Hyperoodon ampullatus*), Southern bottlenose whale (*Hyperoodon planifrons*)
- Indopacetus:** Longman's beaked whale (*Indopacetus pacificus*)
- Mesoplodon:** Ramari's beaked whale (*Mesoplodon eusus*), Hector's beaked whale (*Mesoplodon hectori*), Perrie's beaked whale (*Mesoplodon perrii*), Sowerby's beaked whale (*Mesoplodon hindsii*), Andrews' beaked whale (*Mesoplodon bowdoini*), Gervais' beaked whale (*Mesoplodon europaeus*), Deraniyagala's beaked whale (*Mesoplodon hotaudi*), Pygmy beaked whale (*Mesoplodon peruvianus*), Habibi's beaked whale (*Mesoplodon caribibai*), Ginkgo-toothed beaked whale (*Mesoplodon ginkgodens*), Strap-toothed beaked whale (*Mesoplodon layardii*), Stejneger's beaked whale (*Mesoplodon stejnegeri*), Blainville's beaked whale (*Mesoplodon densirostris*), Gray's beaked whale (*Mesoplodon grayi*), True's beaked whale (*Mesoplodon mirus*), Spade-toothed beaked whale (*Mesoplodon trossieri*)
- Ziphius:** Cuvier's beaked whale (*Ziphius cavirostris*)
- Tasmacetus:** Shepherd's beaked whale (*Tasmacetus shepherdi*)

Scale: 0, 10 feet, 10 meters

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Carroll et al. 2023: Ramari's Beaked whale *Mesoplodon eueu*

Europe: 6 species...many knowledge gaps

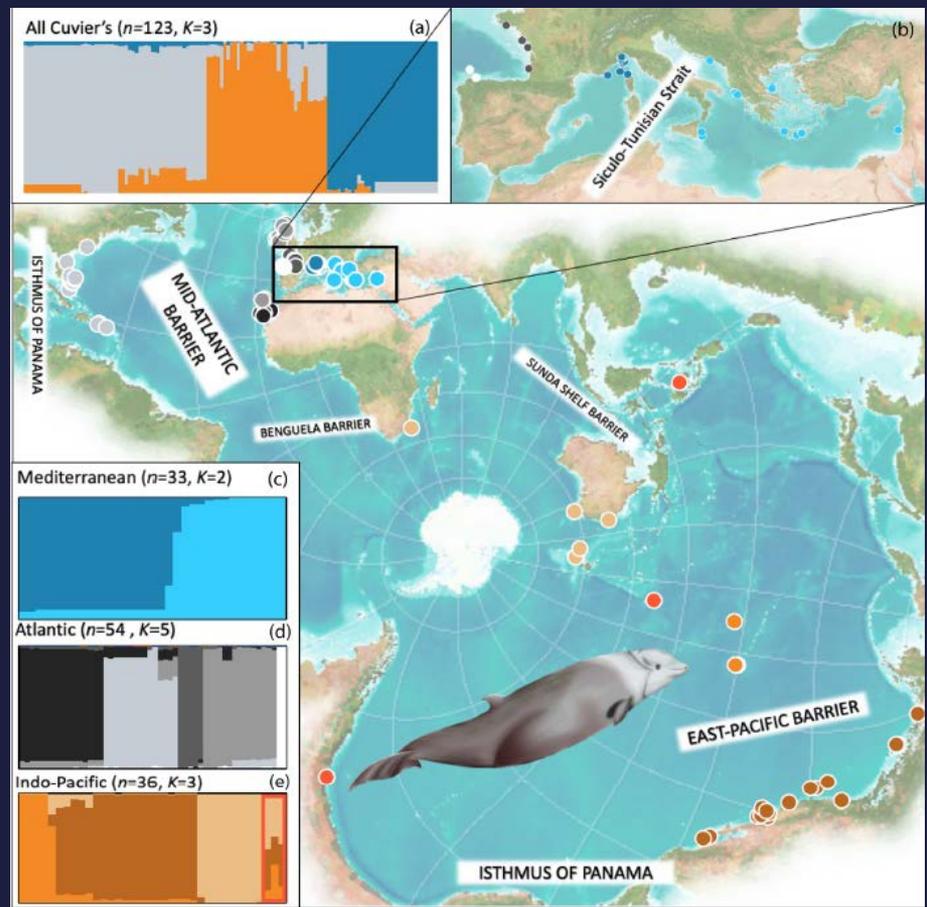
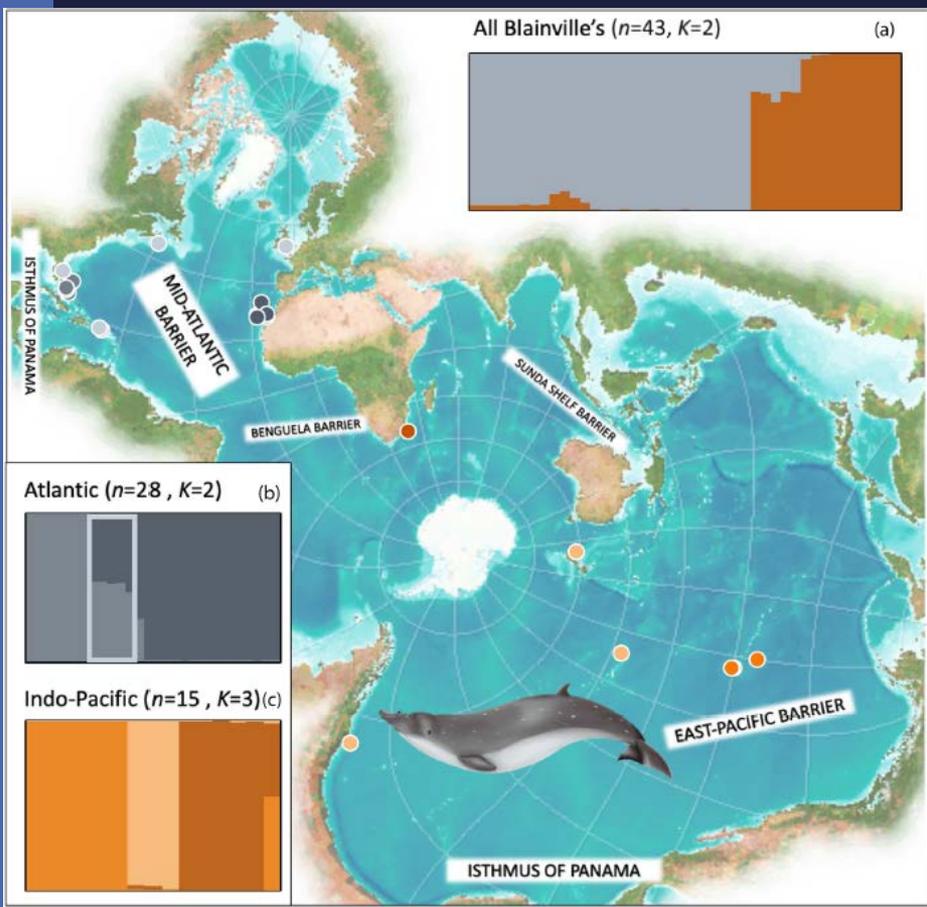
	IUCN				
	EU Glob	Nhat EU	Life History	Sociality	Foraging
<i>Hyperoodon ampullatus</i>	LC ^e NE	> 20,000	Incomplete ?	Incomplete ?	Specialized
<i>Ziphius cavirostris</i>	LC/DD LC	Natl? / 5800 Med	?	Few data	Incomplete
<i>Mesoplodon bidens</i>	LC LC	? > 3500	?	?	Incomplete
<i>M. europaeus</i>	LC LC	?	Few data	Few data	Incomplete
<i>M. densirostris</i>	LC LC	?	Few data	Incomplete	Incomplete
<i>M. mirus</i>	LC LC	?	?	Few data	Incomplete

BLAINVILLE'S (*MESOPLODON DENSIROSTRIS*)



CUVIER'S (*ZIPHIUS CAVIROSTRIS*)





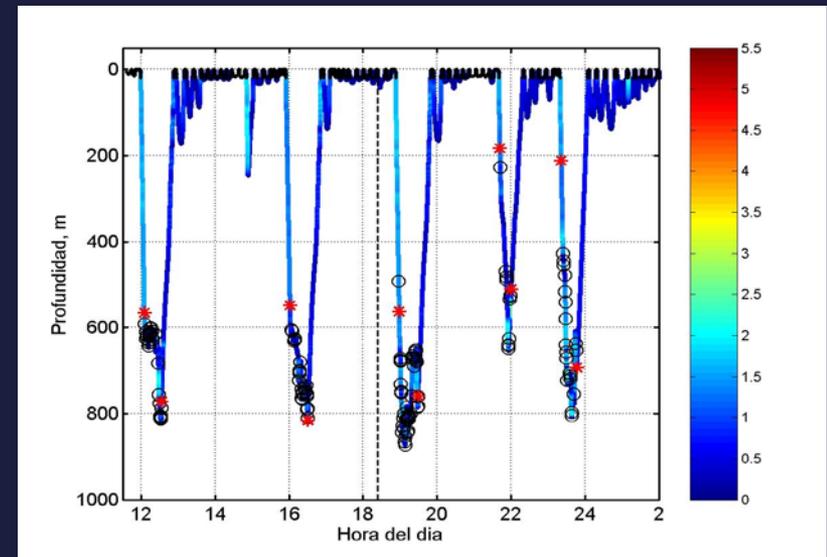
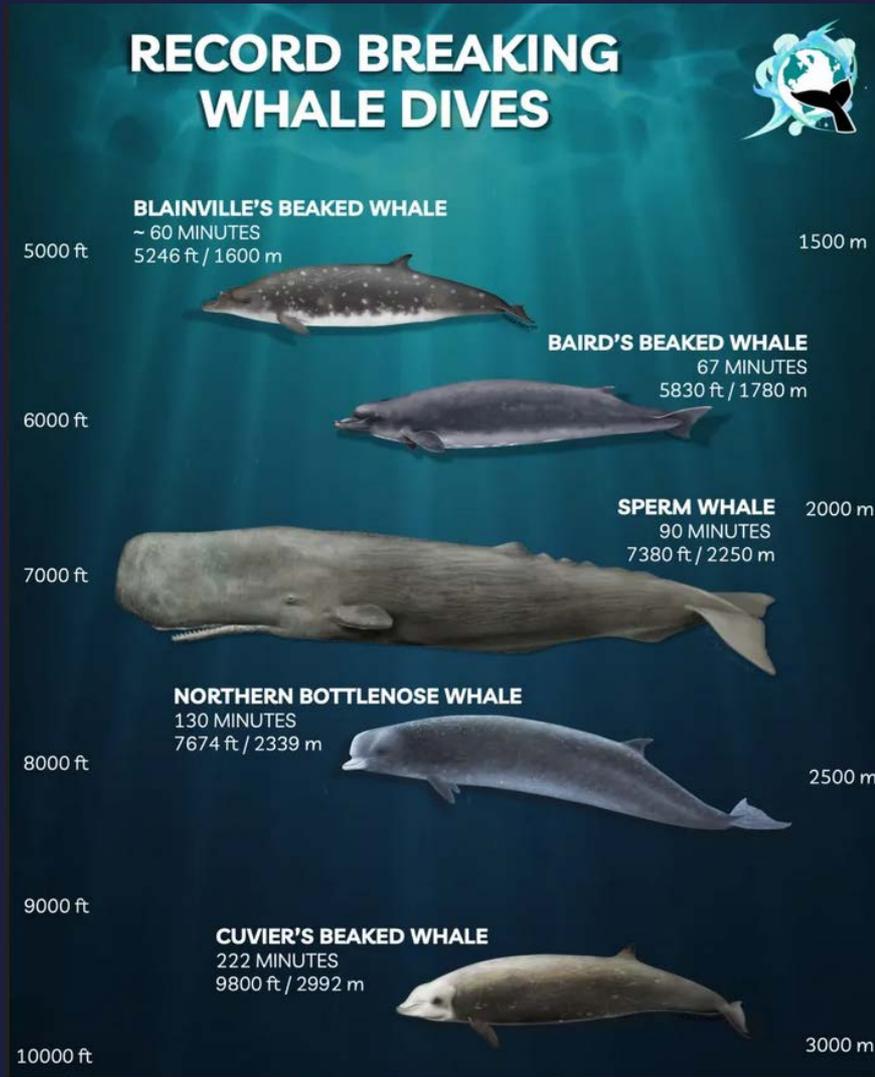
Onofriou et al. 2022

ESUs & DIPs

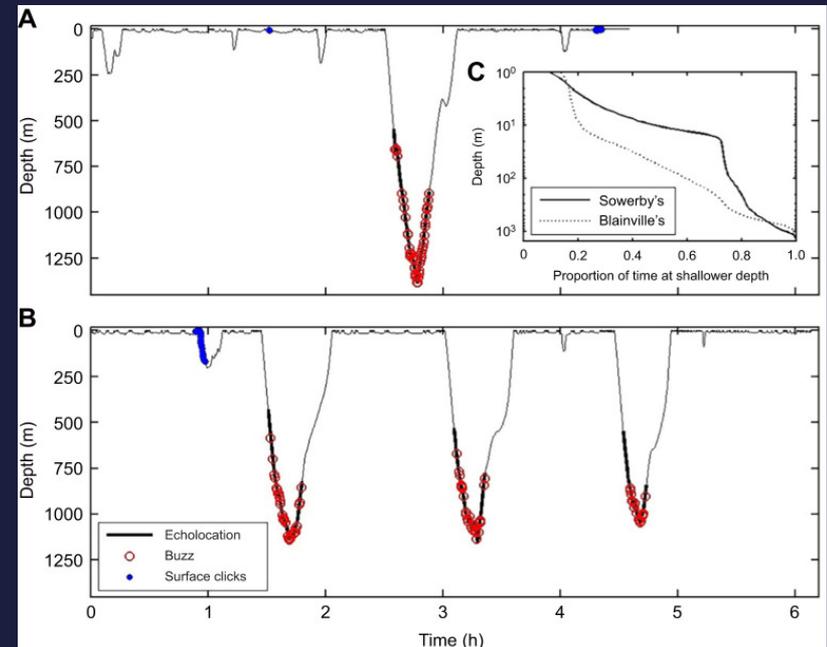
Evolutionary significant units & Demographically Independent Populations

Species	Ocean Basin	Population ID	<i>n</i>	Sampling Region	Sampling Locality	Proposed ESUs	Proposed DIPs
Cuvier's	Atlantic	Atl_Carib	15	Caribbean	Bahamas, East USA, Puerto Rico, Virgin Islands	NW Atlantic	
		Atl_CanIs	17	Canary Islands	Canary Islands	NE Atlantic	Canary Islands
		Atl_NE	15	NE. Atlantic	Madeira, France, Ireland, Scotland		
		Atl_Sp	2	Spain	Spain		
		Atl_France	5	France	France		
	Indo-Pacific	Indo_Cent	5	Central Pacific	Hawai'i, Johnston Atoll	Central Pacific	Hawai'i
		Indo_Sou	9	S. Indo-Pacific	Australia, New Zealand, South Africa	S Hem	
		Indo_NE	19	NE Indo-Pacific	Mexico, West Canada, West USA	NE Pacific	
		Indo_Mix	3	S. Indo-Pacific	Chile, Samoa, Philipines		
	Med	Med_West	19	W. Med	Corsica, Italy-Ligurian Sea	W Med	W Med
Med_East		14	E. Med	Croatia, Italy-Ionian Sea, Greece, Israel	E Med	E Med	
Blainville's	Atlantic	Atl_Bah	7	Bahamas	Bahamas	NW Atlantic	Bahamas
		Atl_East	16	E. Atlantic	Madeira, Canary Islands	NE Atlantic	Canary Islands
		Atl_Oth	5	Admixed Atlantic	East USA, Puerto Rico, Canada, UK		
	Indo-Pacific	Indo_Haw	6	Hawaii	Hawai'i	Central Pacific	Hawai'i
		Indo_Afr	5	S. Africa	South Africa	S Hem	
		Indo_Sou	3	S. Pacific	French Polynesia, Chile		

Niche diversification



Tyack et al 2006, Aguilar Soto 2006 etc



Visseur et al. 2022: Sowerby's are faster

Cuvier's record dives
Schoor et al. 2014 / Quick et al. 2020

1 April 2014
SE Crete, Mediterranean Sea



*How many more whales must die
for the navy sonars to stop killing?*

© L. Aggelopoulos / Pelagos Cetacean Research Institute 2014





Wellard R, et al. (2016)

EL MUNDO | Natura

Líder mundial en español | Miércoles 07/06/2013. Actualizado 13:17h.

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BIODIVERSIDAD | investigación de cetáceos en las Islas Canarias

Observan en La Palma orcas que se alimentan de crías de zifios

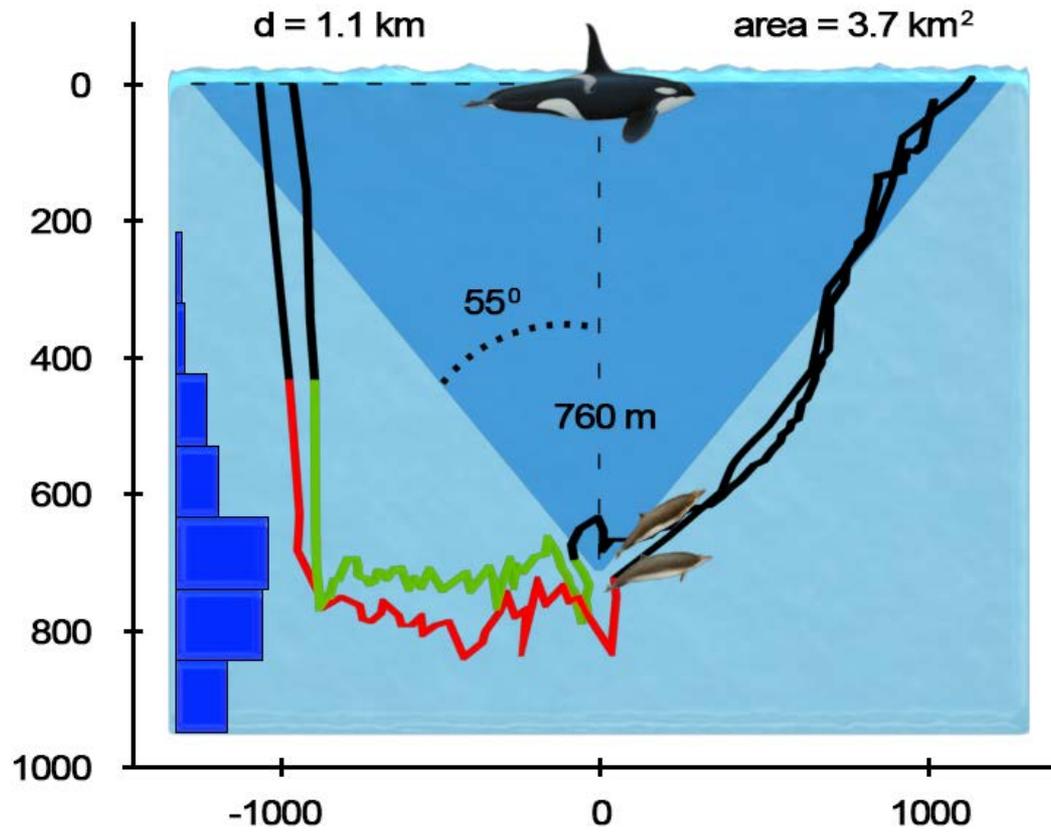
Efe | Santa Cruz de Tenerife
Actualizado viernes 02/05/2013 12:54 horas

fancy whale watching, orcas

A screenshot of a news article from EL MUNDO. The article is titled "Observan en La Palma orcas que se alimentan de crías de zifios" (Observed in La Palma orcas that feed on calves of pilot whales). The article is dated Friday, May 2, 2013, at 12:54 hours. Below the article text, there is a video player showing a close-up of an orca breaching the water surface.

Natural behavioural success

Non adaptative for new human disturbances





PROCEEDINGS OF THE WORKSHOP ON ACTIVE SONAR AND CETACEANS

Held at the
European Cetacean Society's 17th Annual Conference,
Auditorio Alfredo Kraus, Las Palmas, Gran Canaria, 8th March 2003



Editors:

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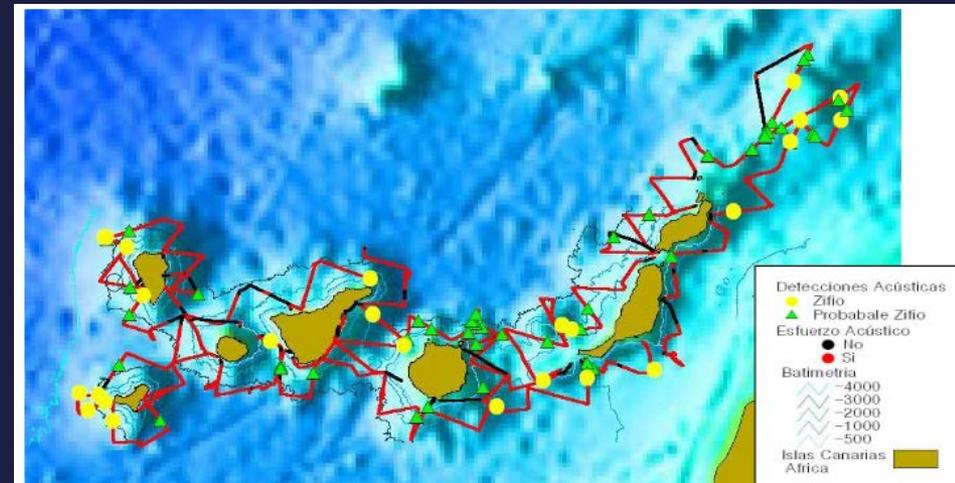
MINISTERIO DE DEFENSA

BOE núm. 304

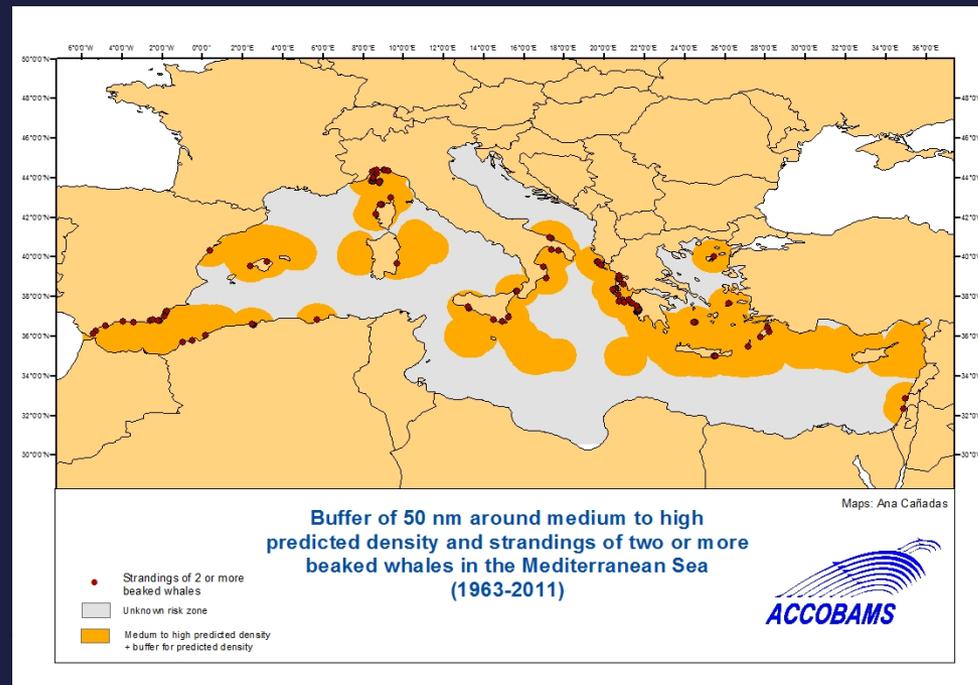
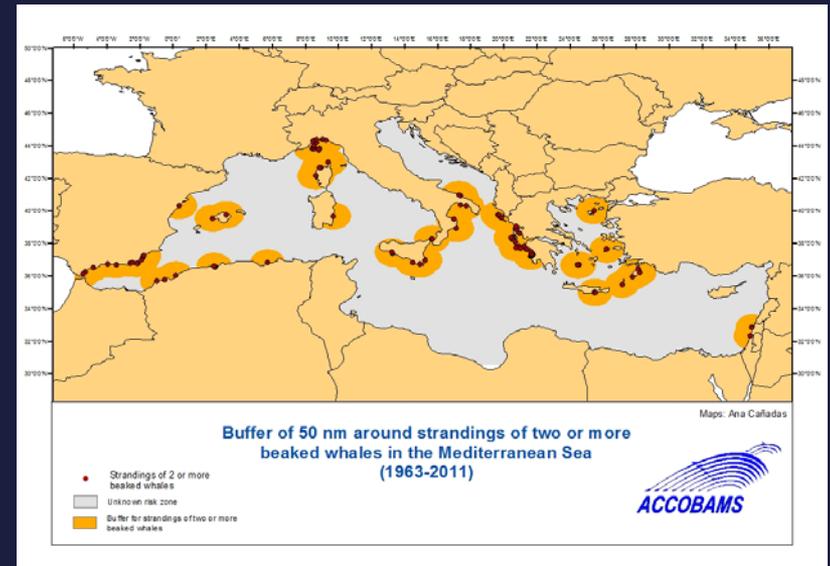
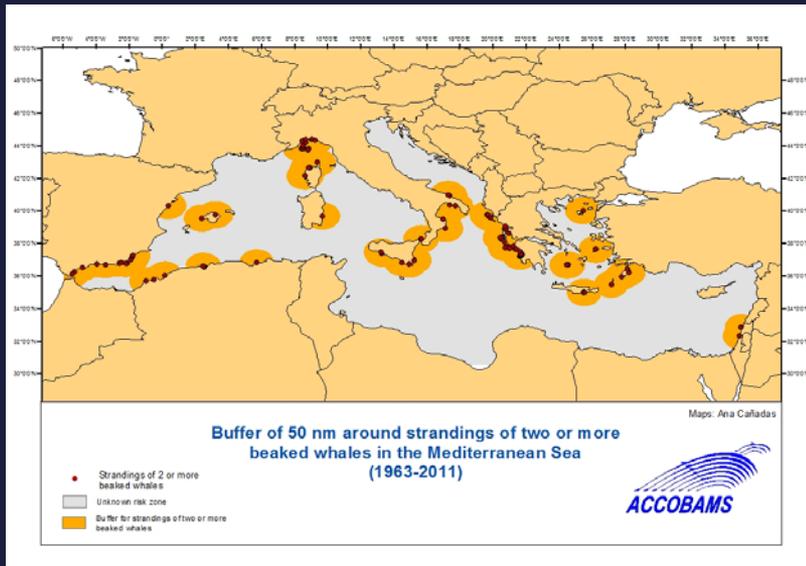
21974

RESOLUCIÓN 145/2007, de 12 de diciembre, de la Secretaría General Técnica, por la que se publica el Convenio de colaboración entre el Ministerio de Defensa, el Ministerio de Medio Ambiente y la Consejería de Medio Ambiente y Ordenación Territorial del Gobierno de Canarias, para la conservación e investigación de las poblaciones de cetáceos para evitar los varamientos accidentales.

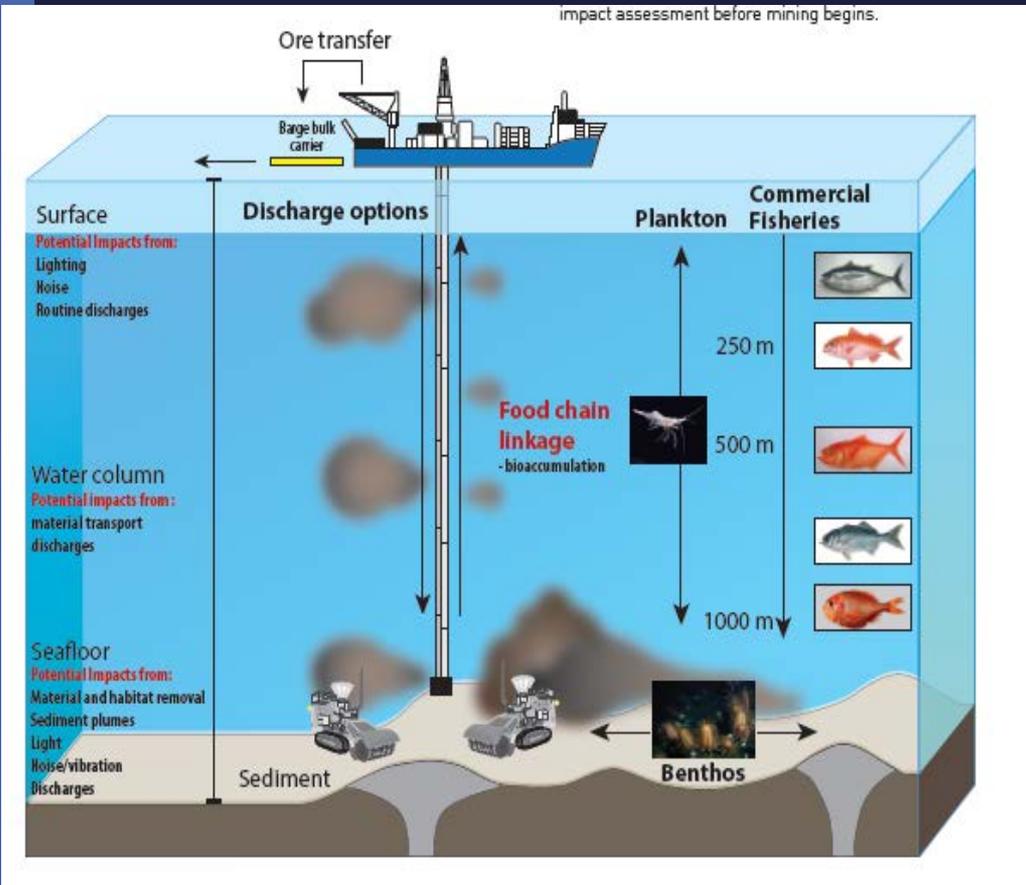
15. En tanto no se identifiquen las zonas hábitat permanentes de los zifios, el Ministerio de Defensa se compromete a no realizar ejercicios que impliquen el uso de sonares activos antisubmarinos y explosiones submarinas dentro de las 50 millas náuticas a poniente y al sur de las islas más occidentales del archipiélago Canario. En cuanto a las zonas hábitat que estén identificadas, el Ministerio de Defensa se compromete a no efectuar dichos ejercicios a menos de 50 millas náuticas del límite exterior de estas zonas.



Increase moratorium to 100 nm
(non official yet, but applied)



Is their deep habitat safe?



Whale Found With 30+ Plastic Bags in Its Stomach ...
ecowatch.com



Please come to study us, and be secure
and audacious when asking for
conservation actions in the deep oceans

THANKS!

