

The ACCOBAMS Ziphius initiative: towards spatial-based conservation in the Mediterranean Sea

ANA CAÑADAS¹

¹ALNITAK. Nalón 16.28240 Hoyo de Manzanares. Madrid. Spain. alnitak.ana@cetaceos.com

BACKGROUND

Recalling ACCOBAMS purpose to reduce threats to cetaceans in the region and to improve our knowledge of these animals, the Fourth meeting of the Scientific Committee of ACCOBAMS (Monaco November, 2006) addressed the issue of the impact of anthropogenic noise on marine mammals in the Mediterranean Sea, further considering that the relationship between atypical mass strandings and military manoeuvres has been already proved in several parts of the world, including the Mediterranean (the last reported case of atypical mass stranding in Almería, Spain, in January 2006).

In the specific case of Cuvier's beaked whales, it was stressed that information on their distribution and habitat use in the Mediterranean is of fundamental importance for preventing further events of injury and death. Therefore, the Committee agreed that appropriate information on distribution and habitat use of Cuvier's beaked whales in the Mediterranean should be made available to interested parties (national Navies, NATO, seismic exploration companies, etc.) to prevent the use of high intensity noise in potentially high density or highly suitable areas for this species.

Unfortunately, as stated in the Red List assessment developed for the Mediterranean and Black Sea Cetacean Assessment Workshop (March, 2006), appropriate data on distribution and relative (or absolute) abundance of Cuvier's beaked whales in the Mediterranean are lacking. Therefore, the Scientific Committee agreed that a habitat use modelling exercise (e.g. see Cañadas et al., 2005) should be attempted for the Mediterranean Sea (or, at least, for the areas where enough survey effort has been carried out to some extent) and Ana Cañadas was designated to co-ordinate this effort and undertake the analysis. The modelling initiative is intended and planned as a collaborative effort with all those holding suitable effort and sightings data in the area, which represents an important step forward in two main ACCOBAMS actions: the preparation of the basin wide survey, and the development of the ACCOBAMS sightings database. In other words, this exercise will also serve as a 'test' for the running of a sightings and effort database at the regional level, and, in addition, it will require the creation of grids of cells for the entire area, the collection of appropriate environmental covariates, and it will provide very valuable information for the design of the basin-wide survey.

DATA SOURCES

With the aim to ensure the mutual exchange of information and data, leading to the dissemination and publication of scientific information, a Memorandum of Understanding (see Annex), stating the ownership of the data (which remains with the data providers), allowing the coordinator to perform the analysis, and stating the co-authorship for any outcome in the form of reports and/or publications is being signed between ACCOBAMS and the data providers (Table 1).

Table 1. Data availability

Source	Base	Survey area	Years
Tethys Research Insitute	Italy	Ligurian Sea	1990 - 2006
Pelagos Insitute	Greece	Hellenic Trench	
GREC	France	Western Mediterranean	1997 - 2004
CRC - Marineland	France	Western Ligurian Sea	2001 - 2004
IFAW	UK	Southern Mediterranean	2003- 2004
Oceana	Spain	Western Mediterranean	2006
Barbara Mussi	Italy	Island of Ischia (Italy)	2004 - 2006
Tethys Research Institute	Italy	Strait of Messina (Italy)	2005 - 2006
University of Valencia	Spain	Eastern waters of Spain	2000 - 2002
SMRU	UK	Balearic Islands (Spain)	2003 – 2006
Alnitak	Spain	Northern Alboran Sea	1992 - 2006

Fig. 1 shows the effort and Fig. 2 the sightings of beaked whales accumulated by all data provided listed above, and available for this study. The two circles show the areas for which data will be available but has not been incorporated to the joint dataset yet.

The ownership of the data remains with the participant who will be fully acknowledged for the contribution of data.

A final report will be prepared for the ACCOBAMS Scientific Committee, with the authorship of all participants (data analyst and data providers). On the basis of this report, the ACCOBAMS Secretariat will distribute advice to interested parties (Member States, Navies, NATO, seismic exploration companies, etc.).

If appropriate, it can also be envisaged that the final report may be prepared for submission to a peer reviewed journal, with the authorship of all participants (data analyst and data providers).

METHODS

This work will use habitat preference modelling as tool for data analysis. The approach uses physical and environmental data to help explain variation in cetacean distribution and predict areas that are important for target species. Detailed explanation of the method is given in Cañadas et al. 2005 and Cañadas and Hammond 2005.

All effort is being divided into segments of 5nmi long on average. A grid of cells with a resolution of 0.2° has been built, and a number of geographical and environmental covariates have been associated to each grid cell, namely, latitude, longitude, mean depth, standard deviation of depth, slope, aspect, distance from the 1000m depth contour, distance from the 2000m depth contour, and interactions between them. GAMs will be used to explore the relationship between relative density of beaked whales and the environmental covariates and a prediction will be produced for the study area (box in Fig. 1).

Nevertheless, I am available to discuss other methods to compare with the methods described here in case some of the data owners desire so.

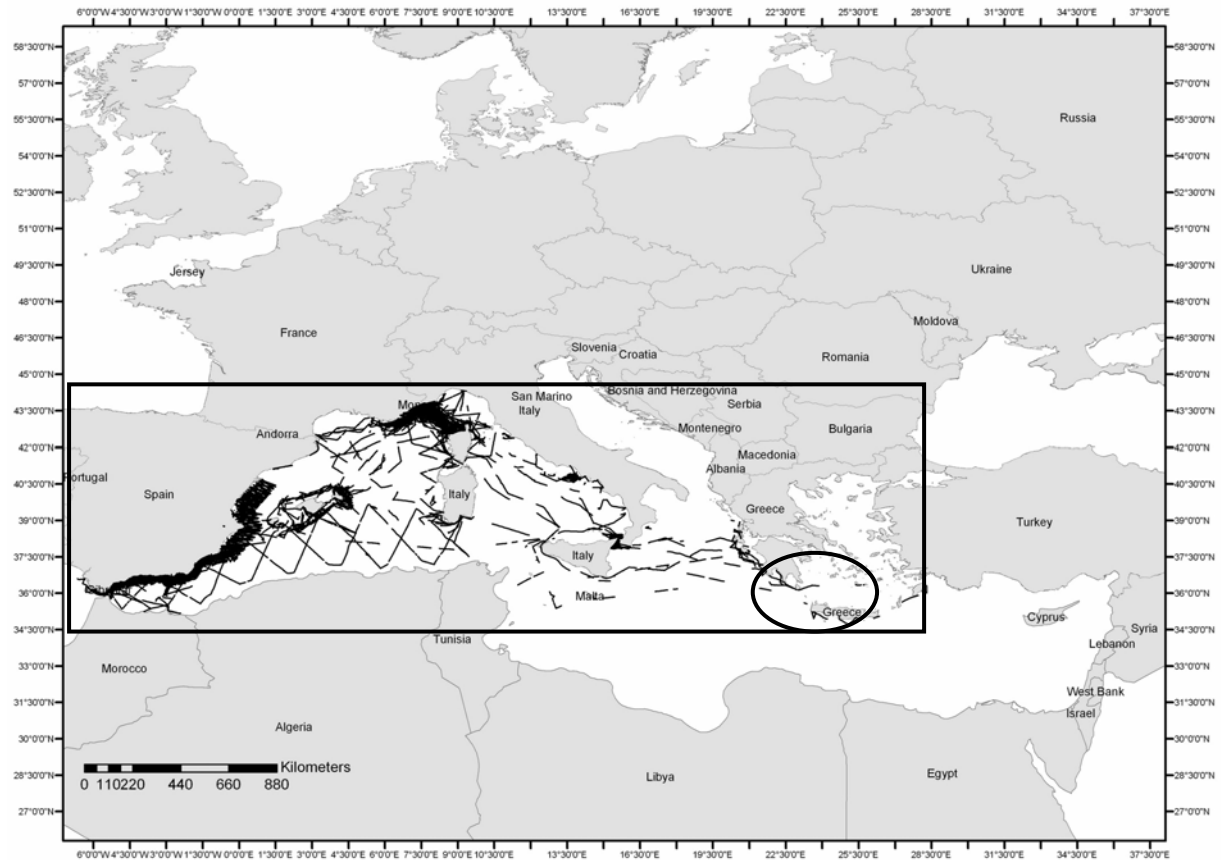


Figure 1. Effort accumulated by all data providers. The circle show an area for which data will be available for the analysis, but not yet incorporated in the joint dataset. The box shows the area that will be included in the analysis.

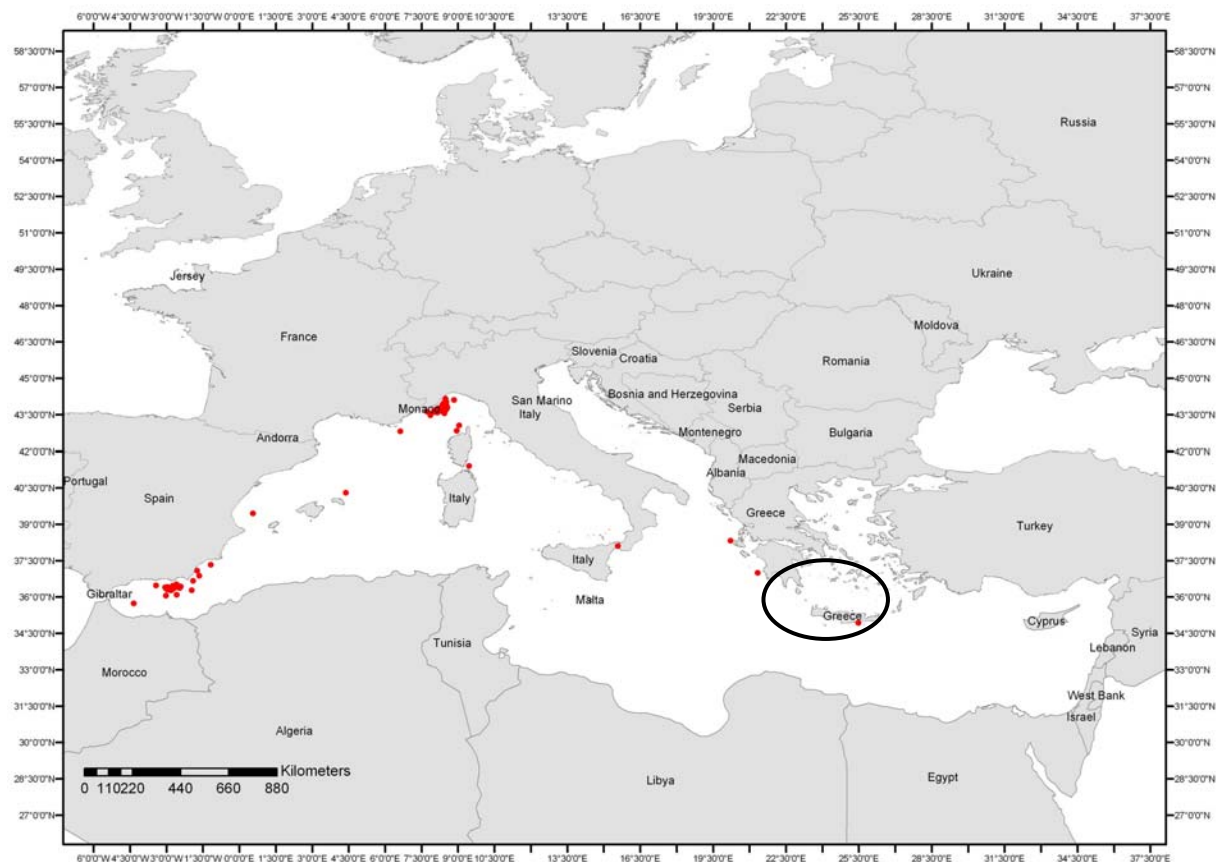


Figure 2. Sightings of beaked whales accumulated by all data providers. The circle show an area for which data will be available for the analysis, but not yet incorporated in the joint dataset.

ACKNOWLEDGEMENTS

I am very grateful to Giuseppe Notarbartolo di Sciara and to the ACCOBAMS Secretariat for their support and help in this process. Many thanks also to all the groups and researchers that are participating in this initiative (see Table 1).

REFERENCES

- Cañadas, A., R. Sagarminaga, R. de Stephanis, E. Urquiola and P.S. Hammond. 2005. Habitat selection models as a conservation tool: proposal of marine protected areas for cetaceans in Southern Spain. *Aquatic Conservation: Marine and Freshwater Ecosystems* 15:495-521.
- Cañadas, A. and Hammond, P. 2006. Model-based abundance estimate of bottlenose dolphins off Southern Spain: implications for conservation and management. *Journal of Cetacean Research and Management*, 8(1):13-27.