CETACEAN SIGHTING REPORTS BY AMATEURS: A TWO-SIDED COIN.

Margherita Zanardelli, Giuseppe Notarbartolo-di-Sciara and Mario Acquarone

Tethys Research Institute
piazza Duca d'Aosta 4, 20124 Milano, Italy

ABSTRACT

The scientific value of cetacean sighting reports provided by amateur observers is discussed. A 5-year experiment is presented, in which the accuracy of a sample of sighting reports could be evaluated. In this special case, in which particular care was placed in providing some training to the volunteer observers, 31.3% of the sighting forms proved to be wrong. Stimulating the sea-going people to report their sightings of cetaceans has the positive effect of promoting the public awareness on the conservation of these mammals. However, it is cautioned that much care must be taken in the critical evaluation of results, to avoid polluting the scientific literature with significant amounts of wrong data.

INTRODUCTION

Collecting information on the distribution and ecology of cetaceans using dedicated vessels is a very costly enterprise. Taking advantage of the opportunities provided by a number of non-professional observers, such as yachtspeople, sailors, fishermen, ferry passengers, and seamen in general, to gather information on the occurrence of cetacean species in a given area, seems therefore a logical consideration. Such practice was in fact adopted by several authors in the past (Pilleri, 1970; Di Natale, 1979; McBrearty *et al.*, 1986). However, the collection of sighting data from amateurs requires a massive effort for the dissemination of the sighting forms and for a minimal training of the observers, including the organisation of awareness campaigns, the preparation of instruction sheets or manuals, the necessary follow-up procedures, etc. It may be questioned whether such effort is justified by a real advance in zoological knowledge. Furthermore, the publication of uncertain data might introduce important bias in the already scarce scientific literature on this subject. Aim of our investigation, based on five years of collection of sighting data from non-professional observers, is to provide a constructive critique of this research method.

METHODS

A popular cetacean sighting reporting program, called *"Compagnia dei Cetonauti"*, was started in Italy by the Tethys Research Institute in 1986 and continues to date. Although the program had no geographic limitation within the entire Mediterranean Sea, the vast majority of the data were collected in the seas surrounding the Italian peninsula and islands. In parallel, a popular sighting program was organised in the Italian seas in cooperation with Greenpeace Italy during summer 1989. Finally, sighting data collected in the Italian coastal zone were also provided by the crew of the pollution-monitoring fleet managed by Castalia S.p.a. from 1989 to 1991.

All program participants were clearly informed by us that only sighting reports supported by photographic or video documentation were going to be accepted for the data analysis. In addition to specially made forms, an easily readable booklet (Notarbartolo di Sciara, 1986) was

distributed to all participants as an aid in cetacean identification and reporting. In addition, training sessions were carried out for the Greenpeace and the Castalia programs.

RESULTS

A total of 618 sighting reports were collected, concerning 9 cetacean species. Of these, in spite of the clear instructions given, only 131 (21.2%) were supported by photographic or video documentation.

Our analysis of the documented reports revealed that 90 (68.7%) were correctly identified; the remaining had a wrong indication, or no indication at all.

The results presented here are based on the verified reports only. Species sighted included: the fin whale *Balaenoptera physalus* (26 reports, 19.8%), the sperm whale *Physeter catodon* (9, 6.9%), the killer whale *Orcinus orca* (2, 1.5%), the long-finned pilot whale *Globicephala melas* (3, 2.3%), the Risso's dolphin *Grampus griseus* (14, 10.7%), the bottlenose dolphin *Tursiops truncatus* (33, 25.2%), the striped dolphin *Stenella coeruleoalba* (37, 28.2%), and the common dolphin *Delphinus delphis* (7, 5.3%) (Tab. 1). Sightings of Cuvier's beaked whales, none of which were documented, were not considered in this analysis.

To evaluate differences in species identification abilities concerning the different species, a ratio was calculated between correct and incorrect identification in eight species. Although our sample size is still too limited to allow an evaluation of significance, some differences among species are apparent (Fig. 1). Killer whales, pilot whales and Risso's dolphins scored best, perhaps because of their conspicuous appearance. Fin whales, striped dolphins and common dolphins were intermediate. Sperm whales and bottlenose dolphins ranked lowest.

DISCUSSION

In spite of the clear instructions given, a very low percentage (21.2%) of the sighting reports collected were documented. The analysis of these revealed a rate of correctedness higher than what expected (68.7%), perhaps due to the training efforts made. We suggest that in a more general condition the percentage of reports with a correctly identified species would be lower. Even in our controlled situation, however, more than 30% of the reports represents wrong data, especially as far as the less conspicuous species are concerned, including bottlenose dolphins and striped dolphins, the most important Mediterranean cetacean species in terms of abundance.

Certainly the increasing diffusion of inexpensive and simple cameras (still and video) will afford the collection of greater numbers of verifiable reports, which may eventually yeld appreciable results if a sufficiently large report database is organised.

If such conditions are not respected, however, we maintain that the scientific scope of this research method is of limited value, and that the risk of polluting the literature with wrong results is unacceptably high.

The good side of the coin, rather than concerning the progress of scientific knowledge, in our opinion relates mostly to the important effect of such popular sighting programs within the mainframe of nation-wide campaigns to promote awareness and involvement of the public in cetacean conservation. However it must be cautioned that the scientific treatment of the data collected through such sighting campains must be handled with care, to avoid the publication of large amounts of untrue data.

ACKNOWLEDGEMENTS

We wish to thank the Edizioni del Cormorano for printing the *Manuale del Cetonauta* and for cooperating with the Tethys Research Institute in launching the *Compagnia dei Cetonauti*. Data from "Operazione Cetacei 1989" were kindly provided by Greenpeace Italy. The cooperation of

Castalia S.p.a. and of the *Ispettorato Centrale Difesa Mare,* Italian Ministry of Merchant marine, is greatly appreciated. We also would like to extend our gratitude to the more than 600 yachtspeople who have participated in our program *Compagnia dei Cetonauti*, providing us with the data necessary to the preparation of this paper.

REFERENCES

Di Natale A., 1979. Progetto cetacei: rapporto annuale. 1) Attività 1978-1979. Mem. Biol. Mar. Oceanogr., 9(1):1-23.

McBrearty D.A., Message M.A. and King G.A., 1986. Observations on small cetaceans in the north-east Atlantic Ocean and the Mediterranean Sea: 1978-1982. Pp. 225-249. In: *Research on dolphins* (Editors M.M. Bryden and R. Harrison), Clarendon Press, Oxford.

Notarbartolo di Sciara G., 1986. Manuale del Cetonauta. Edizioni del Cormorano, Milano, 72 pp.

Pilleri G., 1970. Records of cetaceans off the Italian and Dalmatian coasts. Invest. Cetacea, 2:21-24.

Species	N.	%
fin whale	26	19.8
sperm whale	9	6.9
killer whale	2	1.5
long-finned pilot whale	3	2.3
Risso's dolphin	14	10.7
bottlenose dolphin	33	25.2
striped dolphin	37	28.2
common dolphin	7	5.4
Documented reports	131	100
(non documented reports	487)	

Table 1 - Summary of reports.

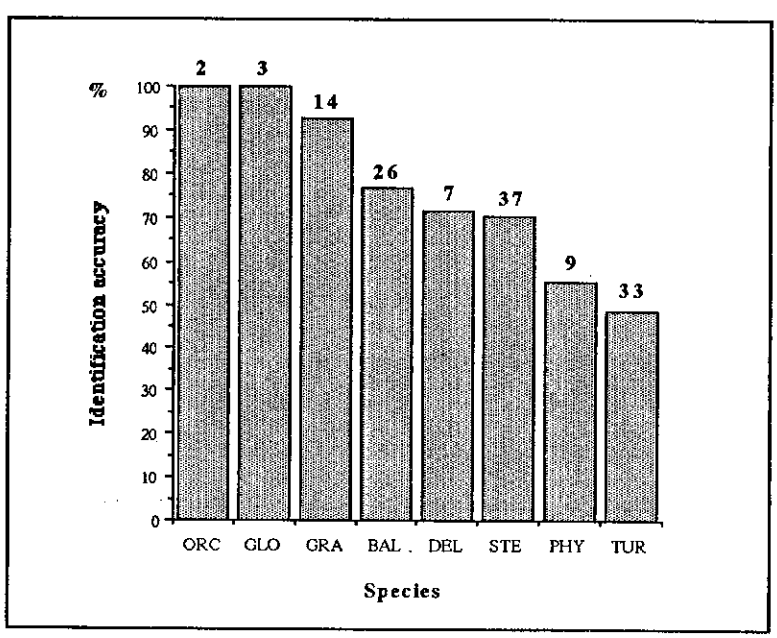

Fig. 1 - Rate of report correctedness divided by species. ORC= killer whale, GLO = pilot whale, GRA = Risso's dolphin, BAL = fin whale, DEL = common dolphin, STE = striped dolphin, PHY = sperm whale, TUR = bottlenose dolphin.