A FIN WHALE AND SPERM WHALE SIGHTING PROGRAMME UNDERTAKEN BY THE ITALIAN NAVY IN THE CENTRAL MEDITERRANEAN SEA

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INTRODUCTION Among the initiatives undertaken by the Italian Navy in favour of the conservation of the marine environment, launched within the framework of the European Nature Conservation Year (ENCY), an opportunistic cetacean sighting and listening programme was initiated in 1995 from a number of different available military platforms. The programme was focused on the reporting of sightings of fin whales, *Balaenoptera physalus*, and sperm whales, *Physeter catodon*, two cetacean species presently considered in need of special conservation attention in the Mediterranean (Notarbartolo di Sciara *et al.*, in press; Notarbartolo di Sciara and Gordon, in press). The preliminary results presented here demonstrate the importance and potential of such programme, and provide the impetus for its long-term continuation and improvement.

MATERIALS AND METHODS Appropriate sighting sheets, containing diagnostic information for the two target species, were prepared and distributed to 75 surface ships, 8 submarines, helicopters, maritime patrol aircraft, and sailing vessels operating in the seas surrounding Italy (Central Mediterranean Sea), between Lat 37° and 44° N, and Long 6° and 19° E. Sightings were performed between April and December 1995. The programme was initiated with a number of seminars organised in the principal Italian naval bases early in 1995, to enhance involvement in the programme of the Navy personnel and to provide basic background on its objectives and methods. Observations were conducted visually, and, when possible, by acoustic listening through sonobuoys, on-board passive listening systems, towed arrays (in co-operation with the *Centro Interdisciplinare di Bioacustica*, University of Pavia), and portable hydrophones.

RESULTS Six cetacean species were observed, for a total of 88 sightings (Tab. 1). As expected, because of the pre-defined aims of the programme, most observations (77.3%) were of fin and sperm whales. Among the target species, 46 were fin whales (67.6%) and 20 (32.4%) sperm whales. Most sightings were visual. One group of 3 fin whales was spotted on sonar by a helicopter before being seen, and two sperm whale groups were heard before being sighted. The distribution of sightings is shown in Fig. 1 (fin whales) and Fig. 2 (sperm whales). Overall, cetacean sightings were more frequent in the seas west of Italy than to the east. Fin whales were found scattered throughout the southern Tyrrhenian Sea in the early months of the programme (until 31 May), while during summer they tended to concentrate in the northwestern region (Fig. 1). This is in good agreement with the known movement pattern of this species in the Mediterranean, which congregates during summer in the Corsican-Ligurian Basin to feed (Notarbartolo di Sciara, 1994). By contrast, sperm whales seemed to be more evenly distributed throughout the area (Fig. 2). In the Strait of Messina sperm whales were seen four times, and fin whales once, whereas no cetacean was sighted in the Sicily Channel and in the Malta Channel. Mean group size for fin whales was 2.1 (SD = 1.39), for sperm whales 1.9 (SD = 1.88); in both species the largest groups were of 8 individuals. The eight sperm whales, of which four appeared calves and juveniles, were sighted from the air while engaging in a "daisy" formation, typical of the species, but never documented in the Mediterranean Sea.

CONCLUSIONS The steady presence at sea of military craft throughout the year provides an excellent occasion for opportunistic cetacean sightings, which could greatly enhance centralised databases such as the one currently maintained for the Mediterranean Sea by the Marine Mammal Working Group of the *Commission Internationale pour l'Exploration Scientifique de la Méditerranée* (CIESM). A further, necessary improvement, which is being planned for future field phases, involves the estimation of sighting effort, to allow weighting of the observation data and making them comparable across time and between different areas.

ACKNOWLEDGEMENTS We wish to thank all the personnel of the Italian Navy ships and aircraft who participated in the programme, and contributed to these preliminary results with their dedication and interest. The co-operation of the *Centro Interdisciplinare di Bioacustica* of the University of Pavia is also acknowledged.

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Table 1 - Summary of sightings.

Species	no. sightings	no. individuals	mean group size	range
Balaenoptera physalus	46	96	2.1	1-8
Physeter catodon	22	42	1.9	1-8
Stenella coeruleoalba	9	58	6.4	1-25
Grampus griseus	6	47	7.8	1-17
Delphinus delphis	1	10		
Orcinus orca	1	2		
undetermined	3	9		
Total	**88**	**264**		

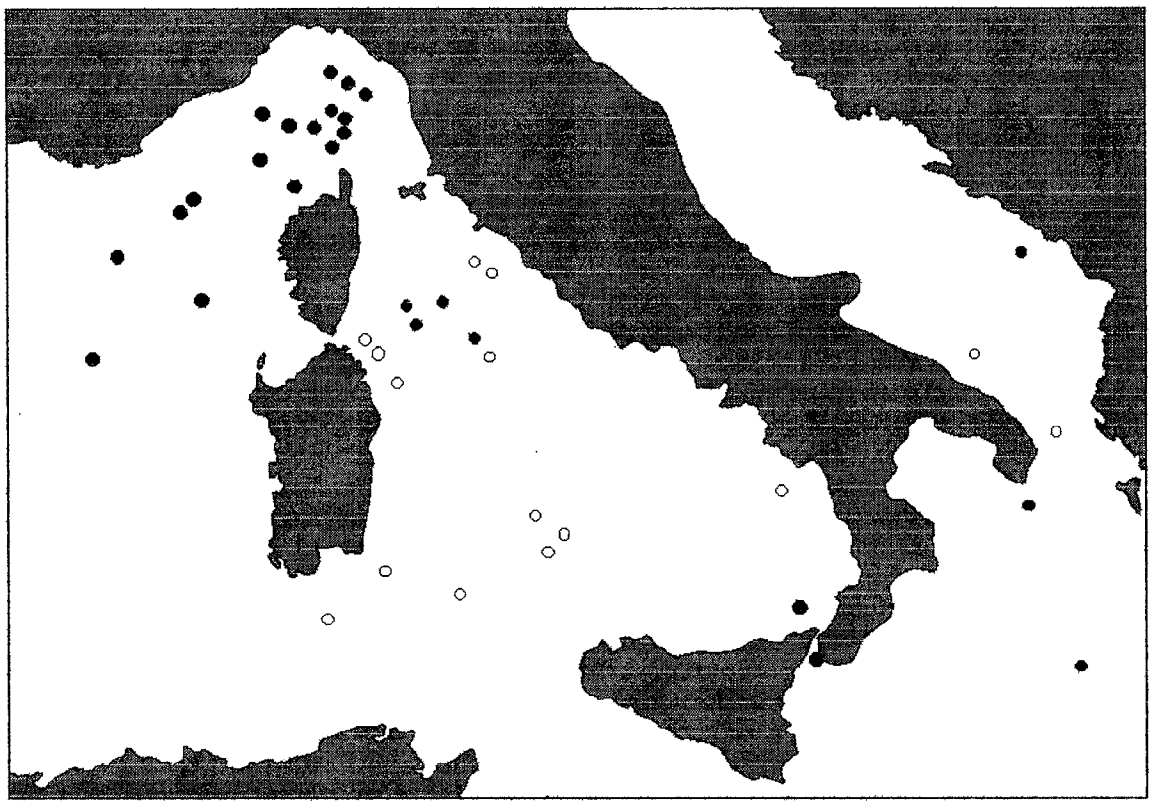

Fig. 1 - Fin whale sightings. O = before or on 31 May ● = after 31 May.

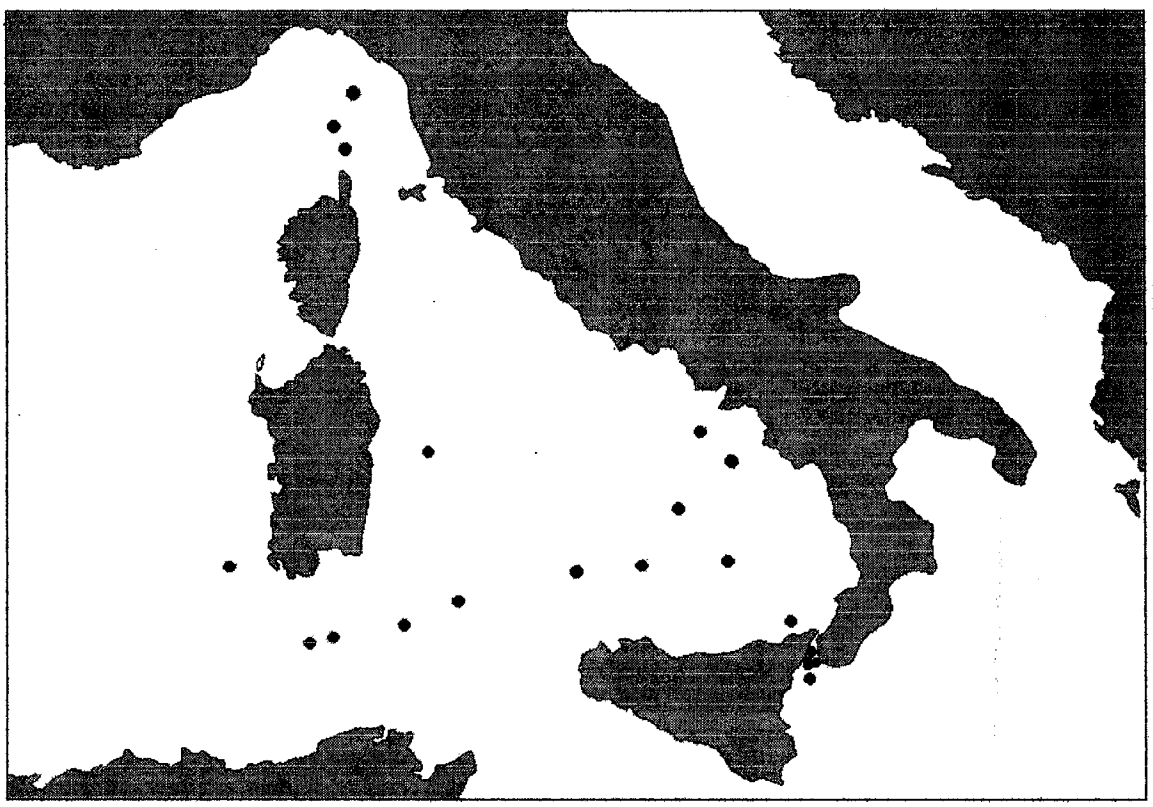

Fig. 2 - Sperm whale sightings.