

A Note on the Cetacean Incidental Catch in the Italian Driftnet Swordfish Fishery, 1986–1988¹

Giuseppe Notarbartolo-di-Sciara

Coordinator, Centro Studi Cetacei, Museo Civico di Storia Naturale,
corso Venezia 55, 20121 Milano, Italy.

ABSTRACT

Between 15 May 1986 and 31 December 1988 150 cetaceans, belonging to six species (sperm whales, *Physeter catodon*, Cuvier's beaked whales, *Ziphius cavirostris*, pilot whales, *Globicephala melas*, Risso's dolphins, *Grampus griseus*, bottlenose dolphins, *Tursiops truncatus* and striped dolphins, *Stenella coeruleoalba*) were recorded as having died in the driftnet swordfish industry in the seas adjacent to the Italian peninsula and islands. However, this is a substantial underestimate of the total cetacean by-catch; there is no organised monitoring of the incidental captures in this fishery and most catches go unreported or are concealed by fishermen.

INTRODUCTION

In recent years, the more efficient pelagic driftnets have been gradually replacing longlines in the Mediterranean fishery for swordfish, *Xiphias gladius*. Their higher cost was subsidised by the Italian government to stimulate reduction of trawling activities, considered to be particularly destructive of the marine environment. As a result, the Italian swordfish driftnet fishing fleet is rapidly expanding and may number as many as 700 vessels, each with an average net length around 20 km (A. Di Natale, pers. comm.). Swordfish are commercially captured off Italy in summer (Fig. 1). Early in the season the fishing activities are most intense in the south (around Sicily, in the lower Tyrrhenian Sea and in the Ionian Sea). By August and September most fishing is in the Ligurian Sea. Nets are usually set more than 12 n.miles offshore, and thus in international waters. The market for swordfish is particularly important in Italy; an unofficial estimate of the 1988 gross product is in excess of US \$150 million (A. Di Natale, pers. comm.).

INCIDENTAL CATCHES

Considerable numbers of large marine vertebrates, including pelagic sharks, rays, teleosts and cetaceans, are incidentally caught and killed by the pelagic driftnets of this fishery. For cetaceans, circumstantial evidence of this (driftnets or driftnet fragments on the stranded animals, skin abrasions and/or the tail neatly excised) is given in the national cetacean stranding record published yearly by the Centro Studi Cetacei (Anon., 1987; 1988; 1989). From the beginning of the record (15 May 1986) to the end of 1988, the total number of cetacean specimens examined thought to have been caught in fishing gear was 150 (Table 1).

A summary of the records is given in Table 1. A few specimens could be rescued alive and were released at sea. These included three striped dolphins in 1986 (Anon., 1987), two large male sperm whales in 1987 (Notarbartolo-di-Sciara, 1989), six sperm whales and four pilot whales in 1988 (Notarbartolo-di-Sciara, 1989; Podestà and Magnaghi, 1989). Four of the 11 sperm whales killed in 1987 consisted of two mother and calf pairs.

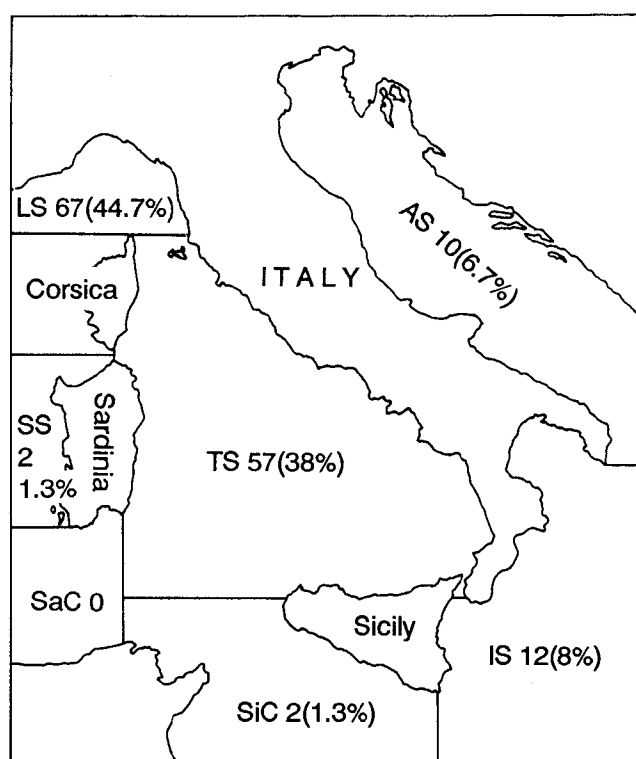


Fig. 1. Geographical distribution of cetacean incidental captures recorded in the seas surrounding Italy. LS = Ligurian Sea; TS = Tyrrhenian Sea; SS = Sardinian Sea; SaC = Sardinia Channel; SiC = Sicily Channel; IS = Ionian Sea; AS = Adriatic Sea. Figures represent the number of cetacean incidental captures recorded for each sea (1986–1988). Numbers in parentheses indicate percentages of the total.

DISCUSSION

These stranding reports do not allow an accurate assessment of the number of animals killed in this fishery to be made or even the relative proportions of the catches by species. An unknown number of animals killed are not reported: most dead cetaceans sink to the bottom when released from the nets and thus disappear; some are dismembered and used for bait; as cetaceans are protected in Italy, some are purposefully sunk by fishermen with rocks to avoid the risk of incurring legal charges.

¹ Contribution no. 14 from Centro Studi Cetacei.

A large fraction (50%) of the incidentally caught specimens examined in 1988 were recorded in the Ligurian Sea. This probably reflects the greater documenting effort in that region (Podestà and Magnaghi, 1989), rather than the likely true proportion of the total Italian catch. The use of pelagic driftnets is in fact more intense in southern Italy, and thus a relatively higher cetacean by-catch probably occurs there.

Table 1

Summary of cetacean specimens found along the Italian coasts (1986-1988) bearing circumstantial evidence of having been incidentally caught in fishing gear. Cetaceans rescued and released at sea are included. Numbers in parentheses indicate percentages of the total number of specimens found each year.

Species	1986	1987	1988	Total
Sperm whales	2	13	9	24
Cuvier's beaked whales		1	1	2
Pilot whales			10	10
Risso's dolphins			5	5
Bottlenose dolphins	1	4	8	13
Striped dolphins	12	17	39	68
Unidentified cetaceans		8*	20	28
Total caught in gillnets	15(27%)	43(21%)	92(41%)	150(30%)
Total examined	56	209	227	492

* All delphinids.

Similarly, the absolute value of the increasing percentage of incidentally caught cetaceans to the total record of strandings, rammings and incidental captures between 1986 and 1988 is a reflection of not only increased fishing effort but also improved observer accuracy. It does not seem unreasonable to assume, however, a by-catch of at least 10 cetaceans per boat per season. By even this conservative accounting, 7,000 or more cetaceans drown in fishing gear every year in the Italian seas. Unfortunately there is little information on the sizes of the Mediterranean cetacean populations and thus the effect of takes of this size on the populations is unknown.

However, since cetaceans in the Mediterranean also face several environmental threats (pollution, increased boat traffic, overfishing) there is considerable concern that such levels of kills may seriously deplete them. It is clearly important that a full scale study be undertaken to assess the impact of the swordfish industry on the pelagic environment. This should include accurate monitoring of the incidental capture of cetaceans and attempts to estimate even the approximate sizes of the cetacean populations involved. Appropriate regulations – such as setting maximum net lengths and geographical and seasonal fishing restrictions – could then be adopted to allow the fishery to continue without depleting the cetacean stocks.

ACKNOWLEDGEMENTS

I wish to thank: Steven Leatherwood, Marine Mammal Action Plan, United Nations Environmental Programme, P.O.B. 30552, Nairobi, Kenya; William F. Perrin, South West Fisheries Center, National Marine Fisheries Service, La Jolla, California 92037, USA; and Sidney Holt, Podere 'Il Falco', Acquaioli, 06062 Città della Pieve PG, Italy for their useful comments and suggestions. I am also grateful to Antonio Di Natale, Acquastudio S.r.l., via Trapani 6, 98100 Messina, Italy for providing unpublished information.

REFERENCES

- Anonymous. 1987. Cetacei spiaggiati lungo le coste italiane. I. Rendiconto 1986. *Atti. Soc. Ital. Sci. Nat. Mus. Civ. St. Nat. Milano* 128(3-4): 305-13.
- Anonymous. 1988. Cetacei spiaggiati lungo le coste italiane. II. Rendiconto 1987. *Atti. Soc. Ital. Sci. Nat. Mus. Civ. St. Nat. Milano* 129(4): 411-32.
- Anonymous. 1989. Cetacei spiaggiati lungo le coste italiane. III. Rendiconto 1988. *Atti. Soc. Ital. Sci. Nat. Mus. Civ. St. Nat. Milano*. 130 (21): 269-86.
- Notarbartolo-di-Sciara, G. 1989. Più amici per i cetacei italiani. *Airone* 95: 42-6.
- Podestà, M. and Magnaghi, L. 1989. Unusual number of cetacean by-catches in the Ligurian Sea. Proc. 3rd Meeting of the European Cetacean Society, La Rochelle, 24-26 February 1989.