

MARINE TURTLES, MAMMALS AND SEA BIRDS CAPTURED INCIDENTALLY BY THE SPANISH SURFACE LONGLINE FISHERIES IN THE MEDITERRANEAN SEA

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Abstract

The Spanish surface longline fishery in the Mediterranean target swordfish, bluefin tuna and albacore using appropriate gears according to the target species and year period. In 1999 and 2000 a total of 798 fishing operations of drifting longline fisheries were controlled by an onboard observers program. 2127 specimens of two species of marine turtles (*Caretta caretta* and *Dermochelys coriacea*), three species of marine mammals (*Stenella coeruleoalba*, *Grampus griseus* and *Ziphiidae* sp.) and four sea bird species (*Calinectris diomedea*, *Larus cachinans*, *L. fuscus* and *Morus bassanus*) were captured during fishing operations. Loggerhead turtle (*Caretta caretta*) presented the highest interaction with drifting longline (97% of incidental catches), mostly during summer-autumn seasons.

Keywords : Mediterranean; Fisheries effects; Conservation; Turtles tagging

Introduction

The Spanish fishing fleets in the Mediterranean include trawlers, purse seiners, longliners and an artisanal fleet fishing with a variety of gears. The surface longline fishery is officially formed by 73 annually licensed boats, which increase fishing effort during summer, the main abundance period for the target species. During the last decades the target species was swordfish (*Xiphias gladius*) (SWO gear), but the last years, a part of the fleet have changed the gears component (hooks size and number, fishing depth and fishing area, etc) to capture bluefin (*Thunnus thynnus*, BFT gear) or albacore (*Thunnus alalunga*, ALB gear) (1). The surface longliners capture protected species incidentally, mainly marine turtles (2, 3) Data on other protected species are scarce for Mediterranean Sea. Fisheries can affect the sea birds negatively causing an unwanted mortality but also the effect can be positive, increasing the sea bird populations as a direct effect of availability of discards from industrial fisheries (4). The Medmaravis Symposium (Benidorm, October 2000) supported the existence of some interactions between fisheries and sea bird in the Spanish Mediterranean area (5, 6) but also the lack of information from fisheries fishing in open sea, including surface longlines.

There is poor information on Spanish surface longlines and interaction with marine mammals. An EU project on direct fisheries effects in Western Mediterranean, showed marine mammal mortality in Western Mediterranean Sea due to incidental captures in driftnets close to Gibraltar Strait. Pelagic drifting nets are prohibited by Spanish authorities. A report of the Spanish Cethology Society showed an important number of marine mammals stranded along the Spanish Mediterranean coast, but details on direct relations between mortality and fisheries are uncertain.

Methodology

From 1999 to 2000 the Spanish onboard observer program was fulfilled in the Mediterranean. The main objective was to provide to the National Fisheries Authority with regular information on target species captured by the Spanish surface longlines, in order to implement the national and international regulations. During the same period, an EU Project on the incidence of the longlines on marine turtles give us the opportunity to increase the number of onboard observations to monitoring the Spanish fishing fleet at Western Mediterranean. The fishing area covered by both, national and EU Project include all western Mediterranean Sea, where Spanish fleet operate. To better use the investment, on board observers taking not only data related with target species, fishing areas, fishing operations but also information on non target species. Complementary forms and identification guides on non target species (sharks, turtles, mammals, sea birds) were provided to the observers after a training course at the Laboratory.

A total of 27 fishing vessels from 5 fishing ports (Aguilas, Carboneras, Cartagena, Garrucha and Motril) were used as platform for the observer Program, 11 vessels in 1999 and 16 in 2000.

Results

The most important incidence of the surface longlines affects marine turtles (n=2127), most of them were liberated hooked but alive. All the marine turtles captured were loggerhead turtle (*Caretta caretta*) except one leatherback (*Dermochelys coriacea*) each year. The onboard work included a tagging program of turtles taken onboard to study recapture events and ecology of population. 551 loggerhead turtles (*Caretta caretta*) were tagged. Three tagged loggerheads were recaptured by the fishermen hooked and two other stranded but alive.

Table 1 presents a summary of the total directly observed captures of marine turtles, sea mammals and sea birds during the observed period.

As showed Table 2, three species of cetaceans were captured, usually entangled with fishing line. Most of the marine mammals caught during

Table 1. Incidental observed captures of marine turtles, sea mammals and sea birds and fishing effort from 1999 to 2000.

Year	Effort (fishing sets)	Effort (hooks)	Marine turtles	Marine mammals	Sea Birds
1999	291	907.148	499	3	10
2000	507	1.303.649	1628	12	42
TOTAL	798	2.310.797	2.127	15	52

Table 2. Marine turtles, mammals and sea birds caught by drifting longline fisheries from 1999 to 2000 by type of gear.

Species	1999			2000			Total	%
	ALB	BFT	SWO	ALB	BFT	SWO		
Loggerhead turtle		293	205	61	391	1175	2125	98.90
Leatherback turtle		1	1			1	2	0.09
Cory's shearwater		5	1	3		6	15	0.68
Yellow-legged gull		3	1			20	24	1.09
Gannet		1				13	14	0.64
Striped dolphin		1	2			4	7	0.32
Risso's dolphin				2		5	7	0.32
Beaked whale						1	1	0.05

2000 fishing season were captured during summer and autumn season in an area from south Mallorca Island to Gata Cape. Striped dolphin (*Stenella coeruleoalba*) and Risso's dolphin (*Grampus griseus*) were the affected species. An unidentified beaked whale (*Ziphiidae*) was also found entangled in a longline.

Regarding sea birds, sea gulls (*Larus cachinans*, *L. fuscus*) and gannets (*Morus bassanus*) were captured close to shore in depths under 100 m. in the coastal area between 37°N and 38°N and in the Mallorca Islands coast. Manx shearwater (*Calinectris diomedea*) were incidentally caught in offshore waters.

Incidental catches of Spanish surface longline include 2 species of marine turtles, 3 species of cetaceans and 3 species of seabirds. The monitoring of fisheries will be necessary to assess possible long-term effects on populations and to comply with International Action Plans and conservation policy.

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