

FIRST DATA ON SEABIRD BY-CATCH FROM THE GREEK GILLNET AND LONG LINE FISHERY (IONIAN SEA, WESTERN GREECE)

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Introduction

The problem of seabird by-catch in commercial (mostly longline and gillnet) fisheries has been particularly acute in the southern oceans and has mainly affected various species of albatrosses and petrels. It is believed to be one of the factors leading to the population decrease of various seabird species, some of which face severe conservation problems. However, information on seabird mortality is less well known for European Union's marine ecosystems^[1].

In Mediterranean, species known to be implicated in incidental by-catch on fishing gears are Cory's, Balearic and Yelkouan shearwaters, Mediterranean shag, Audouin's and Yellow-legged gulls^[2]. Some of these species are long lived, characterized by naturally high levels of adult survival and late onset of breeding, a low reproductive rate and a long breeding cycle. Increased adult mortality in species with these life history traits may undermine the stability of the regional population in the long term^[3]. Therefore, there is an urgent need to assess the magnitude of the by-catch problem in the region and to promote adequate conservation measures to reduce the negative impacts on seabird species.

Study Area & Methods

The Ionian Sea (Western Greece) is a pelagic ecosystem of the eastern Mediterranean characterized by a group of large and small islands, as well as numerous rocky islets which host significant seabird colonies. Among the main human activities is intensive fishing.

A first effort to assess the actual extent, and the characteristics of accidental seabird trapping in the Ionian Sea, was undertaken from May to August 2009, within the framework of a LIFE-Nature project (LIFE07NAT/GR/000285).

Two to three observers were placed on vessels and on-board observations were implemented during setting and hauling operations, so as to check directly possible effects of two different fishing gears (**demersal longline and gillnet, Figures 1 & 2** respectively) on seabird mortality. The number of hooks by set varied between 200 and 400, and the respective number of net length varied between 0.2 and 3 km. Additionally, two specific protocols (By-catch on-board observations, and By-catch incidents data sheets) for the data collection were used in order to record the number of hooks set, the length and depth of the nets, the times of starting and ending setting and hauling operations, the number and species of trapped seabirds etc., whereas the fishing areas checked were marked using GPS (**Map1**).

Table 1. Numbers of seabirds attending operations by vessels in the Ionian Sea and frequency of setting and hauling occasions when a species was seen

Species	Numbers attending		Frequency of occurrence	
	n	Mean ± SD	n	%
Cory's shearwater	593	9.72 ± 21.63	61	69.31
Yellow-legged gull	27	3.86 ± 3.76	7	7.95
Yelkouan Shearwater	1	-	1	1.13

Note: The total number of setting and hauling operations were 88

Further project aims

- More intensive assessment of seabird by-catch mortality for the next two years by using on-board observations for a wider period of time (March to October)
- Distribution of questionnaires to local fishermen in collaboration with the regional Fisheries Departments of the Ionian Prefectures so as to complete the on-board data for by-catch incidents in the Ionian Sea.
- Evaluation of the significance of by-catch threat (in comparison with data regarding the breeding population and performance of specific seabird colonies in the Ionian Sea) as a prerequisite to propose and plan effective conservation actions to reduce the negative by-catch impacts on the target seabird species.



Figure 1. Set of 300 longline hooks, using as bait sardines (Strofades Island Complex, June 09)



Figure 2. Assessing seabird mortality from gillnet fishing (Paxoi Island, July 09)



Map1. Surveyed fishing areas for seabird by-catch in the Ionian Sea (May-August 2009)

Results & Discussion

A number of **88 setting and hauling operations (78 gillnet and 10 demersal longline sets)** were implemented, and a total length of **110 km of gillnets and 2,000 hooks of longline sets** were checked, covering a **total marine area of 2,500 km²**. Additionally, setting gears took place in different hours during the day, looking for possible variations on by-catch risk.

The first data obtained for **longline by-catch, showed no incidents of accidentally trapped seabirds and a bait estimate loss up to 5-10%. Bait loss occurred primarily around sunrise and late afternoon**, mainly by Cory's shearwaters and to a lesser extent by Yellow-legged gulls which were waiting for the baited hooks to be deployed, and then attempted to capture the bait (usually sardines or squid) from the hooks. Cory's shearwater was the most abundant species attending the vessels, followed by Yellow-legged gulls (**Table 1**). Furthermore, the accidental mortality imposed by gillnets set near breeding seabird colonies was checked when nets were removed. **A lack of entrapment in gillnets was recorded**, whereas a Yellow-legged gulls' presence as a result of food provision via fishery discards was observed.

References

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LIFE project partners

