

# FISHING EFFORT AND CATCHES IN THE MARINE PROTECTED AREA OF SCANDOLA AND ADJACENT AREAS (CORSICA, MEDITERRANEAN)

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## Abstract

The stability in the number of artisanal fishing boats and fishers, the relatively high yield (catch per unit effort ranging between 1.8 and 3.6 kg/100 m net) and the high commercial value of the targeted species, suggest that local fisheries are sustainable in the marine protected area of Scandola and adjacent areas.

**Keywords:** Fisheries, Marine Parks, Western Mediterranean

## Introduction

The Scandola Marine Protected Area (MPA) was set up in 1975 (west coast of Corsica, western Mediterranean Sea). It includes a no-take area (72 ha) and a partially protected area (928 ha, mean depth 45 m) where professional fishing is allowed, but where recreational fishing (angling and spear fishing) and diving are forbidden. A survey of the fishing effort and catches within the MPA and in adjacent areas (Gulf of Ghjirulata southwards, Gulf of Focolaria and Punta Scuglietti northwards) was started in 2000.

## Material and Methods

Fishing gear was plotted on maps, on the basis of their GPS (Global Positioning System) position, at key periods of the fishing season (spring, summer and autumn). The catches were measured, weighed and identified on board by scientists embarked thanks to the cooperation of the fishers.

Table 1. Fishing effort and catches in the MPA of Scandola and adjacent areas. Gear = 100-500 m net. Spring = April-May, summer = July, autumn = September-October. ww = wet weight. n = number of sampled gear. md = missing data. n = number of data, SD=standard deviation.

Season and date	Mean number of fishing boats/day (SD)	Mean number of gear/outing (SD)	Yield/boat/outing, spiny lobster: kg ww (SD)	Yield/boat/outing, fish: kg ww (SD)	Total yield/100 m net/outing: kg ww (SD) - n
Autumn 2000	7.0 (1.0)	22.8 (6.0)	md	md	md
Spring 2001	4.7 (1.4)	15.8 (5.3)	8.5 (5.8)	41.7 (27.7)	3.0 (4.0) - 34
Summer 2001	7.0 (0.9)	19.7 (4.6)	5.4 (5.1)	32.9 (15.4)	2.4 (2.0) - 29
Summer 2002	6.8 (2.1)	21.5 (6.8)	4.7 (3.9)	23.7 (27.1)	1.8 (2.1) - 58
Autumn 2002	5.8 (2.6)	14.1 (7.0)	md	md	md
Spring 2006	7.8 (1.5)	29.9 (11.4)	4.9 (6.3)	30.9 (26.0)	3.3 (2.9) - 67
Autumn 2006	5.1 (1.4)	19.3 (6.0)	4.5 (5.7)	31.7 (20.7)	2.2 (1.5) - 54
Autumn 2007	3.6 (1.8)	11.6 (7.8)	md	24.2 (17.6)	3.6 (6.6) - 32

## Results and discussion

At the study site, artisanal fisheries are characterized by seasonality (April to November) and small boats (11 m maximum) with only one fisherman onboard, using trammel nets and gill nets, targeting demersal and benthic fishes in spring and autumn, and spiny lobsters in summer. Catches are multispecific (61 species). The no-take area harbours relatively dense populations of protected species such as the teleost *Epinephelus marginatus* (grouper) and species of high commercial value such as the spiny lobster *Palinurus elephas*. Over the whole year, no increased fishing effort could be evidenced close to the limits of the no-take area. The fishing effort is higher near the shore, especially within the partially protected area in autumn when fishers are targeting *Mullus surmuletus* while spiny lobster fishing is banned, and in spring when they are targeting Sparids (e.g. *Dentex dentex*, *Spondyliosoma cantharus* and *Diplodus* spp.). The high commercial value of the spiny lobster was responsible for the summer seawards drift of the nets (near the 100 m depth line). In contrast with the general decline of the number of fishermen in Corsica and in other Mediterranean areas, the number of fishers and fishing boats has been stable in the study area over the past decades, in spite of increasing fishing effort (motor power and boat equipment). Overall, the yield

(catch per unit effort: 100 m net) was relatively high (Table 1) in comparison with other Mediterranean areas (e.g. 0.8-1.5 kg/100 m net/outing, Strait of Messina [1]). In addition, most fished species are of high commercial value [2]. These results suggest that local fisheries are sustainable.

The way in which the presence of the MPA and its management contribute to this sustainability, if they in fact do so, remains to be investigated. An increasing amount of data suggests that a positive role of the MPA constitutes a realistic hypothesis. In addition to contributing to our knowledge of artisanal fishery, the survey has encouraged co-operation between fishers and the MPA authority. Managers, as well as fishers, have become more aware that conservation objectives need not necessarily conflict with those of commercial exploitation, and may contribute to the sustainability of the fishery [2, 3].

## References

- 1 - Potoschi A., Battaglia P., Potoschi A. Jr and Rossi G., 2004. Rendimenti di pesca con reti "tramaglio" e "baldassone" su fondali invasi da *Caulerpa taxifolia* (Vahl) C. Agardh lungo le coste siciliane dello stretto di Messina. *Biol. Mar. Medit.*, 11: 607-611.
- 2 - Cadiou G., Boudouresque C.F., Bonhomme P. and Le Diréach L., 2009. The management of artisanal fishing within the Marine Protected Area of the Port-Cros National Park (northwest Mediterranean Sea): a success story? *ICES J. Mar. Sci.*, 66: 41-49.
- 3 - Boudouresque C.F., Cadiou G., Guerin B., Le Diréach L. and Robert P., 2004. Is there a negative interaction between biodiversity conservation and artisanal fishing in a marine protected area, the Port-Cros National Park (France, Mediterranean Sea)? *Sci. Rep. Port-Cros Natl. Park*, 20: 147-160.