

ARTISANAL FISHING IN THE PROXIMITY TO A ROCKY LITTORAL MARINE RESERVE IN THE NORTHWESTERN MEDITERRANEAN: MEDES ISLANDS

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Abstract

The fishing effort applied is low. Catches consist of most valued species and large-sized individuals. The creation of the reserve shifted the economic activity from fishing and agriculture to tourism.

Keywords: Marine Parks, Fisheries, Western Mediterranean

Introduction

The small archipelago of the Medes Islands consists of seven islets and a number of reefs situated scarcely a mile from the coast. The primary purpose of the marine reserve, created in 1983, is conservation, scientific research and ecotourism. Before 1983, trammel net, longline and spare fishing were common in the reserve. In addition, trawlers used to operate very close to the rocky grounds. The tourism-related activities, non-extractive uses, are by far the main economic activity in L'Estartit, the port whose fishermen traditionally used to fish in Medes Islands.

Methods

The Marine Reserve represents a total surface of 511 ha (emerged zone not included). It comprises an integral reserve (93 ha) and a buffer area (418 ha), where artisanal fishing can be practised. The geographical situation (center of Meda Gran Island is 42° 02' 55" N, 3° 13' 30" E). Only fishermen from the very close fishing port of L'Estartit are allowed to go fishing into Medes Islands. On board sampling (2003- 2005; 157 days at sea; 7 different vessels; 223 sets sampled; total weight sampled: 2600 kg; 107 species) allowed the identification of the fishing grounds, the characterization of the métiers (fishing gear, target species, seasonality) and corresponding catches (number and weight, by species); all fishes were measured (total length, mantle length, cm). Sampling allowed also the estimation of the discarded catch. Data for the winter months, when the fishing activity is at its lowest during the year because of weather conditions, were scarce, and thus, the characteristics of the métiers used in this season are not presented.

Results

Fishing can be practised 5 days a week, all year round, by the fishing boats based in L'Estartit. It is estimated that weather conditions allow go fishing around 120 days a year. In practice, the fishing effort applied is much lower. The fishing fleet is made up of 29 boats and the number of professional fishing licences is 15 (Generalitat de Catalunya, fleet census 2005). Of these, no more than ten go fishing all the year, and only three-four fishermen go routinely into the buffer zone. Trammel net and longline are the fishing gears allowed in the buffer area. A fisherman uses different métiers, thus, the characteristics of the vessels, by métier, are similar (length: 6 m; horsepower: 40 hp; age: 25 years). Most fishing activity concentrates in an area of around 4 km from the reserve border, mainly within 2 km from the reserve border. The seasonality regarding the target species and use of fishing gears is typically Mediterranean. Daily catches (total, landings and discards) by fishing gear are given in Table 1. The specific composition by métier, expressed as percentage of the total catch (species representing >5% of the total catch; winter data not included) was as follows: trammel net targeting *Mullus surmuletus* (*M. surmuletus* (27%), *M. cephalus* (23%), *P. acarne* (16%), *Diplodus sargus* (5%)); longline targeting *Sparus aurata* (*S. aurata* (80%), *Dicentrarchus labrax* (16%)); gillnet targeting *Pagellus erythrinus* (*P. erythrinus* (35%), *Merluccius merluccius* (11%), *Pagellus bogaraveo* (10%), *Scomber japonicus* (8%), *Myliobatis aquila* (6%)); gillnet targeting *M. merluccius* (*P. erythrinus* (29%), *M. merluccius* (22%), *Lophius piscatorius* (9%), *S. japonicus* (8%)); traps targeting *Octopus vulgaris* (*O. vulgaris* (58%), *Conger conger* (34%)). The two gillnet métiers were differentiated taking into account the fishing grounds. The size distributions of the target species correspond to fishes significantly larger than those caught by similar fishing gears in areas not affected by protection regulations (Fig. 1). The most discarded species was *Mugil cephalus*.

Tab. 1. Daily catch (kg) per vessel as estimated from the sampling on board, for the total catch, landings and discards. The number of sampling days is also indicated

	tot (kg)	comm(kg)	disc(kg)	fishing days
all gears com	16,5 ±20,8	14,7 ±19,7	1,8 ±4,2	150
gillnet	25,3 ±32,5	23,0 ±30,9	2,3 ±3,6	43
longline	15,2 ±13,2	13,9 ±12,7	1,3 ±4,6	44
trammel	12,3 ±11,7	10,3 ±10,2	2,0 ±4,6	54
trap	5,6 ±4,1	5,6 ±4,1	0,0 ±0,1	9

Discussion

Catches displaying the positive effects on fishing ([1], [2], [3]; this study) derived from the existence of the reserve (most valued species, large sizes), tourism-related activities drive the economic activity (for example, more than 60.000 scuba dives and around 200.000 tourists in cruises around Medes Islands per year).

The information collected on board on the fishing activity and resources exploited in the area around Medes Islands marine reserve can be taken as reference point to assess the evolution of these resources.

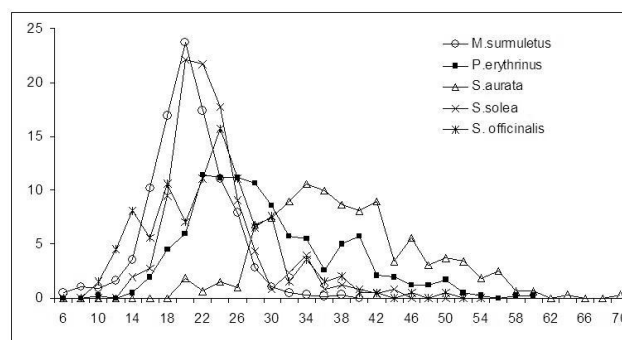


Fig. 1. Size distribution expressed in percentage (total length, mantle length, cm)

References

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