

# TRAMMEL NET CATCH SPECIES COMPOSITION IN CYCLADES WATERS (AEGEAN SEA, GREECE)

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## Abstract

In the present study, we compared the species composition of the trammel net catches (inner mesh sizes : 40, 48 and 56 mm, stretched) in Cyclades (off Naxos Island), using data from 41 experimental fishing trials conducted during 1999-2000. *Mullus surmuletus* and *Pagellus erythrinus* dominated the catches in terms of numbers and weights. Multivariate analysis revealed the formation of mesh-size/season groups reflecting to a large extent the seasonal effect.

**Keywords :** Aegean Sea, Cyclades Islands, Coastal management, Fisheries, Fish

## Introduction

Small-scale fisheries contribute significantly in terms of weight and value to the total Greek fishery (1). Yet, little quantitative information is available on various aspects of the Greek trammel net fisheries (2-4). In this report, we compared the catch species composition and overlap for different mesh sizes of trammel nets in the Cyclades (off Naxos Island).

## Materials and methods

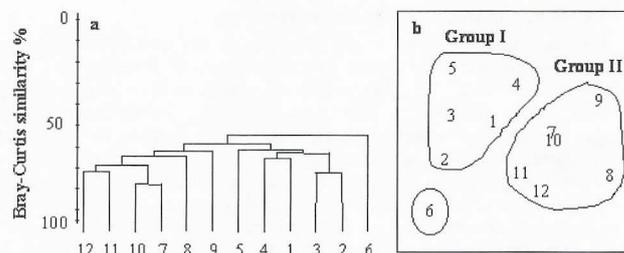
Forty-one fishing trials were carried out in the Cyclades (off Naxos Island, Aegean Sea), using trammel nets of 3 different mesh sizes (40, 48 and 56 mm, stretched length; 750 m per mesh size). Sampling took place seasonally from October 1999 to September 2000. For the study of gear overlap, matrices comprising the weights of all species per 1000 m net from each mesh size and season were constructed. From this matrix, triangular matrix of similarities between all pairs of meshes was computed, using the Bray-Curtis similarity index applied on logged data, and subjected to both clustering (group-average linking) and non-metric multidimensional scaling (MDS), using PRIMER(5).

## Results and discussion

Overall, all mesh sizes combined caught a total of 4677 specimens, belonging to 61 fish, 4 cephalopod and 3 crustacean species. The 40 mm trammel net catch was dominated, both in terms of numbers and weight, by *Mullus surmuletus* and *Pagellus erythrinus*, the 48 mm trammel catch by *Diplodus annularis* and *Mullus surmuletus*, numerically, and *Mullus surmuletus* and *Scorpaena porcus*, in terms of weight, and the 56 mm trammel catch by *Pagellus erythrinus* and *Scorpaena porcus*, both in terms of numbers and weight (Fig. 1).

Both cluster and MDS indicated that, at the 60% similarity level, the 12 mesh-size/season combinations fall into groups reflecting the seasonal effect (Fig. 2). Group I was dominated by *Mullus surmuletus* (24.1%), *Sepia officinalis* (7.7%) and *Octopus vulgaris* (7.7%), whereas Group II was dominated by *Pagellus erythrinus* (13.7%), *Scorpaena porcus* (13.2%) and *Mullus surmuletus* (11.3%).

The catch species composition in the study area differs from those in Kastellorizo waters – 44 mm trammel net catch : numerically domi-



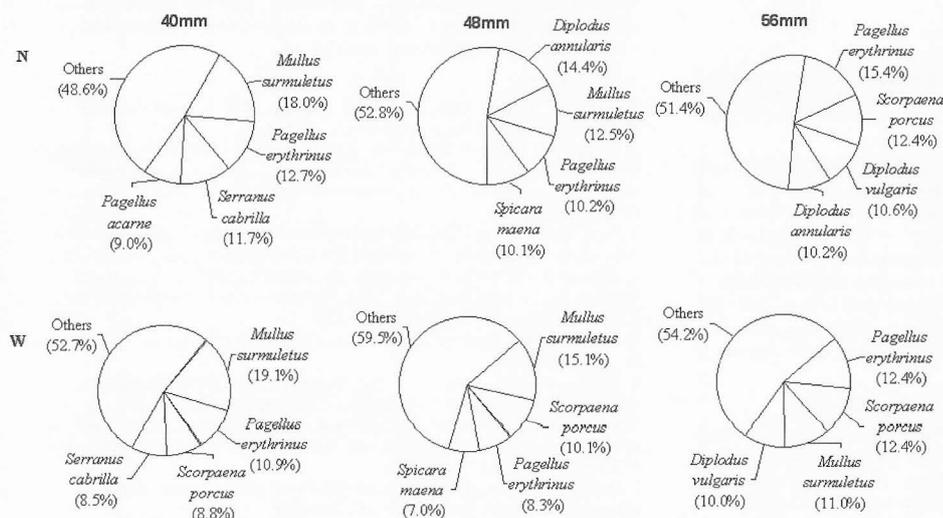
**Figure 2.** (a) Dendrogram for group-average clustering and (b) multidimensional scaling (MDS) of catch weights of all species per mesh size and seasonal combinations.

1=Aut. 40 mm; 2=Aut. 48 mm; 3=Aut. 56 mm; 4=Win. 40 mm; 5=Win. 48 mm; 6=Win. 56 mm; 7=Spr. 40 mm; 8=Spr. 48 mm; 9=Spr. 56 mm; 10=Sum. 40 mm; 11=Sum. 48 mm; and 12=Sum. 56 mm.

inated by *Spicara maena*, *Sparisoma cretense*, *Siganus luridus* and *Boops boops*; (3)–, and Kyparissiakos Gulf – 56 mm trammel net catch : numerically dominated by *Lithognathus mormyrus*, *Psetta maxima*, *Engraulis encrasicolus* and *Scorpaena scrofa*; by weight : *Lithognathus mormyrus*, *Psetta maxima*, *Sarpa salpa* and *Sphyaena sphyraena*; (4). In contrast, they are similar to those in South Evvoikos Gulf (combined trammel net catch of 38, 48 and 60 mm meshes : dominated in terms of numbers and weights by *Diplodus annularis*, *Pagellus erythrinus*, *Mullus barbatus* and *Mullus surmuletus*; 2).

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**Figure 1.** Catch species composition by number (N, upper) and weights (W, lower) of trammel nets by mesh size (40, 48 and 56 mm, stretched length).