

**NOTES ON DISTRIBUTION OF *SCYLIORHINUS STELLARIS* (LINNAEUS, 1758)
IN THE SOUTHERN TYRRHENIAN SEA**

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Abstract

The main distribution of *Scyliorhinus stellaris* during MEDITS and GRUND trawl surveys is analysed. Data are collected from five campaigns carried out in spring and autumn from 1994 to 1998 in the Tyrrhenian Sea, from Cape Suvero (Calabria) to Cape S. Vito (Sicily). The density and biomass indexes are reported by year, strata and areas.

Keywords: trawl surveys, biomass, Tyrrhenian Sea

Introduction

Scyliorhinus stellaris is an inshore and offshore shark of the Eastern Atlantic continental shelf, common in Mediterranean Sea, it is mainly distributed between 20 and 150 m of depth; occasionally it was found also over 400 m (1).

Specimens of *S. stellaris* were collected during 10 trawl surveys carried out in spring (MEDITS UE project) and autumn (GRUND National Program) during the years 1994-1998.

Observing the data coming from the different Operative Units (OU) both of MEDITS and GRUND, located all around the Mediterranean Sea as well as the Italian seas, it is evident that this species is rarely found (2, 3). Infact the presence of this species was recorded only in North Eastern Corsica, in Eastern Ligurian Sea, in Tyrrhenian Sea, in the Channel of Sicily, Croatian coasts and in Argosaronikos (2). Although the species is widespread in these areas, the catches are always very low with the exception of those coming from NE Adriatic Croatia and Thyrenian Sea (2). On this respect, the data related to Density and Biomass indexes of the area of the Southern Tyrrhenian Sea, studied by our OU, included from Capo Suvero (Calabria) to Capo S. Vito (Sicilia) are reported.

Material and Method

The data come from 5 MEDITS surveys, carried out amongst May and July and from 5 GRUND trawls carried out from September to October. The gears used has 20 and 36 mm of stretched mesh size, respectively for international and national project.

In the whole 357 hauls were carried out, according to a stratified random sampling method, in five bathymetrical strata included between 10 and 800 m of depth (4). Because in the first two strata (A:10-50 m and B: 50 – 100 m) no specimens of *S. stellaris* were found, only the hauls (244) carried out in the deepest strata were considered for this paper: 70 in stratum C (101-200 m), 86 in the stratum D (201-500 m) and 88 in the stratum E (501-800 m).

The mean biomass (kg/km²) and density (N/km²) indices per years, stratum and sector (Cochran, 1977) were calculated.

Results and discussion

In the whole studied area, the catches of *S. stellaris* were irregular during these five years. During springtime (MEDITS) the species was not caught at all in 1994 and 1996. The highest indexes both in weight and in number (Tab. 1) were recorded in 1998 with values of 5,54 kg/km² (CV: 58.07) and 45.63 N/km² (CV: 69.62). A trend during the years was observed for both indexes. As regard the distribution by different strata (Tab.2), the species showed the highest values always in stratum D (201-500m) with a peak in 1998, with 9.40 (kg/km²) and 87.87 (N/km²). It is worth underlining that only in 1998 the species was found with appreciable values (3.04 kg/km²; 18.18 N/km²) in the deepest stratum (501-800 m).

Tab.1 - Mean Abundance and Density indexes and relatives coefficients of variation of *Scyliorhinus stellaris*, during the years 1994-1998, in trawl surveys MEDITS and GRUND.

Year	MEDITS				GRUND			
	Kg/Km ²	CV	N/Km ²	CV	Kg/Km ²	CV	N/Km ²	CV
1994	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
1995	0,02	92,05	0,58	92,05	0,00	0,00	0,00	0,00
1996	0,00	0,00	0,00	0,00	1,52	83,13	3,09	56,22
1997	1,14	66,82	12,57	71,23	2,47	59,27	8,22	75,45
1998	5,54	58,07	45,63	69,62	1,80	71,66	10,03	70,01

Tab.2 - Mean Abundance and density indexes by stratum of *Scyliorhinus stellaris*, during the years 1994 – 1998 in trawl surveys MEDITS and GRUND.

YEAR	Depth (m)	MEDITS		GRUND	
		Kg/Km ²	N/Km ²	Kg/Km ²	N/Km ²
1995	101-200	0,00	0,00	0,00	0,00
	201-500	0,04	1,43	0,00	0,00
	501-800	0,00	0,00	0,00	0,00
1996	101-200	0,00	0,00	0,00	0,00
	201-500	0,00	0,00	4,29	8,73
	501-800	0,00	0,00	0,00	0,00
1997	101-200	0,00	0,00	0,68	1,95
	201-500	2,75	30,43	6,42	21,64
	501-800	0,00	0,00	0,00	0,00
1998	101-200	1,00	3,33	0,55	1,84
	201-500	9,40	87,87	4,64	26,72
	501-800	3,04	18,18	0,00	0,00

During the autumn (GRUND) the species was not caught in 1994 and 1995. The density index showed a trend since 1996 (3.09 N/km²; CV: 56.22) to 1998 (10.03 N/km²; CV: 70.01). Otherwise the abundance index was higher in 1997 (2.47 kg/km²; CV: 59.27) than in 1996 and in 1998. The bulk of the catch was recorded, also for this season, in the stratum 201-500 m; the highest values were recorded in 1997 and in 1998 for abundance index (6.42 kg/km²) and for density index (26.72 N/km²) respectively (Tab.2).

As regard the spatial distribution of *S. stellaris* throughout the studied area, the species was not present in the southern part, in the zone extended from C.pe Zafferano (PA) to C.pe San Vito (TP). The highest catches were generally recorded in the area comprised between C.pe Milazzo (ME) and C.pe Zafferano. This phenomena is probably due to the presence in this area of the Gulf of Patti interdicted to trawl inside the bathymetrical of 500 m.

Analysing the data here reported it is possible to ipotize that *S. stellaris* finds in this restricted Mediterranean area a favourable habitat both for juveniles and adults. Probably the species can reach the deepest part of the continental slope because of the nearness of the bathymetric strata which characterise some zones of the surveyed area.

On the basis of these results and considerations it should be interesting to analyse the interspecific relationship existing between *Scyliorhinus stellaris*, his preys and the environment in which it lives.

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