

# TROPHIC HABITS OF RED SCORPIONFISH *SCORPAENA SCROFA* (OSTEICHTHYES, SCORPAENIFORMES) IN THE CENTRAL WESTERN MEDITERRANEAN

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## Abstract

Feeding habits of *Scorpaena scrofa* in the Sardinian waters were analysed. The trophic spectrum of this commercial species was mainly composed of teleosts and crustaceans, in particular Decapoda Natantia, followed by Amphipoda and Decapoda Brachiura. The diet changed according to the sex and the size of the specimens.

**Keywords:** Diet, Western Mediterranean, Fish Behaviour

## Introduction

The red scorpionfish, *Scorpaena scrofa* (L., 1758), is distributed in the Eastern Atlantic and throughout the Mediterranean at depth of 0-370 m [1]. The knowledge about feeding habits of this commercial species is scarce, then the aim of this work is to provide information on the diet by examining specimens captured in the Sardinian waters.

## Materials and Methods

A total of 64 specimens, caught at depths from 14 to 119 m, were analysed. The stomachs were removed and preserved in 6% formaldehyde. Each prey item was identified to the lowest possible taxonomic level. The contribution of each food item to the diet was determined by diet indices: %Cv, %F, %N, %W, IRI [2]. The diet breadth was calculated using Levin's standardized index [3], and the intensity of feeding was determined by gastro-somatic index (IG, gut is expressed as percentage of body weight). Difference in diet composition by size (1: 0-11 cm; 2: 11-21 cm; 3: 21-32 cm) and sex were tested by chi-square test.

## Results and Discussion

A total of 13 different prey items, belonging to 9 major taxonomic groups, were identified (Table 1). Teleostea was the most important prey category in the diet followed by Crustacea, Mollusca and Tunicata. Among crustaceans the main items were Decapoda Natantia, followed by Amphipoda and Decapoda Brachiura. Stomatopoda, Euphausiacea and Isopoda were occasional prey.

Tab. 1. Trophic spectrum of *Scorpaena scrofa* in the Sardinian waters

Prey item	%F	%N	%W	IRI
<b>TELEOSTEA</b>	62,07	40,43	69,75	6838,74
Teleostea unid.	41,38	34,04	38,97	3021,19
<i>Cepola macrophthalmia</i>	3,45	2,13	19,55	74,74
<i>Mullus surmuletus</i>	3,45	2,13	7,33	32,61
<i>Diplodus annularis</i>	3,45	2,13	3,91	20,82
<b>CRUSTACEA</b>	55,17	55,32	13,08	3773,67
Crustacea unid.	10,34	14,89	2,08	175,61
<b>STOMATOPODA</b>	3,45	2,13	4,89	24,19
<i>Meiosquilla desmaresti</i>	3,45	2,13	4,89	24,19
<b>DECAPODA</b>	34,48	25,53	5,99	1086,82
Decapoda unid.	3,45	2,13	0,07	7,59
NATANTIA	24,14	17,02	1,03	435,63
Natantia unid.	17,24	10,64	0,64	194,37
<i>Processa</i> sp.	3,45	2,13	0,24	8,18
<i>Athanas nitescens</i>	3,45	4,26	0,15	15,18
BRACHIURA	6,90	6,38	4,89	77,72
<i>Macropipus arcuatus</i>	3,45	4,26	3,91	28,15
<i>Liocarcinus corrugatus</i>	3,45	2,13	0,98	10,71
<b>EUPHAUSIACEA</b>	3,45	2,13	0,10	7,69
<b>AMPHIPODA</b>	10,34	8,51	0,01	88,14
<b>ISOPODA</b>	3,45	2,13	0,01	7,37
<b>MOLLUSCA</b>	3,45	2,13	17,10	66,31
<i>Sepiolo</i> sp.	3,45	2,13	17,10	66,31
<b>TUNICATA</b>	3,45	2,13	0,07	7,56
Taliacea	3,45	2,13	0,07	7,56

Red scorpionfish selected preys according to the size of specimens (Fig. 1 A): Crustacea (IRI1=8041; IRI2=4326) and Teleostea (IRI1=4878; IRI2=10857) dominated the diet in the first and second size classes. The diet of the third size class was more heterogeneous and included Taliacea (IRI1=694) and Cephalopoda (IRI1=210); the importance of Teleostea in the diet increased (IRI1=7495), while the importance of Crustacea decreased (IRI1=1111). Crustaceans taxa changed according to size: Natantia (IRI1=2307) and Amphipoda (IRI1=659) were mainly eaten by youngest specimens whereas Stomatopoda (IRI1=347) and Isopoda (IRI1=209) by adults. Significant difference was found between males and females ( $p < 0.05$ ) (Fig. 1 B).

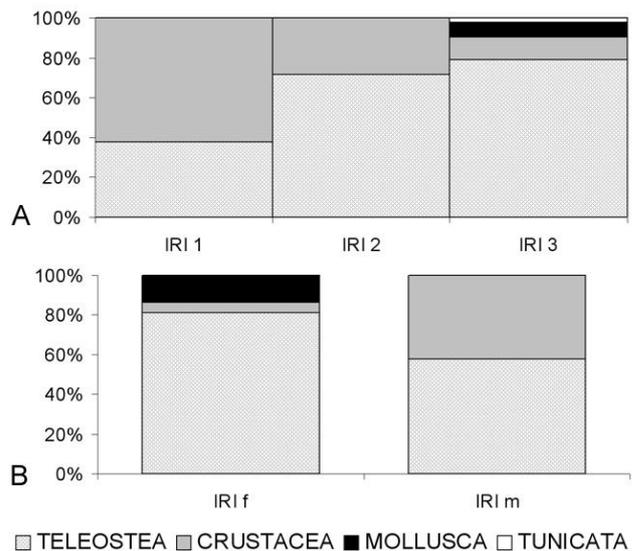


Fig. 1. Changes in diet (IRI) as a function of *Scorpaena scrofa* size classes (A) and sex (B)

Teleostea (IRIf=6851; IRIm=6961) was the most important prey in both sexes followed by Crustacea (IRI=5056) in males specimens. The proportion of empty stomachs (Cv=54.69) varied among sexes (males Cv=42.11; females Cv=73.91) and size classes (Cv1=51.85; Cv2=61.07; Cv3=37.50). The IG index value was slightly higher in males than in females (IGm=3,079; IGf=2,964) and increased from the smallest individuals to the largest (IG1=2,652; IG2=3,163; IG3=3,218). Dietary breadth as indicated by Levin's standardized index was 0.316.

The composition of diet suggested that *S. scrofa* was a benthophagous specialized species that preyed mainly on teleosts followed by crustaceans. Results showed that diet was similar to that described for the northern [4] and the southern Mediterranean Sea [5].

## References

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