FISH ASSEMBLAGES OF THE MOROCCAN COASTAL AREA OF AL HOCEIMA (MEDITERRANEAN SEA)

Molinari A., Salvati E., Tunesi L.*
ICRAM, Rome, Italy - a.molinari@icram.org

Abstract
The fish assemblage of the marine coastal area of the Al Hoceima National Park has been studied in the framework of a research program for the elaboration of the zoning proposal of the marine park. Collected data show the presence of rich and well diversified assemblages, characterised by a general dominance of small and medium sized specimens.

Keywords: Visual census, Marine Parks, Alboran Sea

Introduction

In the framework of the MedMPA project (regional project for the development of Marine and coastal Protected Areas in the Mediterranean region), financially supported by the European commission and coordinated by the Regional Activity Centre for Specially Protected Areas (RAC/SPA-Tunis), ICRAM has been charged with the scientific coordination of the study of the Al Hoceima National Park in Morocco.

Considering the relevance of fish as one of the most important components through which the effects of protection become evident in marine parks [1-3], and the importance of conceiving management measures for fishery and scuba diving activities [4], two surveys were carried out to characterise the coastal fish assemblages in the coastal area applying visual census techniques.

Material and Methods

The coastline of the Moroccan National Park of Al Hoceima interests about 47 km of Mediterranean coast, characterised by rocky impervious cliffs. The sampling activity was organised subdividing the coastal area into 5 sub-homogeneous coastal units (CU) (Fig. 1), identified on the basis of the main geomorphological features.

Scuba diving paths of 15 minutes were carried out in summer 2002 and 2003 along transects based on four sampling depth ranges (0-3; 4-7; 12-16; 24-30m), in order to acquire semi quantitative data on abundance and size class composition [5]. At least 3 transects were planned perCU. The main sea bottom typologies for each path were registered. A Chi-square test was applied to compare the size class composition recorded in the five considered CUs.

Fig. 1. Study area: the eastward (E) and westward (W) borders of the Al Hoceima National Park are shown. The 5 identified coastal units (I-V) are highlighted.

Results

The low slope encountered on certain transects sometimes did not allow to reach the 12-16 and the 24-30 m depth ranges. On the whole, 52 paths allowed to identify 69 species (10 Eastern Atlantic and South Mediterranean). Sparids, Labrids and Serranids were the most represented families (15, 14 and 8 species respectively).

Only 17 species occurred in all five CUs while another 17 were each censed only in one CU. This may be due specific characteristics like crypticity (C.conger, P.phycis, S.notata, S.acus), and rarity (L.bergylta, S.cretense, E.aeneus, E.marginatus, P.auriga, S.aurata, *T.nobiliana) or because they are associated to soft bottoms (B.podas, Callionymus sp., Gobius sp., S.cinereus, P.erythrinus). The higher* number of species were recorded in the costal unit IV (48). Highest species richness were recorded at 0-3 m and 4-7 m (47 species).

Excluding CU I, which is dominated by small specimens (65.8%), and significantly different from the others (chi-square test, $p<0.001$), the fish assemblage of the marine park was characterised by a general co-dominance of medium sized (from 43.9% to 56.0%) and small specimens (from 33.7% to 43.3%). The large size class is generally less represented (from 8.9% to 15.0%). Taking into account only the first depth range, the I, III and IV CUs were characterised by a high percentage of small specimens (higher than 60%). The higher percentages of large specimens were recorded in the deeper range (24-30 m) in the II and III CUs (23.6% and 24.3% respectively).

Table 1. Species recorded in the five coastal units identified along the study area. (•)) Eastern Atlantic and South Mediterranean species.

Habitat	Species	CU I CU II CU III CU IV CU V
Serranidae	Serranus cabrilla	I, II, III, IV, V
Serranidae	Serranus scriba	All
Serranidae	Epinephelus marginatus (•)	IV
Serranidae	Epinephelus costae (•)	II, III
Serranidae	Epinephelus caninus	I, II
Serranidae	Epinephelus aeneus (•)	II, III, IV
Serranidae	Epinephelus guaza	IV
Serranidae	Epinephelus marginatus (•)	I, II, IV
Serranidae	Epinephelus costae (•)	II, III
Serranidae	Epinephelus caninus	I, II
Serranidae	Epinephelus aeneus	II, III, IV
Serranidae	Epinephelus guaza	IV
Serranidae	Epinephelus marginatus (•)	IV
Serranidae	Epinephelus costae (•)	II, III
Serranidae	Epinephelus caninus	I