

ON THE PRESENCE OF *ENSIS SILIQUA MINOR* (BIVALVIA : SOLENOIDEA) ALONG THE SOUTHERN COASTS OF SICILY (MEDITERRANEAN).

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Abstract

During an experimental survey of the Southern coasts of Sicily soft bottoms, carried out by hauling a "dry" dredge regularly monitored by scuba divers, the presence of Razor shell specimens was observed. The almost totality of the sample was represented by *Ensis siliqua minor* specimens caught in 51 stations.

Keywords : Bivalves, Sicilian Channel, Mediterranean

Introduction

The small scale fisheries of the Sicily are suffering a general decline in the traditional exploited stocks, such as bony fish and crustaceans.

In order to figure out alternative resources, a program was launched in 1996 by the Regione Siciliana with the aim of evaluating the abundance of natural bivalves stocks inhabiting the soft bottoms along the coastal strip of the Southern coasts of Sicily (1).

During this research, the presence of Razor shell specimens (*Ensis siliqua minor* L., 1758) was observed, with other benthic species. Moreover the morphometry of the collected *E. siliqua minor* specimens is reported.

The distribution area of the Razor shell along the Southern coasts of Sicily was derived by integrating the specific underwater observations. These information could be, in fact, useful for any future assessment by using more specific gear, such the hydraulic dredge.

Materials and methods

The study area, extended from 0 to 10 m of depth from Capo Granitola to Capo Scalambri (fig.1). Overall 51 stations were carried on by hauling a "dry" dredge (11 mm mesh side in the bag) regularly monitored by scuba divers, from September to November 1996.

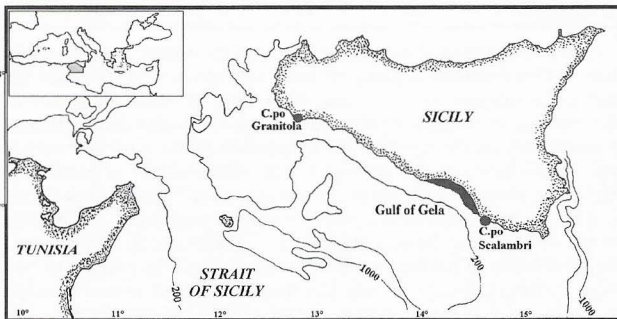


Figure 1 : Study area. The dark zone indicates the main occurrence area for *Ensis siliqua minor*.

Sediment samples, collected by divers, were used for granulometric analysis (2); the mean size values (Mz) were expressed as $\Phi = -\log_2 \frac{\text{Mz}}{1 \text{ mm}}$. The specimens were measured (width, height). The bionomic significance according to Pérès & Picard (3), was attributed to all the associated benthic species.

Results

Overall 83 specimens of *Ensis siliqua minor* were found in 51 stations, mainly located in the eastern sector (Gulf of Gela) of the sampled area, from 1.6 to 7 m of depth.

The underwater observations and the analysis of the sediment samples showed *E. siliqua minor* occurred on fine and very fine well classed sand ($1.69 < M_z < 3.35 \Phi$).

Main associated species were the bivalves *Tellina tenuis*, *Tellina fabula*, *Donax trunculus*, *Donax venustus*, *Mactra stultorum*, the echinoid *Echinocardium cordatum*, the polichaetes *Owenia fusiformis*, *Onuphis eremita*, *Stigalion mathildae* and decapod crustaceans *Diogenes pugilator* and *Liocarcinus vernalis*, all characteristic species of the Biocoenosis of Fine Well Sorted Sand (SFBC) (3).

The morphometry values (width, height) were included between 5.2 and 9.9 cm, 0.6 and 1.5 cm, respectively.

Discussion and conclusion

Considering the obtained results regarding the associated benthic species, the granulometric and sedimentological features, as well as underwater observations, it is possible to define the environment in which *E. siliqua minor* was detected as SFBC biocoenosis. Infact razor shells are burrowing (till 20 cm in depth) bivalves which occur on fine and very fine coastal sandy bottoms mainly between 2-4 m of depth. Moreover this species is exclusive characteristic of SFBC biocoenosis (3).

Razor shell (mainly *Ensis siliqua minor*) represent a very sought after bivalve in Italy (4; 5) and local beds are exploited even at low density (6).

In the specific case, it is not possible to evaluate the real abundance of the stock, given the poor efficiency of the dredge employed. Most of the specimens, in fact, were able to escape from the bottom panel of meshes by quick movement of the "foot", indicating that the consistence of the population is higher than that revealed by the retained catch.

With regard to Italian seas, routine monitoring programs have pointed out the wide year-by-year and area-by-area variability in the abundance of both target and non target bivalve species, and the periodic occurrence of catastrophic mortality with the almost total disappearance of local beds and successive recovery (7; 5). A similar phenomenon was recently detected in a Tyrrhenian Razor shell population (8).

Given that some period of higher abundance cannot be excluded *a priori*, the commercial value of *Ensis siliqua minor* might justify the exploitation of beds even at low density (the minimum profitable density was estimated at 10 g/m²) (6).

Present results do suggest a more consistent presence of Razor shells in the investigated area, also confirmed by underwater observations as well as by edaphic and bionomic features of the bottom, although sampling with a specific dredge (for example, longer teeth and finer mesh) will be necessary to check the usefulness for the Southern Sicilian small scale fisheries.

References

1. Ragonese S., Riggio S., Chemello R., Rinelli P., Badalamenti F., 1999. Evaluation of bivalves of the southern Sicily (Mediterranean Sea). Proceeding of the Medcoast 99-Emecs 99 Joint Conference, 9-12 November, Antalya, Turkey.
2. Buchanan J.B. and Kain J.M., 1971. Measurements of the physical and chemical environment. pp. 1-334. In: Holme & McIntyre (eds.), Methods for the study of marine benthos. Oxford and Edinburgh Press.
3. Pérès J.M. and Picard J., 1964. Nouveau Manuel de Bionomie Benthique de la Mer Méditerranée. *Réc. Trav. Stat. Mar. Endoume XXXI*, 47 : 1-137.
4. Frogliani C., 1990. Studio dell'efficienza e degli effetti delle draghe idrauliche sulle comunità bentoniche. Relazione Finale, MMM, Roma, Italia, 1-47.
5. Cirsepe, 1996. Risorsa Molluschi, 1-86., MRAAF, Roma, Italia.
6. Costa C., Bianchini M.L., Ceccarelli P., Orecchia P., Rambaldi E., Volterra L., 1987. Indagine sui molluschi bivalvi di interesse commerciale (Telline, Cannolicchi e Vongole) delle coste della Toscana, del Lazio e della Campania. 1985-1987. *Quaderni Ist. Idrobiol. Acquacultura Brunelli*, 7 : 3-58.
7. Frogliani C., 1989. Clam fisheries with hydraulic dredges in the Adriatic Sea. In: J.F. Caddy (ed.), Marine Invertebrates Fisheries: Their Assessment and Management: Wiley - Interscience Publication (FAO), 752 : 507-24.
8. Mariani A., Maccarone A., Mamo, R., Dell'Aquila M., Fezzardi D., Cerasi A., 1998. Studio sulla biologia e distribuzione del cannolicchio (*Ensis siliqua minor*) nei compartimenti marittimi di Roma, Gaeta, Napoli e Salerno. *Biol. Mar. Medit.*, 5(3) : 457-462.