DISTRIBUTION AND BIOLOGY INFORMATIONS ABOUT SEPIOLIDAE (MOLLUSCA, CEPHALOPODA) OF THE SOUTHERN TYRRHENIAN SEA (CENTRAL MEDITERRANEAN)

D. Giordano *, A. Profeta , L. Pirrera , A. Perdichizzi , F. Perdichizzi , B. Busalacchi
Institute for the coastal marine environmental (IAMC) - National Council of Research CNRSpianata S. Raineri,86 - 98122 Messina Italy - daniela.giordano@iamc.cnr.it

Abstract
This note provides data on sepiolid distribution in the Southern Tyrrhenian Sea in which the Sepiolidae have an important commercial value. All three sepiolid subfamilies (Sepiolinae, Heteroteuthinae and Rossiinae) are represented in the Southern Tyrrhenian Sea
Keywords : Cephalopods, Trawl Surveys, Tyrrhenian Sea.

The diversity of sepiolid species is particularly rich in the Mediterranean Sea. A lot of systematic studies [1-2], faunistic [3-4] life cycle [5] and behaviour have been carried out on sepiolis species in the Mediterranean.
Up to now 16 sepiolid species have been listed in the Mediterranean Sea [6-7], amongst these 12 species have been found in the lower Tyrrhenian Sea [8-9].
The data come from ten years of bottom trawl surveys (1994-2004) on the evaluation of demersal resources within the area comprised between Suvero Cape (Calabrian side) and San Vito Cape (Sicilian side) along the Italian coasts (Southern Tyrrhenian Sea).
Material was frozen on board and then fixed in 4% buffered formalin in the laboratory. The identified species were *Sepiola rondeletii* (Leach, 1917), *Sepiola intermedia* (Naef, 1912), *Sepiola ligulata* (Naef, 1912), *Sepiola robusta* (Naef, 1912), *Sepiola affinis* (Naef, 1912), *Sepietta oweniana* (Orbigny, 1941), *Sepietta neglecta* (Naef, 1916), *Sepietta obscura* (Naef, 1916), *Rossia macrosoma* (Delle Chiaje, 1830) *Neorossia caroli* (Joubin, 1902), *Heteroteuthis dispar* (Ruppel, 1844) and *Rondeletiola minor* (Naef, 1912) . The identification key was based for the males on the observing of the hectocotylized arm and for the females on the bursa copulatrix characteristics.
A total of 1963 individuals belonging to twelve sepiolid species were collected and 1555 of these were identified. *Sepietta oweniana* (720 specimens), *Rossia macrosoma* (293 specimens), *Rondeletiola minor* (249 specimens) and *Sepiola rondeleti* (156 specimens) were the most common species encountered.
Only one specimens of *Sepiola ligulata* (mature female of 13 mm ML), *Sepiola intermedia* (mature male of 15mm of ML) and *Sepiola robusta* (mature male of 16 mm of ML) were collected between 180 and 260 m of depth. The more coastal species was *Sepietta obscura* (26 specimens), that was caught from 50 to 100 m of depth; the size ranged for males between 13 and 19 mm ML and for females between 12 to 24 mm ML. Only four specimens of *Sepietta neglecta* were found on the continental shelf (50-100 m), three were mature males measuring 12,12.5 and 14 mm ML respectively and one was mature female (15 mm ML).
Sepiola affinis (32 specimens), *Heteroteuthis dispar* (15 specimens) and *Neorossia caroli* (57 specimens) were found only in the continental slope, in particular the bathyal range were 200-500 m for *Sepiola affinis* and 500-800 m for *Heteroteuthis dispar, Neorossia caroli* and *Rossia macrosoma.* The mantle length ranged from 18 to 20 mm (males) and 19 to 25 (females) for *Sepiola affinis* and from 11 to 16 mm (males) and 16-20 mm (females) for *Heteroteuthis dispar* .
The most abundant species was *Sepietta oweniana.* A total of 720 specimens was taken during twenty trawl surveys (159 in spring and 561 in autumn). The DML size ranging from 11 to 34 mm for females and 12 to 31 mm DML for males while the mean total weight ranging from 1.67 to 8.86 g. Mature females with big eggs (ovary weight between 0.05 and 0.058 g; diameter eggs between 2 and 3.5 mm) were collected.The bursa copulatrix dimension varied from 3 to 16 mm and 0.011 to 0.899 g. For males both immature and mature specimens were found; the spermatophoric complex weight ranging from 0.025 and 0.382 g. This study represent a preliminary note on the presence, distribution and biology of the Sepiolid in the study area.

References

1 - Naef A., 1923. Die Cephalopoden. In: Fauna und Flora Gulf Neapel, 35. Smithsonian Institution, Washington, pp 917.
2 - Bello G., 1995. A key for the identification of the Mediterranean Sepiolids (Mollusca: Cephalopoda). *Bulletin de l'Institut océanographique*, Monaco, n°special 16: 41-55.
3 - Knudsen J., 1981. Three Sepiolidae new to the Eastern Mediterranean (Mollusca : Cephalopoda). *Argamon Israel Journal of Malacology*, 7:45-50.
4 - Belcari P., Biagi F. and Sarto P., 1989. Sepiolinae (Mollusca, Cephalopoda) del Mar Tirreno Settentrionale. *Atti Soc. Tosc. Sc. Nat. Mem*., 96 :207-218
5 - Boletzky S., Boletzky M.V., Froesch D. and Gaetzy V.,1971. Laboratory rearing of Sepiolinae (Mollusca, Cephalopoda). *Mar. Biol*., 8: 82-87.
6 - Bello G., 1986. Catalogo dei Molluschi Cefalopodi viventi nel Mediterraneo. *Boll. Malacologico*, 22 (9-12):197-214.
7 - Mangold K. and Boletzky S.V., 1987. Céphaolopodes . *In*: W. Fischer, M.L. Bauchot, & M. Schneider (eds.), Fiches FAO d'identification pour les besoins de la pêche. (Révision 1). Méditerranée et Mer Noire. Zone de péche 37. FAO, Rome. Vol.1 :633-714.
8 - Wurtz M., Matricardi G. and Repetto N.,1995. Sepiolidae (Mollusca, Cephalopoda) from the lower Tyrrhenian Sea, Central Mediterranean. *Bulletin de l'Institut océanographique*, Monaco, n°special 16: 35-39.
9 - Giordano D. and Carbonara P., 1999. Nota sulla distribuzione di molluschi cefalopodi nel Tirreno centro-meridionale. *Biol. Mar. Medit*. 6 (1):573-575