DEEP-WATER CEPHALOPODS FROM GFCM GEOGRAPHICAL SUB-AREA 15 (CENTRAL MEDITERRANEAN).

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Abstract
The cephalopod fauna of the circalittoral waters around the Maltese Islands has not been systematically studied to date. A list of the species collected during MEDITS surveys, made in General Fisheries Commission for the Mediterranean's Geographical Sub-area 15 between 2005 and 2012, is presented. Of the 27 cephalopod species recorded, 10 are new records for Maltese waters, bringing the total number of cephalopods recorded from the area to 37, representing about 56% of the cephalopod species known from the Mediterranean.

Keywords: Sicily Channel, Cephalopods, Biodiversity, Biogeography, Trawl surveys

Introduction
Cephalopods are important both for fisheries as well as ecologically. In fisheries, they are targeted for human consumption, as food for ranged tuna and as bait; they are also caught as by-catch. Cephalopods are known to be preyed upon by many marine species, including commercially important ones [1]. An inventory of cephalopod species recorded from the Maltese Islands exists [2, 3], however, this is not exhaustive as it is based on non-systematic sampling. For example, species which are frequently recorded during MEDITS trawl surveys, which have been carried out in Maltese waters since 2002, are not included, or else are reported as single records. Here we present a list of the species collected during MEDITS surveys [4] made in the General Fisheries Commission for the Mediterranean's Geographical Sub-area 15 [GSA 15] between 2005 and 2012.

Methods
All cephalopods from 358 hauls made in 82 sampling stations (Fig. 1) within the GFCM's GSA 15 at depths between 45 m and 810 m were identified to species level, based on morphology.

Results and Discussion
The species recorded in the MEDITS trawls are listed below. Also included are species reported from the Maltese Islands but not recorded during the present study (in square brackets) such as to provide an updated inventory of the cephalopod species of Maltese waters.

Argonautidae: [*Argonauta argo*]; **Octopodidae:** *Bathypolypus sponsalis*, [*Callistoctopus macropus*], *Eledone cirrhosa*, *E. moschata*, *Macrotritopus defilippi*, *Octopus salutii*, *O. vulgaris*, *Pteroctopus tetracirrhus*, *Scaeurgus unicirrhus*; **Ocythoidae:** [*Ocythoe tuberculata*]; **Tremoctopodidae:** [*Tremoctopus violaceus*]; **Sepiidae:** *Sepia elegans*, *S. officinalis*, *S. orbignyana*; **Sepiolidae:** *Neorossia caroli*, *Rossia macrosoma*, *Sepietta neglecta*, *S. obscura*, *S. oweniana*, [*Sepiola atlantica*], [*S. aurantiaca*], [*S. intermedia*], [*S. ligulata*], *S. robusta*, [*S. rondeletii*]; **Enoploteuthidae:** *Abralia veranyi*; **Histioteuthidae:** *Histioteuthis bonnellii*, *H. reversa*; **Loliginidae:** *Alloteuthis* sp., *Loligo forbesii*, *L. vulgari*; **Ommastrephidae:** *Illex coindetii*, *Todarodes sagittatus*, *Todaropsis eblanae*; **Pyroteuthidae:** *Pyroteuthis margaritifera*; **Thysanoteuthidae:** [*Thysanoteuthis rhombus*].

Of the 27 cephalopod species recorded in the present study, eight are completely new records from Maltese and surrounding waters: *Abralia veranyi*, *Loligo forbesii*, *Bathypolypus sponsalis*, *Pteroctopus tetracirrhus*, *Neorossia caroli*, *Pyroteuthis margaritifera*, *Sepietta neglecta* and *S. obscura*; two others, *Histioteuthis bonnellii* and *H. reversa*, had been recorded previously [5] but not published. It is not possible to distinguish between *Alloteuthis media* and *A. subulata* on morphological features alone [6], so the species present in the MEDITS samples is for the present listed as *Alloteuthis* sp. in the list above.

Together with an additional 10 previously recorded species that were not found during the present study, the number of cephalopods known from Maltese waters is now 37 (excluding *Spirula spirula* only known from a single beached shell collected in 1979 [4]), representing 56% of the Mediterranean cephalopods [6]. The species previously recorded in Maltese waters but not observed during the present study are pelagic species, or distributed in shallow waters and thus not sampled during MEDITS surveys, or are very rare.

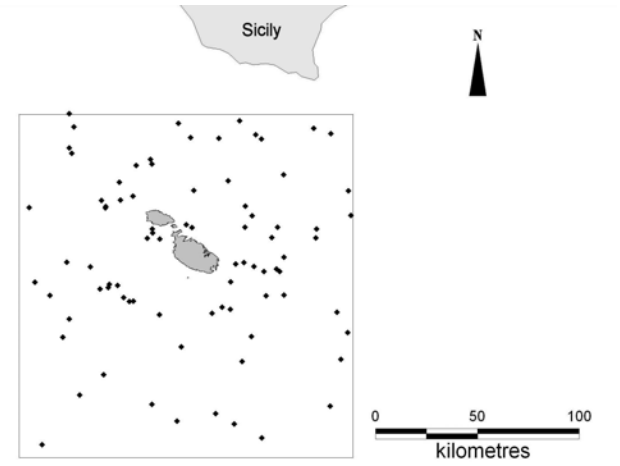

Fig. 1.
Map of the GFCM's GSA 15 (rectangle) showing the 82 sampling stations (dots) where trawls were made.

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