IS THE EASTERN MEDITERRANEAN A DEEP-SEA DESERT?

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Abstract

A study of deep sea (1000-1500 m) fish conducted off the northern coast of Israel added new data. Though extremely sparse, the number of deep-water fish species known from the Levant increased from 8 to 39 (*vs.* 59 in the entire Mediterranean). Our findings suggest that the ichthyofaunal richness is correlated with the intensity of research. Interestingly, ca. 20 species are known from depths greater than reported from the western Mediterranean.

Keywords : Bathyal, Biodiversity, Deep Sea Ecology, Fishes.

The Levantine Sea at the easternmost Mediterranean is isolated from the deep Atlantic and western Mediterranean waters by the shallow Gibraltar Straits and the Siculo-tunisian sill. The Levantine deep waters are ultra-oligotrophic and distinguished by temperature values that are higher than in the rest of the sea.

Tab. 1. List of deep sea fish species known from the Levant (* collected during the present research).

Family	Species
Bythitidae	*Cataetyx laticeps* Koefoed, 1927*
Centrophoridae	*Centrophorus granulosus* (Schneider, 1801)*
Chimaeridae	*Chimaera monstrosa* Linnaeus, 1758*
Cynoglossidae	*Symphurus ligulatus* Cocco, 1844*
Dalatiidae	*Etmopterus spinax* (Linnaeus, 1758)*
Gonostomatidae	*Cyclothone pygmaea* Jespersen & Tåning, 1926*
Heterenchelyidae	*Panturichthys fowleri* (Ben-Tuvia, 1953)*
Hexanchidae	*Hexanchus griseus* (Bonnaterre, 1788)*
Ipnopidae	*Bathypterois mediterraneus* Bauchot, 1962*
Macrouridae	*Coelorhynchus coelorhynchus* (Risso, 1810)*
Macrouridae	*Coelorhynchus labiatus* (Koehler, 1896)*
Macrouridae	*Coryphaenoides guentheri* (Vaillant, 1888)*
Macrouridae	*Hymenocephalus italicus* Giglioli, 1884
Macrouridae	*Nezumia sclerorhynchus* (Valenciennes, 1838)*
Myctophidae	*Ceratoscopelus maderensis* (Lowe, 1839)
Myctophidae	*Diaphus holti* Taning, 1918*
Myctophidae	*Diaphus rafinesquei* (Cocco, 1838)*
Myctophidae	*Electrona rissoi* (Cocco, 1829)*
Myctophidae	*Gonichthys coccoi* Cocco, 1829
Myctophidae	*Hygophum hygomii* (Lütken, 1892)*
Myctophidae	*Lampanyctus crocodilus* (Risso, 1810)*
Myctophidae	*Lampanyctus pusillus* (Johnson, 1890)
Myctophidae	*Lobianchia dofleini* Zugmayer, 1911
Myctophidae	*Myctophum punctatum* Rafinesque, 1810
Nettastomatidae	*Nettastoma melanurum* Rafinesque, 1810*
Notacanthidae	*Notacanthus bonapartei* Risso, 1840*
Notacanthidae	*Polyacanthonotus rissoanus* (Filippi & Vérany, 1859)*
Ophichthidae	*Echelus myrus?* (Linnaeus, 1758)
Ophidiidae	*Ophidion barbatum* Linnaeus 1758*
Paralepididae	*Paralepis speciosa* Bellotti, 1878*
Phosichthyidae	*Vinciguerria poweriae* (Cocco, 1838)*
Phycidae	*Phycis blennoides* (Brünnich, 1768)*
Scyliorhinidae	*Galeus melastomus* Rafinesque, 1810*
Squalidae	*Squalus acanthias* Linnaeus, 1758*
Squalidae	*Squalus blainvillei* (Risso, 1826)*
Sternoptychidae	*Argyropelecus hemigymnus* Cocco, 1829*
Stomiidae	*Chauliodus sloani* Schneider, 1801*
Stomiidae	*Stomias boa* (Risso, 1810)*
Trachichthyidae	*Hoplostethus mediterraneus* Cuvier, 1829*

A series of cruises conducted off the northern coast of Israel as part of pollution monitoring surveys at depths between 1000-1500m, afforded us an opportunity to examine the deep Levantine ichthyofauna. Though extremely sparse, the number of deep-water fish species known from the Levant increased to 39 (Table 1), as compared to the number of deep-water fish species known from the entire Mediterranean (59). The species richness in the Levantine Sea is comparable to other Mediterranean basins of a similar size. Contrary to the widely perceived notion of Mediterranean eastward progressive faunistic decline, our findings suggest that the ichthyofaunal richness is correlated with the intensity of research. Among the fish presented in Table 1-2, ca. 20 species are known from depths greater than reported from the western Mediterranean. It may be indeed that the Levant basin's distinct ecological conditions are reflected in bathymetric modifications, with the same species occurring deeper in the Levant than anywhere else in the Mediterranean Sea. Marenzeller's [1] echinoderm depth records, which show similar trend, were considered inaccurate, a result of possible "systematic mistake on the depth measurement that needs to be cleared up in the future" [2]. Recent records support Marenzeller's results of the deepening of the Levantine fauna [3-4].

References

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