

## THE INDO - MEDITERRANEAN; THE EMERGING OF A MANMADE BIOGEOGRAPHICAL PROVINCE

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### Abstract

A study of the near-shore fauna (to 40 m depth) in the eastern Mediterranean has revealed the domination of the fish fauna by Erythrean aliens in the south-east Levantine Sea. The number of alien species and their relative abundance decline with increasing distance from the Suez Canal. Some of the recently arrived species have established large populations and comprise a significant component of the Levantine marine biota.

*Keywords: Levantine Basin, Fishes, Biodiversity, Alien species*

The continuous invasion of biota into the Mediterranean through the Suez Canal (Erythrean invasion; Galil, 2008) and the recent rise in sea water temperature (European Environment Agency, 2007), have accelerated the expansion of Indo-Pacific fishes in the eastern Mediterranean. A study of the soft-bottom, shallow-water fish fauna (to 40 m depth) conducted in the south-eastern Levantine Sea (Ashdod, Israel) and along the northern Levantine Sea (Iskenderun Bay, Antalya, Turkey) compares the Erythrean alien fish fauna at the three sites. The preliminary results, based on examination of more than 250,000 specimens, have shown a domination of the fish fauna by Erythrean aliens along the south-east Levantine Sea, and a decline in their numbers with their increasing distance from the mouth of Suez Canal (Fig. 1). The proportions of alien species, (individuals and biomass) decrease between Israel, Iskenderun, and Antalya, whereas the average fish size increase: the smallest specimens were found in Ashdod and the largest in Antalya. A comparison of the fish communities at depths of 9-20, 20 and 40 m at Ashdod, revealed a depth gradient in the dominance of the alien species. In the shallower water the alien species comprise ca. 80% of the biomass and ca. 90% of individuals; at a depth of 20 m ca. 60% of the biomass and ca. 70% of individuals; and at 40 m the alien species comprise ca. 40% of the biomass and ca. 25% of individuals. The most abundant alien species (comprising over 5% of the total catch: biomass or/and individuals) are *Decapterus russelli* (Rüppell, 1830), *Nemipterus randalli* Russell, 1986, *Plotosus lineatus* (Thunberg, 1787), *Apogon smithi* (Kotthaus, 1970), *Lagocephalus suezensis* Clark & Gohar, 1953, *Saurida undosquamis macrolepis* (Richardson, 1848), and *Callionymus filamentosus* Valenciennes, 1837. The first four species have been recorded in the Mediterranean only in the past decade. Seasonal changes in abundance of the alien species were detected during the 18 months of the study. Their abundance were low during spring and early summer, and peaked during November and December. However, a comparison between the early stages of the study (spring and summer 2008) and the same months in the second year of the study reveals an increase in the proportion of aliens and significant changes in the proportions of the various species.

### References

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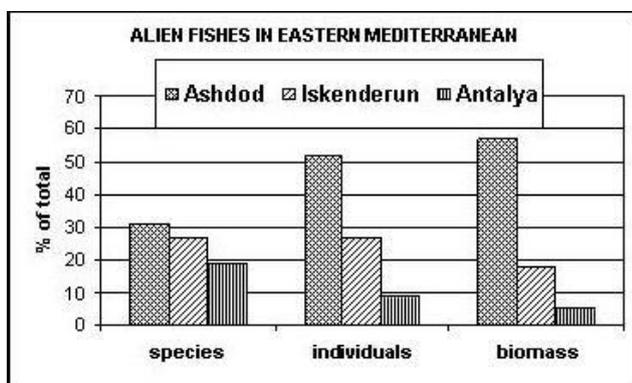


Fig. 1. A comparison of the number of Erythrean alien species, individuals and biomass at three sites in the Eastern Mediterranean.