

STATUS OF INVASIVE MARINE SPECIES IN THE LIBYAN COAST

Esmail A Shakman ^{1*}, Khaled S Etayeb ¹ and Abdalha R Ben-abdallah ¹
¹ Zoology Department, Tripoli University, Libya - shugmanism@yahoo.com

Abstract

Thirty five marine species have invaded the Libyan coast from the red sea and Atlantic Ocean. More than 71% are fishes, 17.14% Mollusca and 11.43% Crustaceans. Three fish species have recorded for first time in the Libyan coast (*Sphoeroides pachygaster*, *Seriola fasciata* and *Seriola rivoliana*). Many of these species are successfully adapted to the different topography and environments of Libyan coast. However, some of these species become commercially valuable.

Keywords: *Invasive species, Lessepsian migration, Libyan Sea*

Introduction

Invasive species increased regional marine biodiversity in Mediterranean Sea, however, may alter the evolutionary pathway of native species by competitive exclusion, niche displacement, predation and other ecological and genetic mechanisms [5]. According to [7], bathymetrically speaking three areas may be distinguished along the coast of Libya; all are closely associated with major structural features of the African continent. Migrant invasive marine species have had an enormous impact on the eastern Mediterranean ecosystem; there has been no thorough study to assess this impact [4]. Many invasive marine species have been recorded in Libyan waters [1,6]. The objectives of this study are to present the status, distribution and characterization of invasive marine species along the entire Libyan coast.

Results and Discussion

This study documented thirty five marine invasive species in the Libyan waters, fishes represent the highest percentage (71%) followed by Mollusca, and crustaceans 17.14%, and 11.43 % respectively (Fig. 1).

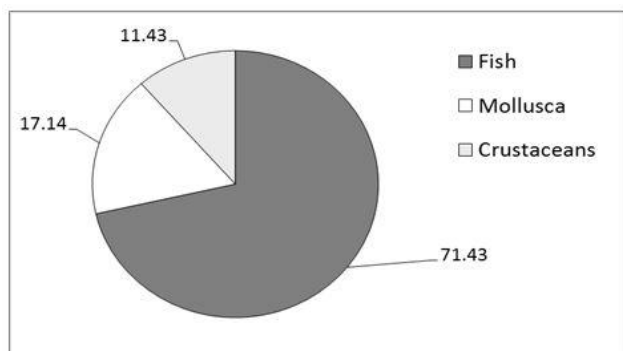


Fig. 1. Percentage of the invasive marine species in the Libyan coast.

Three fish species have been recorded for the first time in the Libyan waters: *Seriola rivoliana*, *Seriola fasciata* and *Sphoeroides pachygaster*. Most of the invasive migrants have been successfully adapted to the different topography and environments of Libyan coast [5]. As many invasive species, *Siganus luridus*, *S. rivulatus*, *Sphyraena chrysotaenia*, *S. flavicauda*, *Hemiramphus far* and *Fistularia commersonii* have become common along this coast, while other species such as: *Alepes djedaba*, *Upeneus pori*, *Upeneus maluccensis*, *Liza carinata*, *Sargocentron rubrum* and *Crenidens crenidens* were rare. The abundance of the invasive species differ according to the coastal main regions (Eastern, Sirt gulf and western), which may be due to a relation between the species' early arrival and the species abundance. [3] Suggested that there is a correlation between species that arrived earlier in the Mediterranean and their greater abundance. Most invasive migrant species are found in the coastal area and usually at depths of 1-50 m. As far as the distribution, most of the invasive species are concentrated in the eastern Libyan coast. For a better understanding of invasive immigration, additional taxonomic and biological investigations are required [2]. This study has shown that some of the invasive migrants have successfully adapted to the different topography and environments of Libyan coast and many species have become widespread along this coast, which means that they are contributing to the commercial fish catch in Libya.

Acknowledgements

We would like to thank the fishermen and the fishermen's union for their collaboration with us. Our thanks to the National Agency for Scientific Research (NASR) for support this project.

References

- 1 - Ben-Abdallah R., Alturky A., Fituri A. (2005) Records of exotic fishes in the Libyan coast. *Libyan Journal of Marine Science* 10: 1-8.
- 2 - Ben-Tuvia A. (1978) Immigration of fishes through the Suez Canal. *Fishery Bulletin* 76 (1): 249-255.
- 3 - Golani D. 1998. Impact of Red Sea fish migrants through the Suez Canal on the aquatic environment of the eastern Mediterranean. *Bulletin of the Yale School of Forestry and Environmental Studies* 103: 375-387.
- 4 - Golani D. 2002. Lessepsian fish migration-Characterization and impact on the Eastern Mediterranean. Pp. 1-9. In: Bayram Öztürk and Nuri Basusta (eds). Workshop on Lessepsian migration, 20-21 July 2002 Gökceada- Turkey.
- 5 - Mooney HA, Cleland EE (2001) The evolutionary impact of invasive species. *Proceedings of the National Academy of Sciences of the United States of America*, 98 , 5446 – 5451.
- 6 - Shakman E.A., Kinzelbach R. (2007). First record of the Sweeper fish *Pempheris vanicolensis* Cuvier, 1821 in the eastern part of the Libyan coast. *Rostocker Meereskundliche Beiträge* 18: 1-3.
- 7 - Sogreah E. (1977) Trawl fishing ground survey off the Tripolitania coast. Final Report. Part V: 1-44, and final report: Introduction and General Conclusions: 1-30.