

ALIEN MOLLUSCS AND CRUSTACEAN DECAPODS IN THE STRAITS OF MESSINA (CENTRAL MEDITERRANEAN SEA)

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Abstract

Alien benthic species in the Straits of Messina have been monitored since 2001 and consequently reviewed. Established molluscs and crustacean decapods accounted for nine and two species respectively, all of Indo-Pacific origin, except for one decapod that has spread from the Atlantic region. The records of five mollusc and two decapod species were considered as “casual”.

Keywords: *Biodiversity, Biogeography, Species Introduction, Strait Of Messina*

Introduction

The effects of global warming and/or anthropogenic pressure on bioinvasion processes are emphasized in the Mediterranean, as a regional, highly anthropized sea which joins the Atlantic and Indo-Pacific regions [1]. Within the Mediterranean Sea, the Straits of Messina connects the western and eastern basins, thus representing a crossing node of migratory routes and human activities, favouring the spread of introduced species. In this paper original data on the occurrence of benthic alien species in the Strait is reported and examined in relation to their establishment.

Materials and methods

In order to detect the presence of alien species, quantitative samplings and specimen collections have been carried out in coastal (0-50m) and transitional waters (Capo Peloro lakes, Saline Ioniche harbour and salts) since April 2001 [2].

Result and Discussion

According to Zenetos *et al.*'s [3] criteria, 9 mollusc and 2 decapod established species have been identified: the lessepsian *Brachidontes pharaonis* (Fisher P., 1870), known in this area since 1974 [4]; *Bursatella leachi* De Blainville, 1817 and *Melibe fimbriata* Alder & Hancock, 1864, both common locally since 2000; *Pinctada radiata* (Leach, 1814), sporadically recorded during 2000-2001 and regularly found since 2007; *Aplysia dactylomela* Rang, 1828, since 2008; *Cerithium scabridum* Philippi, 1848, since 2007, in all transitional waters; the Indo-Pacific *Crassostrea gigas* (Thunberg, 1793) and *Ruditapes philippinarum* (Adams & Reeve, 1850), that have been imported from the northern Adriatic to aquaculture farming since 1970 and 1980 respectively, together with *Anadara demiri* (Piani 1981) (first recorded in 2007); *Marsupenaeus japonicus* (Bate, 1888), that arrived by natural dispersal; the Atlantic *Percnon gibbesi* (H. Milne Edwards, 1853), the only species which showed an invasive behaviour in the Strait, found since 2006. The arrival of other 5 “casual” species was related to the mussel and oyster trade. One specimen of the Indo-Pacific *Rapana venosa* (Valenciennes, 1846) was recorded in the Peloro coastal lakes in September 2008; the other species, although reported since 1982 [5], has never colonized this area, despite their regular introduction together with stalling shellfish; these species are the Indo-Pacific *Anadara inaequalis* (Bruguère, 1789), and the Atlantic *Littorina littorea* (L., 1758), *Crepidula fornicata* (L., 1758) and *Nucella lapillus* (L., 1758). Finally, the occasional occurrence of the lessepsian *Portunus pelagicus* (L., 1758) and of the Atlantic *P. hastatus* (L., 1767) in coastal waters has been noted.

Conclusion

A prevalent Indo-Pacific origin, compared to the warm-temperate Atlantic one, connotes the established alien species in the Straits of Messina, whilst no western European species has thrived to date. Mollusc farming determined a remarkable colonization of transitional waters, whilst the coastal environment was colonised by introduced species which spread their Mediterranean areal northwards.

References

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