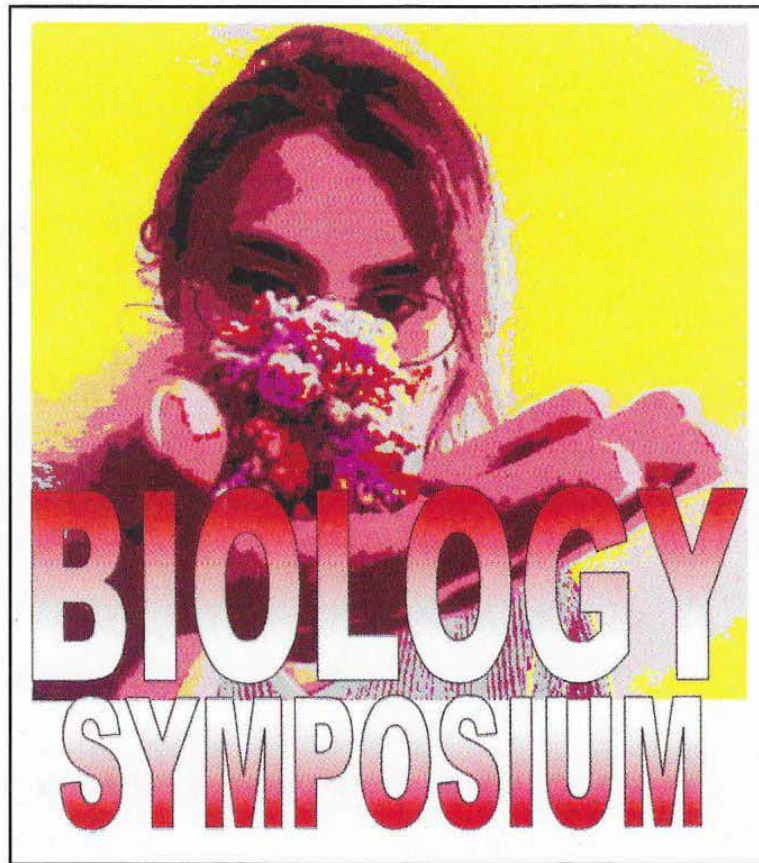


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HABITAT CHARACTERISTICS AND FAUNA OF *POSIDONIA OCEANICA* MEADOWS IN THE MALTESE ISLANDS

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Seagrass meadows are one of the most important marine habitats since they occupy extensive areas of the seabed in shallow coastal waters throughout the world and are highly productive. Seagrass meadows provide a physical refuge for numerous fish and invertebrate species, food for a large number of species, an extended substratum for attached plants and animals, and support commercial fisheries through their role as nurseries. In the Mediterranean, the endemic seagrass *Posidonia oceanica* (L.) Delile forms extensive meadows at depths of c.1 to 40 m and constitutes a key component of the infralittoral zone. In spite of its importance, the role of *P. oceanica* meadows as a habitat is poorly understood.

A number of surveys and studies have been carried out locally as part of an ongoing programme of research on the ecology of *Posidonia oceanica* meadows and their associated biotic assemblages. The main aims of these studies are: (i) to gather data on the distribution and morphological characteristics of *P. oceanica* meadows and compare them with ones available for other parts of the Mediterranean; (ii) to gain a better understanding of the role of *P. oceanica* meadows as a habitat; (iii) to assess the impact of human activities on this habitat type; and (iv) to develop new methods (e.g. more reliable sampling techniques) for ecological study.

The results obtained to date show that *P. oceanica* meadows attain a high level of structural complexity and occupy large areas of the bottom at depths of 1 to 43m along Maltese coasts. The species richness and abundance of the associated fauna appears to be strongly influenced by a highly complex set of environmental factors. Amongst these, changes in meadow morphology coincident with steep environmental gradients (e.g. depth), availability of food, proximity of other habitats, and biological interactions, such as predation, appear to have the greatest influence. While several macrofaunal species inhabit different microhabitats (foliar and root-rhizome strata) within the same meadow, some species appear to be abundant in both. Comparison of two popular sampling techniques used in the study of the vagile macrofauna inhabiting *P. oceanica* meadows has shown serious disadvantages in the use of both methods.

At present, the variability in community structure of macrofauna associated with *P. oceanica* meadows is being studied. This is being done through a comparison between different meadow types (e.g. patchy, reticulate and continuous), between meadows in different locations, and between different microhabitats (foliar and root-rhizome strata) within the same meadow. The impact of offshore fish-cages on *P. oceanica* meadows and their associated macrofaunal assemblages is also being studied.

results will affect most of the coastline up to Zonqor Point. During the time of the present study, the sewage outfall was not fully operational, and the available satellite images confirm that the resultant coastal pollution extends over most of the coastline at least up to Zonqor Point.

The Marine Ecotoxicology Laboratory is presently expanding its activities in new areas and methodologies of environmental management. Recently, as part of an international consortium of research centres, it was awarded a research contract through the EU-funded ESPRIT programme. This project aims at developing an information system for the application of airborne surveillance in the detection, response and management of environmental risks as related to maritime and fisheries activities in local coastal waters.