{rokbox title=|Location of the Mar Menor and the sampling stations studied from 1981 to 2019 :: Image: Authors|
thumb=|images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-csic-spatial-temporal-scales-variability-mollusks-coastal-lagoon-mar-menor-sanchez-et-al-2025-thumb.jpg|}images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-csic-spatial-temporal-scales-variability-mollusks-coastal-lagoon-mar-menor-sanchez-et-al-2025.jpg{/rokbox}

Olga Sánchez-Fernández, Concepción Marcos, **Patricia Puerta**, Antonio Sala-Mirete and Angel Pérez-Ruzafa, 2025.
Spatial and Temporal Scales of Variability of Mollusks in a Strongly Threatened Mediterranean Coastal Lagoon (Mar Menor, Murcia, Spain).
Water 2025, 17(5), 657. https://doi.org/10.3390/w17050657

Abstract: Coastal lagoons are dynamic and highly productive systems that offer a remarkable number of ecological services and benefits for humans. However, our understanding of them is still far from adequate. The Mar Menor lagoon is an ecosystem subject to anthropogenic pressures that have worsened in recent years. These pressures include coastal works, such as dredging and sand dumping, as well as changes in agricultural regimes that have induced a process of eutrophication that set off alarms after the eutrophic crisis that occurred in 2016. Benthic organisms, and in particular mollusks, are very sensitive to environmental variations, often serving as indicators of these changes. This work analyzes the malacofauna of the Mar Menor from 1981 to 2019 in the context of the environmental changes that have occurred in it during these years. Eighty-six species have been recorded throughout our study period, and species richness, abundances, local assemblage structures, along with changes in the main environmental parameters of the water column (salinity, temperature, and chlorophyll a concentration) have been used to explain the composition of the communities of the main lagoon habitats and to detect their spatial and temporal variations. With the information provided, the complete inventory of mollusks reported in the lagoon has been updated to 126 species. The results indicate that, during these almost 40 years, the total number of species has remained relatively constant, but with a high percentage of occasional and very rare species, along with a high rate of change from one species to another over time, accompanied by variations in the abundance and dominance of some species compared to others depending on the environmental conditions and pressures that the lagoon has undergone. The high spatial and temporal heterogeneity detected is determined by the restricted connectivity with the open sea, the diversity of environments and habitats, and the changes in environmental conditions due to human actions.

Keywords: coastal lagoons, environmental changes, eutrophication, coastal works, Mar Menor, marine mollusks, Mediterranean Sea, spatiotemporal variability, species diversity