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Spatial patterns of benthic macroinvertebrates in intertidal areas of a Southern European estuary: Tagus estuary, SE Portugal

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The Tagus estuary is one of the most important Portuguese coastal wetlands. Part of the estuary was established as Natural Reserve in 1976, and later, in 1994, a larger proportion was classified as Special Protection Area, under the EEC Birds Directive. The extensive intertidal sand and mud flats are used as feeding areas and maintain large populations of resident and migratory birds. Despite the recognized importance of these intertidal areas as feeding grounds, both for birds and for fish, the most extensive studies regarding the spatial patterns in the abundance and species richness of benthic macroinvertebrates, date to the early 1980s and are only qualitative, namely due to the difficult access to the mudflats, which, in some cases extend up to 6 km from the shore. As part of a program aiming to relate the macrofauna and birds distributions, this study identifies and characterizes the benthic macrofauna spatial patterns. Sediment sampling was carried out on February 2002 in 380 sites. Besides extensive areas of oyster shells, sediment types are mainly mud and muddy sand. Annelida was the most abundant and taxonomically rich group with the species of the Tubificidae family and the species *Streblospio shrubsolii* being the most abundant and widely distributed. The isopod *Cyathura carinata* and the polychaete *Tharyx* sp. were also abundant. The results showed clear spatial macrofaunal patterns well related with the environmental gradients namely, sediment grain size and organic content.

Patterns of colonization and succession of fouling communities in different types of substrates on the southern coast of the Island of São Miguel, Azores

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The development of fouling communities was followed in different types of substrates (two types of wood and PVC) placed at different depths in three places of the southern coast of the Island São Miguel, Azores. Places chosen were Marina and Harbour of Ponta Delgada (subjected to pollution effect) and São Roque Bay (non polluted site). Substrates were fixed with polyethylene cables directly to the bottom of the study sites and/or to navigation buoys. Species distribution, abundance and diversity were followed monthly. Different patterns of recruitment and succession were observed in the tested substrates, emphasising the importance of the type of substrate and depth in the colonization and patterns of succession of the fouling organisms. On the PVC, the dominant organisms were invertebrates and a few crustose algae. Algae, which specific composition chanced according to depth and time of immersion, on the other hand, mainly colonized the two types of wood. Diatoms and filamentous green algae dominated the wooden plates placed close to the surface, whereas filamentous browns and reds were dominant in the wooden plates located deeper.