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TITLE: BENTHIC BIOTOPE INDEX FOR CLASSIFYING ESTUARINE HABITATS. A CASE STUDY

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BENTHIC BIOTOPE INDEX FOR CLASSIFYING ESTUARINE HABITATS. A CASE STUDY[1]

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An integration of sediment physical, chemical, biological, and toxicity data is necessary for a meaningful interpretation of the complex sediment conditions in the marine environment. Assessment of benthic community is a vital component for that interpretation, yet their evaluation is complex and requires a large expenditure of time and funds. Thus, there is a need for new tools that are less expensive and more understandable for managers. This paper presents a benthic biotope index to predict from physical and chemical variables the occurrence of macrobenthic habitats, applied to Sado Estuary, as a case of study. This estuary is the second largest in Portugal and most of it is classified as a natural reserve, but with many industries, harbor associated activities and with agriculture, aquaculture and tourism pressures. Parameters such as sediment type, organic matter, depth, and hydrodynamic parameters were selected, through a forward stepwise discriminant analysis, to compute the index. A dataset of 131 stations were used. Other authors have used multivariate methods to determine the benthic biotopes to Sado Estuary. These biotopes have a very good agreement between the conclusions drawn from the analysis of the biological data alone and those from the imposed variability of the physical and chemical variables listed above. The model was tested and validated using field macrobenthic data. The index permits to predict the occurrence of benthic biotopes at unsampled locations in a cost-effective way and proved to be a valid tool to classify and assess the spatial patterns of benthic habitat and to identify stress biotope gradients.