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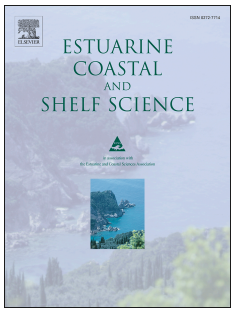

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Abstract

This study provides a comparison between living (LAs) and dead (DAs) assemblages of benthic foraminifera in 137 sites located at the mouth region of the Aveiro Lagoon (N Portugal). This coastal lagoon, commonly named Ria de Aveiro, is under strong anthropogenic influence due to changes in natural hydrodynamics through engineering structures and by the input of contaminants. The sedimentary environments of the mouth area are characterized by biotic (benthic foraminifera) and sedimentological (grain size, trace metals and total organic carbon concentrations) data. The pollution load index (PLI) identifies areas of increased concentrations of potentially toxic trace metals. An innovative combination of several statistical methods and extremely detailed data analyses allowed to verify that the dead associations (DAs) and the living assemblages (LAs) are absent or reduced in the deep and most hydrodynamically active zones along the navigable waterways of the channels. Breakwaters reducing the bottom currents allow the development of larger and more diversified LAs. The most suitable areas for LAs are located close to the South Jetty and in Mira Channel excluding the navigable channel and the eastern margin. LAs have in general little similarity with the DAs. Confined zones and areas with high organic matter flux and trace metals concentrations, where the sediments are being accumulated, are particularly unfavourable environments for living foraminifera.