

IMPACT OF MAINTENANCE CHANNEL DREDGING ON MACROBENTHIC ASSEMBLAGES IN A NORTHERN ADRIATIC COASTAL LAGOON

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Coastal lagoons are ephemeral habitats whose conservation requires direct human intervention, including maintenance dredging of the inner channels. Dredging can reduce abundances of benthic species removing individuals with the sediment, modify sediment properties, and resuspend fine sediment nutrients and pollutants, which can lead to eutrophication, hypoxic events and increasing toxicity. The aims of the present study was to assess the effects of channel dredging, performed between October 2004 and August 2005, on the invertebrate assemblages both in channels and adjacent ponds in the northern Adriatic coastal lagoon Pialassa Baiona. The lagoon is affected by eutrophication, chemical and thermal pollution from treatment and power plants. Three putative impacted sites were located in the dredged channel and three in the adjacent ponds, while three non-impacted sites were located in a channel and in a pond far from the dredged area. Replicated samples were collected at each site before and after the dredging operations. Assemblage clearly differed between habitats (channel and pond) and showed high variability both in space and time. Despite the extent of the intervention, no clear effects were detected on the assemblages and sediment properties, either in the channels or in the ponds. This could be due to the high spatial heterogeneity that characterise the studied environment which can hide the effects of the dredging. Moreover, since the dredging operation was a lengthy process including the frequent suspension of activity, the physical disturbance could have affected the impacted sites at different times, and therefore it cannot be considered a single and unique event.

Keywords: Dredging, Coastal lagoon, Benthic infauna, Disturbance, northern Adriatic Sea