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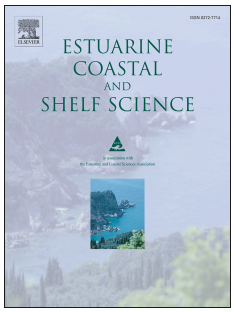

Sediment texture and metal contamination in the Venice Lagoon (Italy): A snapshot before the installation of the MOSE system

Roberto Zonta, Margherita Botter, Daniele Cassin, Luca Giorgio Bellucci, Roberto Pini, Janusz Dominik

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Sediment texture and metal contamination in the Venice Lagoon (Italy): a snapshot before the installation of the MOSE system

Roberto Zonta*[1], Margherita Botter[1], Daniele Cassin[1], Luca Giorgio Bellucci[2], Roberto Pini[3], Janusz Dominik[1]

[1] Istituto di Scienze Marine - Consiglio Nazionale delle Ricerche (ISMAR-CNR), Castello 2737/F, 30122 Venezia (Italy)

[2] Istituto di Scienze Marine - Consiglio Nazionale delle Ricerche (ISMAR-CNR), Via Gobetti 101 - 40129 Bologna (Italy)

[3] Istituto per lo Studio degli Ecosistemi - Consiglio Nazionale delle Ricerche, (ISE-CNR), Via Moruzzi, 1 - 56124 Pisa (Italy)

∗ Corresponding author: r.zonta@ismar.cnr.it (Roberto Zonta)

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Abstract

Sediments of the Venice Lagoon down to 50 cm depth were investigated to assess sediment texture and metal contamination status, before the construction and activation of the MOSE system, which is intended to prevent the periodical flood events affecting the lagoon and the city of Venice. 380 cores were collected in shallow-water areas of the lagoon, and analysed along their vertical profile to determine grain-size distribution and concentrations of some major and trace elements (Al, As, Cr, Cu, Fe, Hg, Mn, Ni, Pb and Zn), total carbon and organic carbon. Radionuclide analyses (^{137}Cs, ^{210}Pb) were performed on 15 cores in an attempt to establish sediment chronology and determine radionuclide inventories in erosional and depositional areas.

On the whole-lagoon scale, strong depletion of particles <31µm in diameter (from medium silt to clay fractions) was observed in sediments down to 10 cm depth in comparison to deeper layers. This depletion characterised both erosional and depositional areas, and may be caused by increased water dynamics and resuspension of sediment due to anthropogenic activities.