

ECOTOXICOLOGY APPLIED TO SEDIMENT DREDGING FROM HARBOURS: DEVELOPMENT OF ITALIAN LAW.

Monia Renzi, Francesca Provenza

Bioscience Research Center, Via Aurelia Vecchia, 32, 58015 Orbetello (GR)

Corresponding author: monia.renzi@bsrc.it

Harbors are affected by high sedimentation rates that require frequent dredging operation to allow navigability. On the other hand, coastal areas located near to harbors are often affected by severe erosion processes, and represent the perfect place for the final disposal of dredged sediments. In spite of that, trace elements and organic chemicals could significantly pollute sediments collected from harbors also producing significant ecotoxicological effects on aquatic species. For this reason dredged sediments are often considered as wastes in spite of the fact that they represent a huge resource to manage coastal erosion. As sediments represent both a potential threat and a resource in coastal areas; recently Italian Law (D.M. 173/2016) ruled general features for the evaluation of the quality of sediments before the release of authorization for dredging of bottoms from harbor ecosystem. Furthermore, for the very first time, the requirement to preferentially evaluate ecotoxicological effects as key aspect on the basis of which sediment classifications are performed and to consider dredged sediments as the preferentially resource to manage coastal erosion phenomena were both introduced by the Law. This paper highlight the evolution of Italian Law for concerning sediment dredging in coastal ecosystems focusing, in particular, on: i) operative procedures for the characterization; ii) quality evaluation of sediments; iii) classification of characterized materials and management options according to the resulting class of quality; iv) definition of environmental monitoring strategies. This paper highlights, in particular, recent advances in the sediment management coming from the introduction of the D.M. 173/2016 and the principal weaknesses, which must be implemented by future regulatory updates.

Keywords: ecotoxicology, sediment dredging, environmental quality.