The sediments management guidelines for the lagoon of Venice: a "stakeholder" point of view on 17 years of discussions.

Laura Montobbio[1], Alberto G. Bernstein[1]

[1]Consorzio Venezia Nuova, San Marco 2803, 30124 Venice, Italy

Phone: +39-(041)-2406213
E-mail:
laura.montobbio@consorziovenezianuova.com

Introduction: The tidal lagoon of Venice is one the most valuable and protected lagoons in Italy, being an unique mix of nature and cultural heritage. Different and sometimes conflicting uses have to be managed and regulated to maintain and improve nature, culture, landscape, economy and environment. The sediment management guidelines agreed upon in 1993 by all involved authorities have been under strong discussion since. A large amount of studies on hydrodynamics, morphology, chemistry, biology and toxicity clarified the state of the environment and improved the understanding the lagoon processes. Still sediment management guidelines have not changed. Some changes are expected from the 2000/60 CE directive implementation.

Methods: Results and evidences gathered from different studies carried out in the lagoon for *Magistrato alle Acque di Venezia* (MAV) since 1986, within the safeguarding activities, and experience of national and local Public Technical Agencies have been used in 2005 by Environment Ministry to design an interdisciplinary and multi-partners study in order to update the scientific base for sediment management regulation in the lagoon of Venice. The HICSED project was carried out by a technical group composed by ISPRA, ISS, ARPAV, Thetis S.p.A, and coordinated by Consorzio Venezia Nuova for MAV.

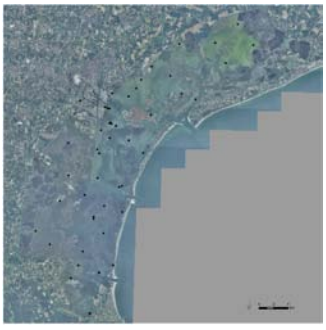

Fig. 1: Sediment Sampling sites in the lagoon of Venice (2008) – HICSED Study

Sediments in 48 sites, characterized by different environmental conditions and pressures and different levels of contamination have been studied. Samples were analyzed (inorganic elements, POPs and ancillary parameters) and a battery of 8 different toxicity tests carried out on each sample. In 5 samples from the 5 most contaminated sites 8 different biomarkers have been also measured Preliminary inter comparison and inter calibration of chemical and toxicity labs were carried out.

Results: Chapman [1] approach and the Italian UNICHIM risk index (still under scrutiny), have been used to assess the risk for the ecosystem induced by measured sediment contamination. Results from the two methods showed a moderate correspondence but a good agreement in defining the main part of the lagoon sediment as only moderately toxic, unlike the general perception from current quality criteria.
In fact no direct relation between present sediment management criteria (4 classes) and toxicity has been confirmed.
The interval between the limits of the first 2 classes of the current management criteria is often within the uncertainty range and analytical variability of chemical analysis, and is not discriminated by toxicity tests.

Discussion: Evidence from previous studies carried out by MAV have been confirmed and improved by the HICSED study.
After 17 years since the Venice sediment management criteria (1993) for dredged materials has been issued scientists and stakeholders must now push the results through regulation procedures and overcome escapism. Shared updated sediment management rules will contribute to sustainable environmental maintenance, improve morphological and habitat reconstruction, and navigational dredging.

References: [1] Chapman, P.M. and Anderson, J. (2005). A decision-making framework for sediment contamination. *Integrated Environmental Assessment and Management* 1: 163-173