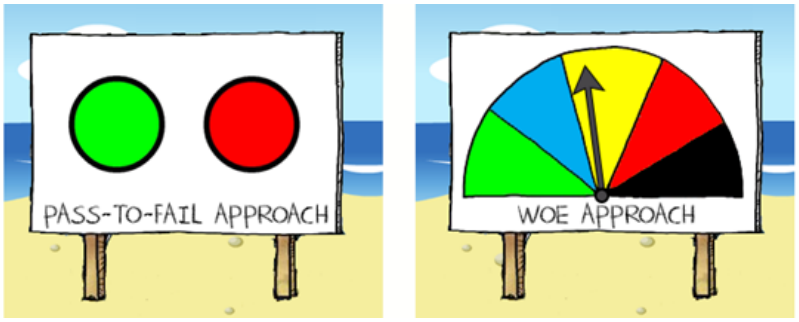
Consiglio Nazionale delle Ricerche
ISMAR - Istituto di Scienze Marine
U.O.S. di Ancona
Largo Fiera della Pesca, 1 – 60125 Ancona, Italy
Tel +39 071 207881 Fax +39 071 55313
segreteria@an.ismar.cnr.it
C.F. 80054330586 - P.IVA 02118311006

Martedì 4 Aprile 2017 - ore 12 SALA RIUNIONI



SEMINARIO

Multidisciplinary approach for Ecological Risk Assessment (ERA): practical models

GIUSEPPE D'ERRICO

ABSTRACT

Ecological Risk Assessment (ERA) is a hierarchical procedure to characterize environmental quality and associated risks. The multidisciplinary Weight Of Evidence (WOE) approach is an essential component in this process to integrate various elements of quality (Lines Of Evidence, LOEs), using methods that are either qualitative or quantitative. According to the general structure of this methodology, a conceptual and software-assisted model (Sediqualsoft model) has been developed to elaborate and differently weight heterogeneous data from various typologies of chemical and biological investigations. The general purpose of this study was to provide a further contribution to the integrated and multidisciplinary assessment of environmental quality. In particular, specific aims were (i) implementation of the ERA process with the development of criteria and mathematical algorithms for a specific LOE on benthic communities; (ii) development of a new WOE model (conceptual and informatic) for quality assessment in freshwater environments; (iii) development of a new tool derived from the WOE model and specifically adapted toward Normative Guidelines for characterization and management options of dredged materials in harbor areas; (iv) validation of these models in field studies. The final objective was the development of a scientifically-sound approach, supported by an informatic architecture, useful as operational tool for Public Institutions, private entities, political decisors or environmental managers within the complexity of ERA procedure. In conclusion, this study corroborated the importance of multidisciplinary WOE approaches for characterizing environmental quality within an ERA procedure. The results of this thesis demonstrated that the developed WOE models were useful to elaborate large datasets of different typologies of data, summarizing complex information in a user-friendly format for a comprehensive process of "site-oriented" management decisions.