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ASSESSING THE ENVIRONMENTAL QUALITY OF THE VENICE LAGOON WATERS USING THE E-QUALITY SOFTWARE TOOL

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Abstract

According to the Water Framework Directive the classification of water bodies environmental quality and the achievement of “good status” by 2015 are requested for all the European aquatic environment, including transitional waters such as coastal lagoons. Although progresses have been done and many results have been achieved, several aspects of the WFD implementation can be further improved and current limitations are more evident for some categories of water bodies such as coastal lagoons.

Accordingly, the E-QUALITY tool was developed with the main aim of enabling the environmental quality assessment of transitional waters, with a particular focus on lagoons, and supporting public authorities responsible for the implementation of the WFD with the development of management scenarios useful for the definition of new policies on water quality. The tool integrates a geodatabase and GIS functionalities and is accessible through user friendly interfaces. It implements a methodology based on a Weight of Evidence approach which integrates data from five Lines of Evidence (LOE), i.e. Biology, Chemistry, Physico-chemistry, Ecotoxicology, and Hydromorphology.

The paper describes the main characteristics of the E-QUALITY tool and the result of the application to the whole Lagoon of Venice based on the use of data collected by several monitoring campaigns from the late 80’s. The final output showed that the water bodies located in the northern part of the lagoon and in the part closest to the sea exhibit a dominance of High/Good quality classes, while the water bodies close to the industrial area and the historical city are more frequently characterized by Poor/Bad quality classes. Accordingly, industrial, agricultural as well as urban discharges of chemicals were identified as the main drivers of low quality.

Key words: environmental quality assessment, lagoons, transitional waters, Water Framework Directive

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