MACROPHYTES AND ECOLOGICAL STATUS ASSESSMENT IN THE VENICE LAGOON (2010)

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Twenty nine stations placed in the soft sediments of the whole Venice Lagoon have been investigated in early July and October 2010 in order to monitor macrophyte assemblages and to assess the ecological status of the Lagoon by applying the Macrophyte Quality Index (MaQI, Sfriso *et al.*, 2009; Sfriso, 2010), recently adopted in Italian law on the WFD (2000/60/EC) implementation. Some environmental parameters such as nutrient concentrations in waters and surface sediments, chlorophyll-*a,* the sediment fine fraction and water transparency have been also recorded.
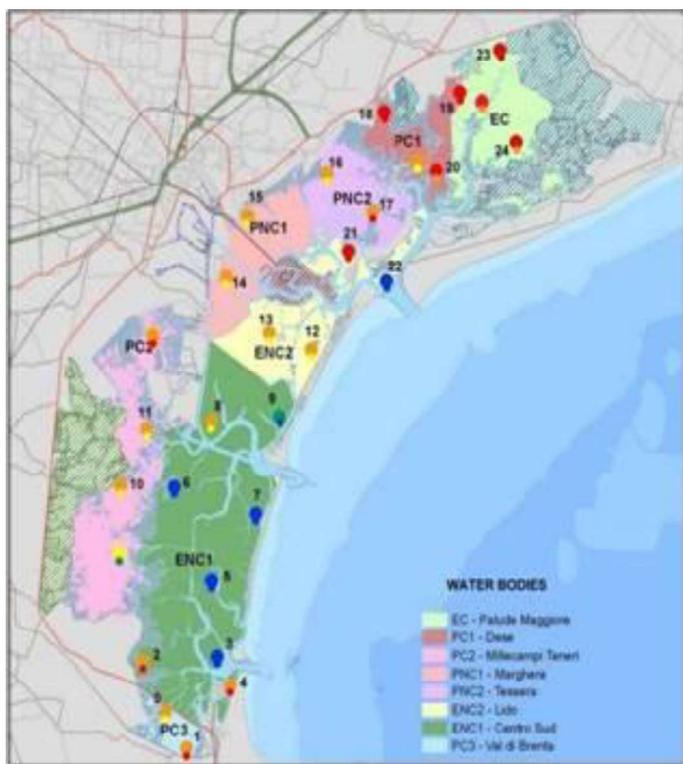

Fig. 1. MaQI application. Bigger circles indicated the station assessment, smaller circles the environmental tendency.

On the whole 68 taxa of macroalgae have been recognised (30 Chlorophyta, 37 Rhodophyta, 1 Ochrophyta) and three aquatic angiosperms [*Cymodocea nodosa* (Ucria) Ascherson, *Zostera marina* Linnaeus, *Zostera noltii* Hornemann].

In the two sampling periods the highest number of species per stations was 21. The dominant taxa were Ulvaceae, Gracilariaceae, Solieriaceae, some Cladophorales and the Xanthophycea *Vaucheria submarina* (Lyngbye) Berkeley. This last species covered wide areas characterized by turbid waters where others macroalgae were not present. Aquatic angiosperms colonized mainly the southern and central lagoon basin, whereas they where almost missing in the northern basin.

On the whole the application of MaQI shows a clear quality gradient increasing from the northern lagoon and the confined areas where macroalgae are quite negligible and of low quality, towards the southern one and the sea-inlets where angiosperms and high score macroalgae are abundant.

Nutrient concentrations monitored both in water column and surface sediments, the amount of suspended solids and sediment grain-size measurements indicate that the worst ecological status recorded in the northern lagoon mainly depends on the easier sediment re-suspension and water turbidity that, except for the *Vaucheria subdicotoma,* hamper macrophyte attachment and growth.

Sfriso A., Facca C., Ghetti P.F., 2009. Validation of the Macrophyte Quality Index (MaQI) set up to assess the ecological status of Italian marine transitional environments. Hydrobiologia 617: 117-141.

Sfriso A., 2010. Macrophyte Quality Index (MaQI) per la valutazione dello stato ecologico dei sistemi di transizione dell'ecoregione-Mediterranea. In: Bonometto, A., Gennaro, P., Boscolo Brusà, R. (Eds.). Linee Guida per l'applicazione del Macrophyte Quality Index (MaQI). Implementazione della Direttiva (2000/60/CE). ISPRA, pp. 34.