

SCHEDA

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- RELAZIONE**
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NEW MACROALGAE AND RARE SPECIES IN THE FISHING PONDS OF THE VENICE LAGOON AND ECOLOGICAL ASSESSMENT

- Tema:** Il ruolo della biologia marina italiana nell'attuazione della direttiva quadro per la strategia marina (2008/56/CE) e del protocollo sulla gestione integrata delle zone costiere del Mediterraneo
- Comitato Acquacoltura**
X Comitato Benthos
 Comitato Fascia Costiera
 Comitato Necton
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 Sessione vari

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NEW MACROALGAE AND RARE SPECIES IN THE FISHING PONDS OF THE VENICE LAGOON AND ECOLOGICAL ASSESSMENT

NUOVE MACROALGHE E SPECIE RARE NELLE VALLI DA PESCA DELLA LAGUNA VENETA E VALUTAZIONE ECOLOGICA

Abstract - Macrophyte assemblages were studied in the whole Venice lagoon, including some close fishing ponds, in order to assess the ecological status of this transitional system. During sampling some new or rare species were recorded highlighting the highest ecological status of areas close to tidal expansion and protected from anthropic impacts.

Key-words: macroalgae, new species, fishing ponds, Venice lagoon.

Introduction - During 2011 a monitoring plan to determine the macrophyte (aquatic angiosperms and macroalgae) present in the bottoms of the Venice lagoon for the implementation of the European Water Framework Directive (EWFD: 2000/60/EC) was carried out. The aim was the study of macrophyte assemblages, the production of a taxonomic list and the assessment of the ecological status of the lagoon by the application of the Rapid Macrophytes Quality Index (R-MaQI), recently adopted by the Italian law for the ecological classification of its transitional systems (Sfriso, 2010). Sampling was carried out in the soft bottoms of 118 sites spread in the whole lagoon including also some fishing ponds (Val Cavallino, Val Dogà, Valle Pierimpie and Valle Zappa) closed to the free tidal expansion and protected by significant anthropogenic impacts.

Materials and methods - Macrophytes have been sampled in May-June and in September-November 2011 in accordance with the protocols developed by ISPRA (2010). In each monitored station, of ca. 15-20 m in diameter, the cover and the abundance of the dominant taxa were determined and samples for the taxonomic determinations were collected and preserved in 4% formaldehyde until the stereoscope and optical microscope determination.

Results - On the whole 112 taxa were found in May-June and 119 in September-November for a total of 138 taxa (56 Chlorophyta, 66 Rhodophyta, 12 Ochrophyta and 4 aquatic angiosperms). The most frequent species were *Ulva laetevirens* Areshoug (70 sts.), *Acrochaete viridis* (Reinke) Nielsen, *Chondria capillaris* (Hudson) M. J. Wynne and *Gracilaria gracilis* (Stackhouse) Steentoft, Irvine *et al.* (66 sts.) and two alien species: *Hypnea flexicaulis* Y. Yamagishi & M. Masuda (59 sts.) and *Agardhiella subulata* (C. Agardh) Kraft *et al.* (57 sts.) of recent introduction (Sfriso *et al.*, 2009).

Among them: 2 Rhodophyta, i.e.: *Ceramium polyceras* (Kützing) Zanardini, *Gayliella mazoyeriae* T.O. Cho, Fredericq *et al.* and 4 Chlorophyta: *Acrochaete inflata*

(Ercegovic) Gallardo *et al.*, *Cladophora battersii* Hoek, *Cladophora socialis* Kützing, and *Uronema marinum* Womersley are new introductions for the Venice lagoon. *Uronema marinum* is a small species coming from the Indo-Pacific region that is a new record also for the Mediterranean Sea and the European Atlantic coasts. Other species, such as the Rhodophyta: *Lophosiphonia obscura* (C.Agardh) Falkenberg, are taxa which were considered missing from the lagoon (Sfriso *et al.*, 2009).

Of particular interest was the finding, in the close fishing ponds of the northern basin, of some species of high ecological value that had disappeared from the open lagoon. In particular *Lamprothamnion papulosum* (Wallroth) J. Groves, a Chlorophyta belonging to the Characeae, was present and very abundant in Val Cavallino while, it was not found elsewhere. This is certainly one of the most sensitive macroalgae that colonize the Italian transitional systems and the first species that disappears with the minimum anthropogenic disturbance. Another species very common in the fishing ponds was *Valonia aegagropila* C. Agardh, a Chlorophyta that in the past colonized great part of the northern lagoon (Palude Maggiore and Valle Ca' Zane), but has disappeared since the late '80s (Sfriso *et al.*, 2009). A rare species that currently is very abundant only in these close environments is also the Rhodophyta *Polysiphonia spinosa* (C.Agardh). In addition the aquatic angiosperm *Ruppia cirrhosa* (Petagna) Grande, that is nearly missing in the rest of the lagoon, formed dense and well-structured meadows. *Ruppia* was heavily covered from small encrusting calcareous macroalgae (*Hydrolithon* and *Pneophyllum*) that are common on *Cymodocea* or *Zostera* but in this species had never been observed before neither in the open Venice lagoon nor in other transitional systems.

The R-MaQI application highlights the fishing ponds: Val Cavallino and Val Dogà as the water body of the Venice lagoon with the highest ecological status. With an average score of 0.95 out of 1.00, this water body was classified as "High", although it is considered a "highly modified environment".

Conclusions - The last few decades the Venice lagoon has undergone continuous anthropogenic impacts with significant morphological changes and biodiversity loss. However, it is also reported the recording of many new species or the reappearance/conservation of species now believed lost especially by considering areas protected by significant anthropic impacts such as some close fishing ponds of the northern lagoon where the vegetation still presents pristine conditions.

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