

The Life “SeResto” project. A new strategic approach to meet HD & WFD objectives by SEagrass RESTOration

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Pristine conditions in transitional water ecosystems are characterized by the dominance of aquatic angiosperms. Aquatic plants consolidate bottoms, prevent erosion, support benthic and fish communities as nursery and food areas, and favour the bird presence. Hence, they may contribute to the achievement of a good ecological status as required by the WFD (2000/60/EC). Their reduction or disappearance is a symptom of environmental deterioration. Over the past few decades, the aquatic angiosperms have shown a significant decrease on a worldwide scale and in some areas of Venice Lagoon (Adriatic Sea), particularly in the central and Northern basins, as a consequence of anthropogenic activities.

At present, most of the anthropogenic pressures which caused their decline or disappearance in Venice Lagoon have significantly decreased creating the ecological conditions for a new colonization. In this context, the project SeResto (LIFE12 NAT/IT/000331), funded by the European Commission, aims at restoring the angiosperm meadows in the Northern basin of Venice Lagoon where the natural seed spreading is hampered by the presence of island, tidal marsh barriers and long residence times.

The project has two main strengths: i) the widespread transplantations of small angiosperm sods and manual dispersion of rhizomes and seeds and based on a low costs and low impact on donor sites approach, ii) the participation of fishermen and hunters daily living the lagoon for recreational purposes. Thirty-five sites have been selected and in each one 9 sod-bearing plants (diameter: 30 cm), supplied by fish farms where angiosperm meadows are almost natural, have been transplanted. In addition, the plant spreading is enhanced by the dissemination of hundreds of rhizomes, 1500 at minimum in each area during the project period (52 months).

In 8 sites, out of the 35, biological and chemico-physical conditions are being monitored monthly during the first and last year and quarterly in the intermediate period. Ecological indices, based on the study of macrophytes, macrobenthic fauna and fish fauna (Biological Quality Elements), as required by the WFD 2000/60/EC, will allow to assess changes in the Ecological Status of the study sites. Preliminary results are encouraging in great part of the selected areas although some difficulties

have been recorded in areas with high water turbidity and the presence of thionitrophilous macroalgae, especially Ulvaceae, favoured by the unexpected weatherconditions of summer 2014. Information on the restoration effectiveness and the relationship between the angiosperm presence/growth and the environmental conditions can be employed for interventions in other lagoon areas and can be exported in other similar transitional environments.