
Posidonia oceanica marine forest: epifaunal community response to plant restoration.

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ABSTRACT

Seagrass meadows loss is being reported all over the world. Coastal ecosystem restoration presents technical challenges that frequently drive to low resources for the monitoring of community development after replanting. *Posidonia oceanica* replanting deals with the scarce and irregular flowering events and the consequent lack of seeds which hinders large/medium scale projects with propagules. The *Posidonia oceanica* Marine Forest is the first medium size restoration project in which two hectares of a damaged *P. oceanica* meadow in the North of Majorca have been replanted (12800 fragments of adult plant) and the monitoring of the associated community (e.g. epifauna, macrophytes, fishes) is being examined. Here we present the results of the early stage recovery, after replanting, of epifauna community in a gradient of habitat complexity, exemplified by: non replanted area, replanted area, natural meadow edge, inside natural meadow. We evaluate the abundance and diversity of motile invertebrates collected with non-destructive methods (i.e. light traps) and habitat complexity, as covariate, in terms of macrophyte density and biomass. Preliminary results show seasonality of faunal community during the first year after plantation. The highest abundance was found in natural meadows followed by non-replanted meadow and replanted area. This trend changed in the following months when abundances equalled in natural meadow, plantation area and non-replanted meadow. This result indicates seasonal variability in the natural meadow and no changes in the plantation area and non-replanted meadow. The epifaunal community was not recovered in response to the increase of habitat complexity after one year of replantation, and thus long-term monitoring of *P. oceanica* replanting projects should be done for a proper assessment of ecosystem functioning recovery.

Keywords: Coastal environment, Biodiversity, Ecosystem processes, Evaluation and Monitoring.