

## **EFFECT OF EXPERIMENTAL TRANSPLANTATION ON GROWTH, BIOMASS AND C, N, P, Fe DISTRIBUTION IN THE LEAVES AND THE BELOWGROUND PARTS OF *POSIDONIA OCEANICA* (L.) DELILE**

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*Posidonia oceanica* meadows form one of the most representative community of the Mediterranean shores. However, since the sixties, numerous regression have been reported around the Mediterranean basin. In the damaged areas, healthy meadows have been replaced with deserts of 'dead matter' or sand and mud. The regression processes are mainly due to human activities such as anchoring, bottom trawling, coastal construction and, of course, pollution and eutrophication. Because of the key ecological and economical roles played by *Posidonia* meadows, protection and transplantation programs were carried out since the last decades. In this framework, we performed transplantation experiments in order to better understand the factors influencing transplants survival and growth. Indeed, transplantation constitutes a strong tool to study the vegetative reproduction processes in *Posidonia oceanica*. Our experimental work was carried out on a sandy patch in the Revellata Bay (Calvi, Corsica, France) in front of the oceanographic station STARESO. In order to minimize the effect on the environment, the transplantation experiments were done using unanchored shoots of *Posidonia oceanica* naturally torn out during strong storms. The collected shoots were bound on bamboo grids which were attached on the sandy patch at 17m depth. The grids are regularly monitored underwater to measure the survival and multiplication of transplants. In addition, at the end of each monitoring period, samples are brought back to our lab in order to measure biometrical parameters (number and length of leaves, leaf surface,...) and to determine C, N, P, Fe and chlorophyll contents in the different parts of the plant. Our first *in-situ* results show that the transplant survival is quite constant during the first year of experiment but tends to decrease after this period. Beside that, the number of leaf bundle per transplant increases. Our results also show a modification of the growth pattern of transplants: the initial orthotropic transplants (with vertical growth) tend to become plagiotropic (with horizontal growth). In fact, plagiotropic shoots constitute the colonising form of *Posidonia oceanica*.