

Vegetative Reproduction in *Posidonia oceanica*

II. Effects of Depth Changes on Transplanted Orthotropic Shoots

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With 1 figure and 5 tables

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Abstract. In an investigation of vegetative reproduction in *Posidonia oceanica*, carried out in Corsica, survival and development were studied in initially orthotropic rhizomes transplanted to different depths. Batches of transplants originating from 30 m depth and replanted in shallower water (3, 14, and 20 m) showed survival of 96 to 100% after eleven months, with ramification in 42% of the transplants and root formation in 44%. After the same time interval, batches originating from 3 m depth and transplanted to deeper water showed lower survival - 59% at 14 m, 41% at 29 m, and 3% at 36 m - complete absence of ramification, and rooting in only one batch. Transplantation to water shallower than their origin was favorable for survival, growth, and development, while transplantation to deeper water led to progressively lower survival, growth, and development of the shoots. Whatever the depth at which they were replanted horizontally, most transplants changed their growth mode from orthotropic to plagiotropic, as evidenced by both the change in leaf growth angle from horizontal to oblique and by the development of shorter, narrower leaves.

Problem

Although *Posidonia oceanica* (LINNAEUS) DELILE is the principal marine phanerogam in the Mediterranean (DEN HARTOG, 1970), understanding of its potential for vegetative reproduction remains poor. Vegetative reproduction appears to be the principal means of proliferation in this species, which can spread horizontally by slow growth, only 3 to 7 cm · a⁻¹, of plagiotropic rhizomes (CAYE, 1980; MEINESZ & LEFEVRE, 1984). Storm activity also detaches rhizomes, which then propagate as natural transplants. MEINESZ & LEFEVRE (1984) showed in a cartographic study that this natural transplantation could amount to only three transplants · ha⁻¹ · a⁻¹ on a favourable substrate.

MEINESZ *et al.* (1990) recently reviewed 100 publications involving culture and transplantation in 37 species of marine phanerogams worldwide. In *Posidonia oceanica*, MAGGI (1972, 1973), CINELLI (1980), GIACCONE & CALVO (1980), and

