

CHANGES IN THE MORPHOLOGY OF A MALTESE *POSIDONIA OCEANICA* (L.) DELILE MEADOW

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Preliminary data on the morphology of a local *Posidonia oceanica* meadow were obtained as part of an ongoing study on the community structure and composition of the vagile fauna associated with this seagrass. The values for Shoot Density, Leaf Standing Crop and Leaf Area Index obtained appear to be higher than those reported for meadows of this seagrass in other parts of the Mediterranean.

Data on the structure and composition of meadows of *Posidonia oceanica* and on morphological parameters of the plant itself are lacking for the Maltese Islands; the only published data are those of DREW & JUPP (1976). The aim of this study was to provide preliminary data on the morphological characteristics of a local *Posidonia* meadow situated off the White Tower headland, in the Malta-Comino Channel.

Shoot Density was estimated *in situ* by taking five 0.125m² quadrats at each of four stations located along a depth gradient at 6 m, 11 m, 16 m and 21 m. Estimates were made in August 1993, December 1993 and April 1994. Number of leaves per shoot, leaf length, and leaf width were measured in the laboratory for 25 shoots chosen at random from each sampling station. The dry weight of the leaf fraction excluding rhizomal weight and the leaf area index were also estimated.

The mean Shoot Density as measured over the whole sampling period showed an overall decrease with depth. Values recorded were: 782 - 807 shoots/m² at 6 m, 570 - 657 shoots/m² at 11 m, 464 - 530 shoots/m² at 16 m, and 357 - 420 shoots/m² at 21 m. The number of intermediate and adult leaves per shoot varied between a

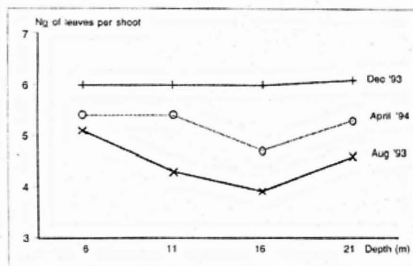


Fig. 1. Change in number of leaves per shoot of *Posidonia oceanica* with depth

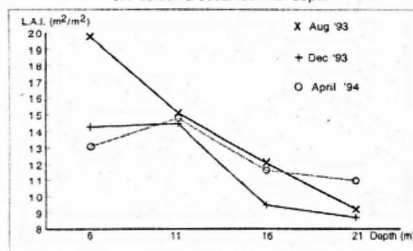


Fig. 2. Change in Leaf Area Index (L.A.I.) of *Posidonia oceanica* with depth

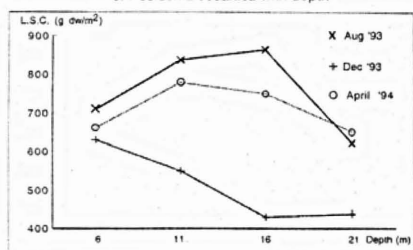


Fig. 3. Change in Leaf Standing Crop (L.S.C.) of *Posidonia oceanica* with depth

CINELLI *et al.*, 1984; MAZZELLA & OTT, 1984). The low L.A.I. and L.S.C. values at 6 m cannot be attributed to sea-urchin grazing as has been suggested by DREW & JUPP (1976) since echinoid density was close to zero in the study area following a sudden large decline in the *Paracentrotus lividus* population some four to five years ago. Furthermore, no significant temperature differences were recorded in the 6 to 21 m depth range. We attribute the presence of this discontinuity to different growth patterns of *Posidonia* in response to the varying hydrodynamic regime at different depths in the study area, as has already been suggested for other parts of the Mediterranean (MAZZELLA & OTT, 1984; BUIA *et al.*, 1992).

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