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Primary production of *Posidonia oceanica* in the Mediterranean Basin

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Abstract Primary production of the marine phanerogam *Posidonia oceanica* (Linnaeus) Delile was measured by lepidochronological analyses at 22 sites in the Mediterranean Sea (Corsica, France, Italy, Sardinia and Turkey), between 1983 and 1992, to determine spatial and temporal variations. Leaf production (blade and sheath) ranged from 310 to 1 540 mg dry wt shoot⁻¹ yr⁻¹, depending on site and depth. Rhizome production ranged from 24 to 120 mg dry wt shoot⁻¹ yr⁻¹ (6% of average leaf production). At some sites the results obtained by lepidochronological analysis were consistent with earlier results obtained by classic methods (e.g. leaf-marking). While primary production per shoot (mg dry wt shoot⁻¹ yr⁻¹) displayed no significant differences between sites, primary production of the *P. oceanica* meadow (g dry wt m⁻² yr⁻¹) decreased with increasing depth at all sites studied. This decrease correlated with reduced density of the meadow (number of shoots per m²) with increasing depth. Past primary production was also extrapolated at three sites at the island of Ischia (Italy) for a period of 5 yr in order to determine inter-annual variations over a period of several years. While major variations were recorded for the surface stations (5 and 10 m depth), production remained stable at the deepest station (20 m depth). Given the large geographical scale of the study (location, depth range), it would appear that while *P. oceanica* production remains considerable, the values recorded in the literature on the basis of classical analyses (surface stations) represent maxima, and cannot be generalised for meadows as a whole.

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