

# Primary production and vegetative cycle in *Posidonia oceanica* when in competition with the green algae *Caulerpa taxifolia* and *Caulerpa racemosa*

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Vegetative annual cycle and primary production were described in the sea grass *Posidonia oceanica* in competition with two Ulvophyceae, *Caulerpa taxifolia* (Cap Martin, France) and *Caulerpa racemosa* (Antignano, Italy). Sampling was performed at three stations exhibiting increasing levels of interaction with *Caulerpa*. Significant differences were observed as a function of the *Caulerpa* species, season and level of interaction. For each interaction, the different parameters have some seasonal variations. Any effects of the two *Caulerpa* species has been detected on the seasonal variability of our parameters. For all seasons, with increasing levels of interaction, the *P. oceanica* adult and intermediate leaf lengths, leaf index and mean age of the leaves always decrease whereas percentage of leaves having lost their apices, epiphyte biomass per unit surface area, mean number of leaves produced per shoot and per year always increase. Conversely, mean number of leaves per shoot or below-ground tissue production do not seem to be affected by *Caulerpa*. Finally, primary production of *P. oceanica*, by an increased turnover of the foliar tissues, was greater in the case of high interaction.