

Correlation between the acoustic noise field measured in a *Posidonia oceanica* bed and the photosynthetic activity.

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During the period of one week, from May 8 to 15, 2013, acoustic data was gathered at three locations over a *Posidonia oceanica* bed in the Bay of Revellata, Corsica. Preliminary analysis of the acoustic data shows that the environmental noise field in the band 2-7kHz was dominant during the period. The noise in this band is generally associated with wind and surface agitation. However, the noise power was not significantly correlated with wind speed. On the contrary, the diel cycle of the noise power at three locations was highly correlated with the water column concentration of O₂, as measured by optodes. These measurements of environmental noise have confirmed the correlation between active acoustic signals transmitted along a seagrass meadow and the photosynthetic activity of the plants observed in a previous experiment conducted in the same area. The results suggest that acoustic noise can be used as a proxy for the photosynthetic oxygen production of a *Posidonia oceanica* meadow. Therefore, this work is a contribution for the development of a low cost passive acoustic system to assess the primary production of coastal ecosystems.