

## **Impact of shading on meiofauna in a *Posidonia oceanica* meadow**

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*Posidonia oceanica* meadow is an endemic ecosystem of the Mediterranean coasts. A known threat to this ecosystem is aquaculture. In zones of intensive fish production, *P. oceanica* meadow tends to be less healthy or to disappear. One of the reasons for this is a decrease in the light that reaches the leaves (direct shading, increase of water turbidity or of epiphytic algae density). Unfortunately, when the meadow begins to die, it is often too late to act. So, people are trying to find indicators that react early to this kind of perturbations.

In this framework, this study focuses on the impact of shading (without nutrient enrichment) on the meiofauna living in the surface sediment of a *P. oceanica* meadow.

An *in situ* shading experiment was led from the end of May to the end of August 2009, at a depth of 10 m, in a reference *P. oceanica* meadow. Three shading nets were put in the meadow to reach a light extinction of 50%. A control site was also defined. The first two centimetres of sampled sediment cores were studied.

After three months of shading, the total abundance of meiofauna at the shading site was lower than at the beginning of the experiment, while it stayed around the same level at the control site. This difference is mainly due to a decrease in the total number of foraminiferans, nematods, gnathostomulids, copepods and bivalves. However, no significant difference in diversity was observed.

At the end of this experiment, it appeared that, contrarily to what is mostly said in the literature, the direct organic enrichment that occurs at fish farms is not the only reason to the modification of the meiofauna communities of the ecosystem. The shading by itself has also an effect.