



Meadow development of the seagrass *Posidonia oceanica* on the rocky seabed: a preliminary study in the Ligurian Sea.

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Seagrass meadows are key ecosystems in coastal waters, influencing coastal zone features in terms of wave attenuation and shoreline stabilization. Landscape patterns observed in seagrass habitats are often associated with natural effects by waves or currents, as well as by human induced disturbances. *Posidonia oceanica*, the most important and abundant seagrass in the Mediterranean Sea, forms large meadows from the sea surface down to 40 m depth, colonizing a wide range of substratum typologies. Several studies have correlated the occurrence of *P. oceanica* meadows with sedimentological features, but few have investigated the role of substratum typology in shaping the geometry of a meadow. Meadows often develop on sand, but may also colonize rock. The present study relates geological parameters (structural, geotechnical, and mineralogical) of the rocky substrata with the development and characteristics of two shallow *P. oceanica* meadows in the Ligurian Sea (NW Mediterranean). Preliminary results show that the seagrass, in situations of high hydrodynamics, may colonize only specific lithotypes of the rocky substratum such as the clastic sedimentary rocks (mainly sandstone) that are characterized by low porosity and high values of strength. Under these conditions, the plant is capable to settle in areas with high hydrodynamics, where its development is usually prevented by lack of strong rhizome anchoring. When the upper portion of the meadow is installed on sub-verticalized layered rock, on which differential erosion acts, the arrangement of the more tenacious layers becomes the main element characterizing meadow geometry.