Advancing Blue Biorefinery Development in the Adriatic Sea (BIOBASED Project)

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Abstract

The Blue Bioeconomy presents significant potential for the sustainable use of marine resources, promoting cross-sectoral linkages across fisheries, aquaculture, energy, tourism, conservation, and local development. Despite this potential, knowledge gaps persist, particularly concerning the relationship between ocean health, resource impacts, and blue bioeconomy sectors. Addressing these gaps is crucial to achieving a "sustainably harvested & productive ocean," a goal highlighted in the UN-Decade of Ocean Science for Sustainable Development. Within this context, the BIOBASED project, Interreg Italy-Croatia (2021-2027), aims to establish a robust R&D framework to bolster the Italy-Croatia position in the blue bioeconomy, leveraging established expertise in biorefinery processes. The BIOBASED focuses on developing regenerative multi-trophic aquaculture (IMTA) systems (mussels/oysters and seaweeds) to advance sustainable marine biomass production and utilisation in the Adriatic region.

BIOBASED is featuring four demonstration sites, two along the Italian Coast (Gargano and Emilia Romagna) and two along the Croatian Coast (Dubrovnik and Mali Ston), enhancing local engagement and advancing a circular bioeconomy through innovative biomass conversion techniques, from chemical to biochemical processes. Valuable autochthonous seaweeds, *Gracilaria sp* and *Ulva sp*, are grown in lantern nets with two different mesh sizes and at three different density levels, in terms of mussels ropes/seaweed lanterns ratio. Throughout the production period, the specific growth rate (SGR) of the macroalgae and their biochemical composition are assessed. Preliminary results of the BIOBASED project will be presented and discussed. This initiative exemplifies the EU's commitment to sustainable resource use, underscoring the Adriatic's potential within the global Blue Economy.

Keywords: Blue Economy, Seaweed, Biorefinery, Rigenerative IMTA

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