Improving the effectiveness of *Ericaria amentacea* restoration interventions: characterisation of donor population and testing of different cultivation strategies

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The macroalgal forests of the complex *Cystoseira sensu lato* (which includes genera *Cystoseira*, *Ericaria*, and *Gongolaria*) represent one of the most productive habitats in the Mediterranean Sea, as they support extraordinary biodiversity and sustain coastal ecosystems through the export of organic matter.
These forests and the associated communities along the Mediterranean coasts are showing a strong decline, caused by various anthropogenic stressors. Their gradual disappearance compromises the ability of the oceans to sequester CO_2, mitigate climate change and ensure the ecosystem services provided by macroalgal forests. Natural recovery of populations is poorly documented and ecological restoration actions need to be promptly implemented. In this context, the accurate characterisation of donor populations is increasingly emerging as a necessity, also in the context of climate changes.
Therefore, this study aims to propose a strategy for the assessment and characterisation of *Ericaria amentacea* donor populations based on a study performed at a potential donor site (Bogliasco, GE, Italy), for restoration actions to be implemented. To achieve this goal, we collected *E. amentacea* thalli once a month for one year, taking morphological measurements, detecting the presence of reproductive structures, and assessing the carbon and nitrogen content. Our observations will help to better describe the donor population and identify the best period to start cultures for *ex-situ* outplanting, a tested and sustainable method for restoring *E. amentacea* starting from small fertile portions. This will be done also to implement different cultivation techniques and test their effectiveness, in terms of percent cover, growth, and nutrient content.