

# REQUALIFICATION OF COASTAL SEA AREAS THROUGH THE REUSE OF BEACH-CAST SEA-GRASS

**Innovations and benefits** - The technology developed by ENEA, thanks to various projects carried out in collaboration with the Protected Marine Area of the Egadi Islands (Sicily) and Capo Carbonara (Sardinia), is a multifunctional environmental structure that can be used both in submerged and emerged environment. The structure serves to contain the biomass and can be used for environmental requalification (habitat restoration).

More precisely, this is a solution capable of exploiting plant biomass residues, collected on the coast, thus transforming it into a resource and avoiding it being managed as a waste (mixing it with waste).

**Use** - The innovative feature of the present invention is that the biomass, previously separated from possible waste with a specific process, is used as it is and constitutes the filling material of a multifunctional structure that has specific technical and formal requirements. The flexible material with which the structure is made can be biocompatible (both natural and synthetic) therefore also made up of recyclable and / or biodegradable plastics for the replacement of materials and raw materials. The choice of material depends on the specific use for which the structures are intended, which can be made in different shapes and sizes. These are made up of pairs of layers stitched together and a closure system that allows their periodic filling and emptying. They can also be equipped with reinforcements and accessories according to the different degree of finishes desired by the user and the needs of use (borders for paths, layers for the requalification of the seabed or substrates for the repopulation of marine vegetation).

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**Applications and ongoing Activities** - The advantages are manifold because with the use of this structure it is economically convenient to solve the problem of removing plant biomass, a new market is created with low-environmental-impact products and solutions as well as the possibility of carrying out environmental requalification and compensation projects compared to major works (gas pipelines, power lines, ports) that could have an impact on the ecosystem.

