

# Heritage project

Floating reef



RAISING STONES  
events

# WHY WE NEED TO ACT FOR THE OCEAN?

Our company is committed to three essential causes: protecting water, social assistance, and preserving biodiversity. Together, we are building a sustainable and united future.

Protecting freshwater and oceans is crucial for our planet. By preserving these ecosystems, we ensure vital resources and preserve biodiversity. Acting in this direction aligns with the United Nations' criteria for sustainable development, thereby promoting a future where water is clean, oceans are healthy, and future generations benefit from these aquatic treasures.

The ocean plays a crucial role in regulating the Earth's climate, weather patterns, and the overall health of the planet. It is also home to a vast array of plant and animal species, many of which are still undiscovered and undocumented.

However, human activities have greatly impacted the ocean and its ecosystems. Overfishing, pollution, habitat destruction, and climate change are just a few examples of the threats facing the ocean today. These threats not only harm the ocean and its inhabitants but also have serious consequences for human health and well-being.

By taking action for the ocean, we can help ensure a healthy and thriving planet for generations to come.

For those reasons, Raising Stones decided to elaborate partnership with ocean association in order to help them to develop their actions.

## Some Datas:

- The World Wildlife Fund estimates that around 27,000 marine species are at risk of extinction due to human activities, including overfishing, pollution, and habitat destruction. This includes many species that rely on the seabed for survival.
- Repetitive mooring or anchoring have several impacts on the environment: destruction of seafloor, spreading of invasive species.

# OUR PARTNER

Pure Ocean is an international endowment fund based in Marseille and Lorient. Its main mission is to mobilize civil society in order to support ambitious and innovative scientific projects for the protection of biodiversity and fragile marine ecosystems.

Through an international call for projects, then an analysis carried out by the five eminent researchers who make up the scientific committee, Pure Ocean selects projects with a strong innovative dimension, whether technological, ecological or social.

Pure Ocean also raises public awareness of the situation of endangered ecosystems by highlighting solutions to protect them through conferences, the promotion of races and sporting challenges or the provision of "La Goutte Bleue" waste collection kits



# PROJECT PRESENTATION

The repeated anchoring of yachts impacts the seabed: in the Mediterranean, this practice contributes to the degradation of the precious Posidonia meadows. The Floating Reef project aims to develop an eco-designed and sustainable subsurface buoy. The multiple attachment surfaces of this biogenic buoy-reef, floating in the water column, will provide an ideal refuge for local plant and animal species. Combining 3D printed biopolymers and reused materials, this low carbon impact concept could be easily replicated worldwide.

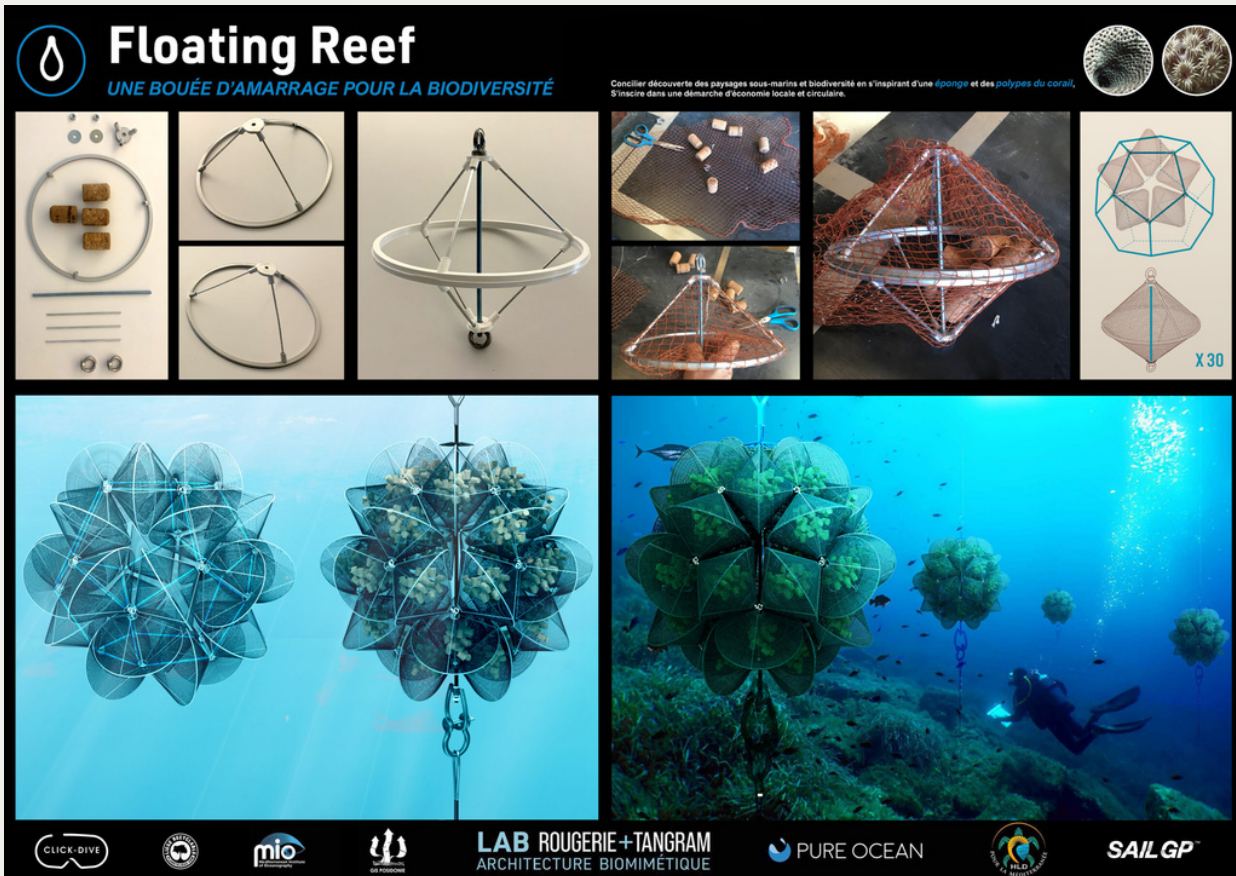
## The stakes of posidonia meadows conservation

In the Mediterranean, the sites most frequented by yachts are seeing an increasing degradation of the precious Posidonia meadows, under the influence of individual anchoring systems. The regrowth is very slow: the meadow extends horizontally only a few centimeters per year, and vertically one meter per ... century. As a result, 10% of Posidonia meadows have already disappeared in recent decades.

However, these habitats are among the most productive on the planet, and of great biological diversity: although they represent less than 3% of the Mediterranean surface, 30 to 40% of species depend on them for all or part of their life cycle. They also provide a large number of ecosystem services: they support marine life, oxygenate water, fix sediments and large quantities of carbon in their root network (the "matte"), and protect the coasts from erosion by attenuating swell and forming "banks" on the beaches. Fishing resources, climate change mitigation, protection against extreme events, heritage, cultural and tourist value...: the economic value of the already-disappeared posidonia beds is estimated to ~4 billion euros per year.

The installation of permanent "ecological moorings" is an effective solution to avoid the use of individual anchors, but most of them come from the petrochemical industry and require regular maintenance to resist UV rays and fouling. The Floating Reef project aims to develop a more ecological and sustainable biomimetic mooring buoy: designed in biogenic material and 3D printed, its structure will serve as a refuge for various local species. No maintenance would then be required and each buoy could last for several decades. Eventually, several of these buoy-reefs floating above the seabed would be deployed in the same area to create an educational underwater pathway to raise public awareness of biodiversity preservation. This concept would be replicable all over the world. A scientific follow-up is also planned to measure the effectiveness of the buoys over the long term.

# PROJECT GOALS



Design a subsurface mooring buoy to preserve posidonia meadows and restore local biodiversity.

**Financial target: 12 000€ per buoy**

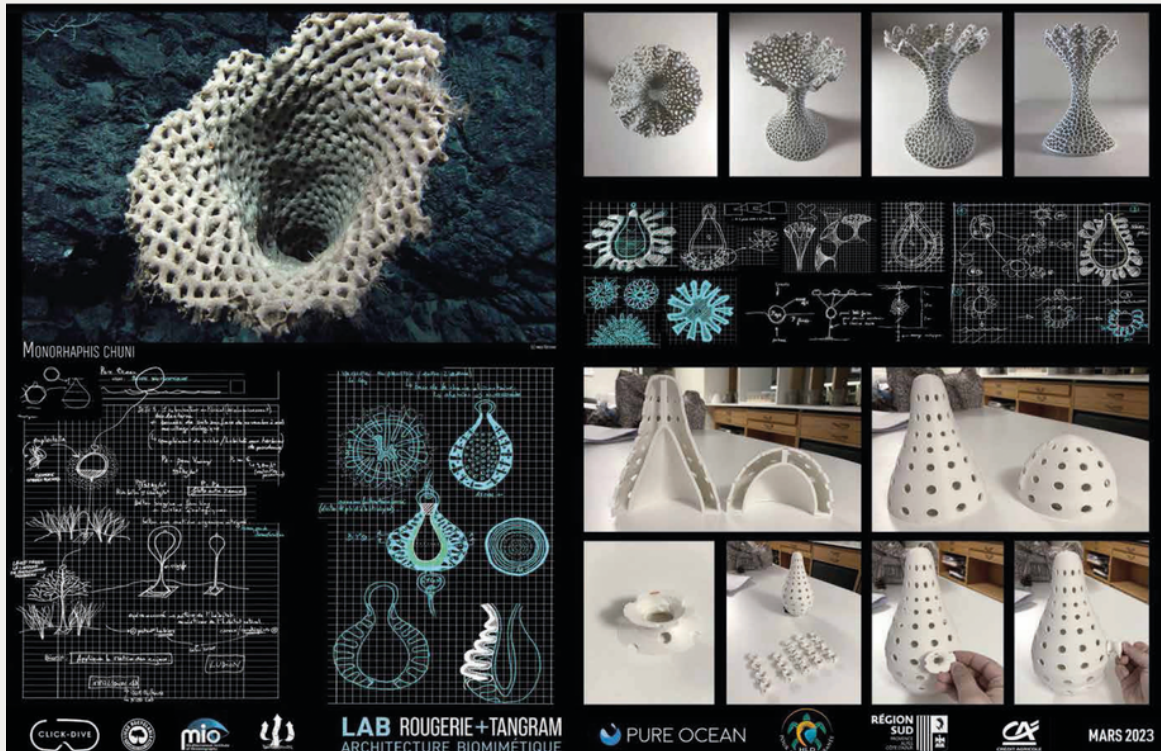


Up to 60% of your donation is tax-deductible under certain conditions.



Project's presentation

Realization, design inspired by the principles of living organisms

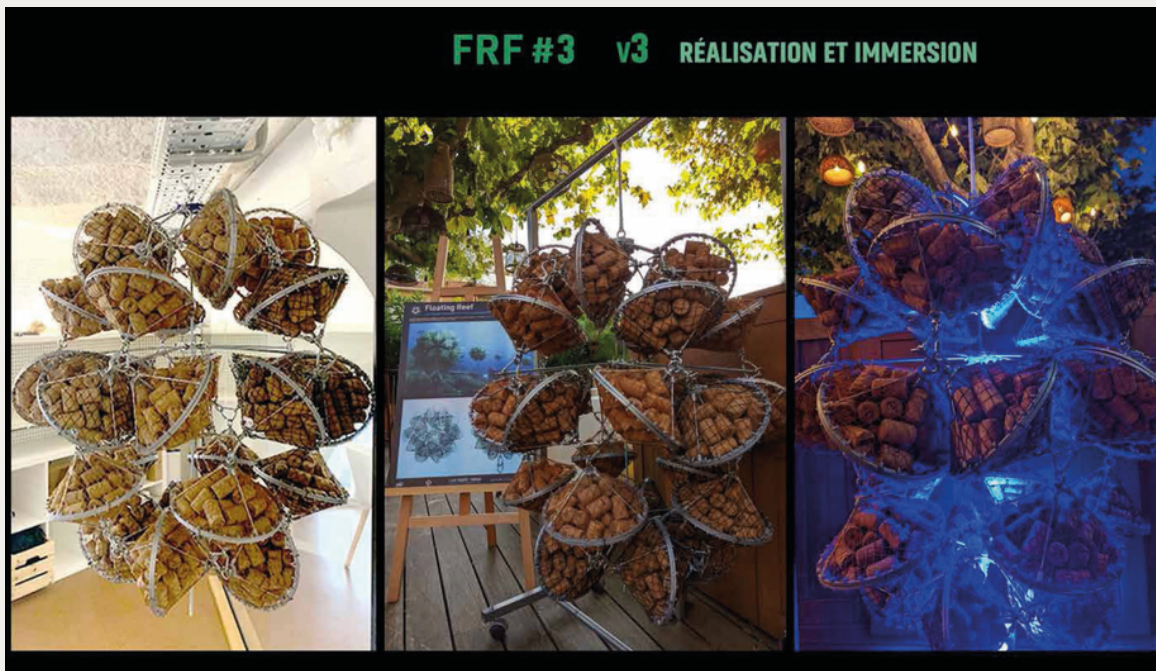


A buoy created for the biodiversity



**Made in Marseille, France, delivered in 2 months**

# TECHNICAL DETAILS



Designed using cork stoppers and reclaimed fishing nets.

## Weight and size

For the small pyramid version (6 edges, therefore 6 baskets):

- 4kg
- 270 cork stoppers
- 0.034 m<sup>3</sup>
- 2.5 m<sup>2</sup> of colonizable surface area
- 40 cm on each side

For the large pyramid version (9 edges, therefore 9 baskets):

- 5.7kg
- 405 cork stoppers
- 0.053 m<sup>3</sup>
- 4m<sup>2</sup> of colonizable surface area
- 40 cm on each side, but 70 cm tall

For the dodecahedron:

- 30kg
- 1000 cork stoppers
- 0.6 m<sup>3</sup>
- 12.5 m<sup>2</sup> of colonizable surface area
- 80 cm tall

