



RESILIENT COASTLINES FOR THE FUTURE

Protection of the coastal areas against the rising sea levels and support of marine biodiversity are becoming increasingly urgent, complex and expensive.

In the European Union and the UK flooding currently causes annual damage of about €7.6 billion, and this amount will only increase due to climate change. Coastal erosion is a growing concern in the European Union, as it is accelerated due to human activities, and leaves many areas defenseless against floods exacerbating the negative impact.

The health of the water systems in the EU is in distress too. 46% of Europe's sea coastal waters and 48% of European rivers are under pressure including intense eutrophication resulting in water "dead zones", fish kills and other events leading to deteriorating ecosystems and challenges for the seafood and aquaculture industries. (EU Water Framework Directive, EU Marine Strategy Framework Directive)

THE REEFY SOLUTION

Reefy combines coastal engineering and marine biology in its innovative award-winning products. Reef Enhancing Breakwater (REB) dissipates wave energy reducing erosion and flooding, while it also enhances marine biodiversity and healthy water ecosystems. The permeable design facilitates the throughflow to maintain water quality and allow fish migration.

This hybrid function of dissipating wave energy and providing habitat for marine life is what makes REB a resilient solution for adaptation to climate change compared to the traditional grey infrastructure or solutions purely focused on marine life restoration.

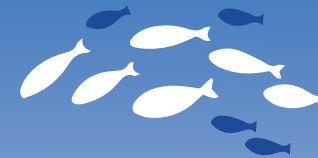
REB is assembled from ReefBlocks and EcoBlocks, the system and its components have been tested in laboratory conditions, and in the wave flume of Deltares. The pilot project with 17 ReefBlocks was installed in the Port of Rotterdam in early 2023.

52%
of World Population
46%
of Global Assets
20%
of Global GDP
are at Risk of Floods



Sustainable Development Goals

The pilot project with 17 ReefBlocks was installed in the Port of Rotterdam in early 2023.



60%
of commercial fish species are not in good environmental status

25%
of all coastlines are eroding

Reefy
working with



Deltares



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ECOSYSTEM FOUNDATION

NATURE-BASED CLIMATE ADAPTATION ENSURING:



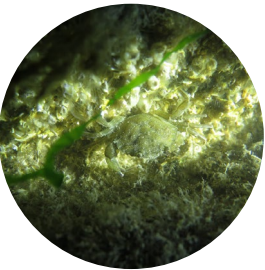
1 Macro complexity

The elongated shape of the ReefBlocks allow for large overhang and cathedral environments as a shelter for larger species and schooling fish. Additionally the hydrodynamic tunnel system creates a labyrinth of shelters throughout the structure.



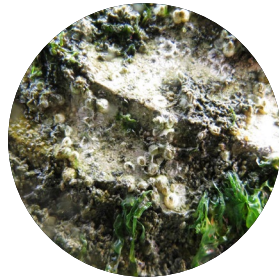
2 Meso complexity

The rounded corners of the ReefBlocks join to form crevices of different sizes between blocks. These inclined shelters are a perfect habitat for ecologically important invertebrate species and small fish to reproduce and take shelter. As every ecosystem is different we can further configure habitat for target species within our Eco-Block.



3 Micro Complexity

By engineering specific textures in our eco-concrete ReefBlocks we can create the perfect substrate for the settlement and growth (or pre-seed) reef building organisms like cold water coral and oysters to kickstart the development of the ecosystem.



BIODIVERSITY AND ECOSYSTEM SURFACES

Restoring habitats and ecosystems services, supporting migration of fish, growing layer protecting from sea level rise

WATER QUALITY AND NET ZERO

Marine vegetation acting as carbon sink and biofilter, self-repairing structure with a longer lifespan and lower CO2

SAFETY AND COST REDUCTION

Protection of the shoreline from erosion, protection of the assets, reduction of loads on dikes

