



M.A.R.E.

MACCAFERRI



"Climate change is intensifying pressures on our oceans: rising seas, eroding coasts, and disrupted ecosystems are no longer distant threats, but urgent realities. Confronting these challenges requires not just awareness, but engineered resilience."

— Based on findings from the *by the IPCC Sixth Assessment Report, 2023*



In response to these challenges, Maccaferri delivers engineered marine solutions that protect, adapt, and restore — turning technical expertise into climate resilience.

Global Presence

Founded in 1879, Maccaferri is a global leader in innovative and sustainable solutions for environmental, geotechnical, hydraulic, and marine engineering challenges. With a worldwide presence and manufacturing capability, we deliver effective, locally adapted solutions backed by strong technical support and deep knowledge of regional needs.

130+

Countries

20+

Factories

3500+

Innovators



Global Presence



5000+

Projects every year

800+

Engineers

1000+

IP registrations

650+

M in Revenue

Modern engineers

Listeners: we transform dialogue into action, innovation into resilience, and collaboration into a better coexistence between humanity and nature.

Engineers of climate change adaptation: we design solutions that respond to the Earth's signals and to people's needs.





M.A.R.E.

Marine

Application

Remediation

Environment



ROAD ACCESS

BEACH NOURISHMENT

RAILWAY ACCESS

BASAL REINFORCEMENT

LAND RESTORATION

ALGAE RESTORATION

ON-SHORE SCOUR
PROTECTION

SEDIMENTAL CAPPING

ARTIFICIAL ISLAND

SEALINE PROTECTION

OFF-SHORE SCOUR
PROTECTION

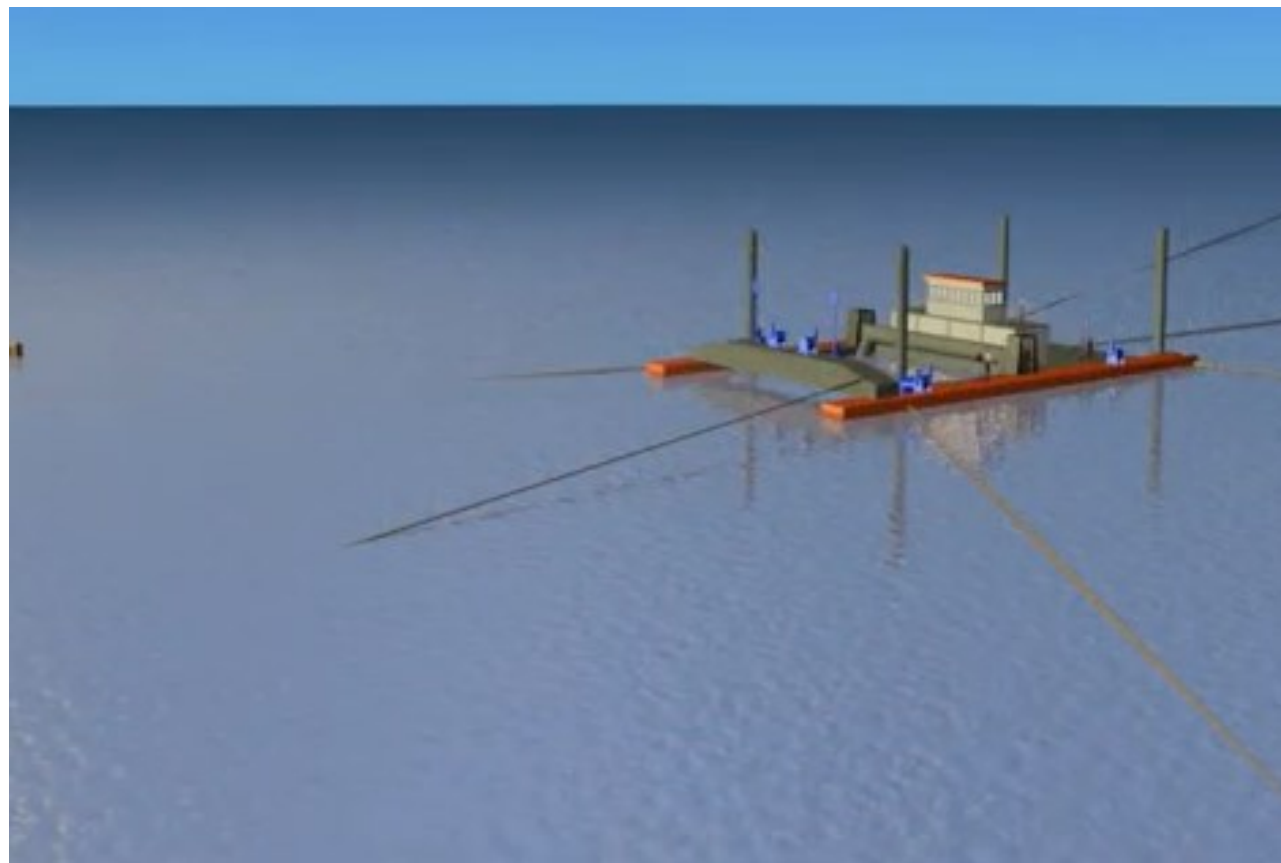
BREAKWATERS

AQUACULTURE

Our first success

Venice – Italy

To protect coastal infrastructures like Venice's lagoon, we use advanced ballasted filter mattresses that stabilize underwater structures. Engineered for durability, flexibility, and secure seabed contact, they are prefabricated and precisely installed using specialized marine equipment—ensuring long-lasting performance in challenging marine environments.



Dardanelli Cable Protection

Dardanelles Strait – Turkey

A 4 km high-voltage submarine cable was installed across the Dardanelles Strait to ensure reliable power supply to Çanakkale and Istanbul. Using 380 kV XLPE-insulated cables and ACBM concrete mattresses for protection, the project enhances system stability and reduces transmission losses.

ACBM



Elettra and Fauzia Project

Ravenna – Italy

To ensure safe and stable operation of new gas pipelines between the Elettra and Fauzia platforms in the Northern Adriatic Sea, SAIPEM used SARMAC T bituminous mattresses and prefilled MacBags to protect and stabilize the pipelines. These solutions prevent damage, correct free spans, and ensure long-term structural integrity.

SarMac



Coastal Protection Work

Kochi – India

To reduce siltation and improve efficiency at the Petronet LNG terminal in Kochi, a 500m breakwater extension and 150m groyne were built using geotextile tubes and bags. These structures minimize wave energy, trap silt, and prevent beach erosion, cutting dredging needs and enhancing terminal operations.

Mactube



Submarine Dam

Le Lavandou - France

To combat coastal erosion at Cavalière beach in Le Lavandou, an underwater geotextile dam was built 30 meters offshore using sand-filled Macbags. The structure reduces wave impact, protects infrastructure, supports beach replenishment, and minimizes ecological impact on nearby Posidonia seagrass beds.

Macbag

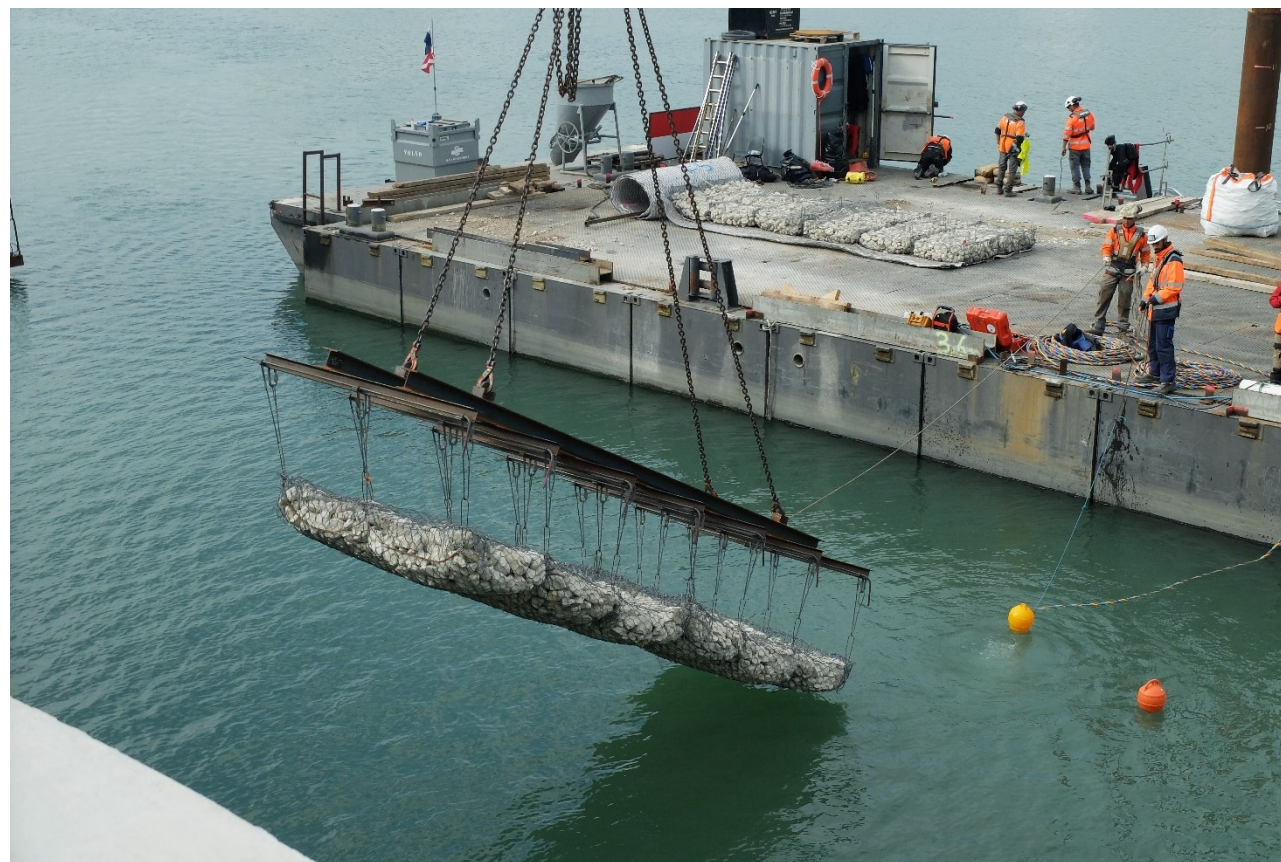


Arles' cruise ship dock expansion

Arles - France

In the heart of Arles, a remarkable project unfolded to accommodate large cruise ships. The existing Lamartine quay, steeped in history, couldn't meet this demand, leading CNR, the project owner, to envision a new dock on the left bank of Arles. s. This ambitious undertaking involved using specialized double-twisted wire mesh pre-filled mattresses, RenoMac Plus.

RenoMac Plus



City of Ft. Pierce Marina

Ft. Pierce - Florida

After Hurricane Frances damaged Ft. Pierce City Marina, a resilient breakwater system with 12 islands and one peninsula was built using MacTubes and polymeric marine mattresses (PMMs). This design stabilized underwater slopes, controlled erosion, and provided storm protection while enhancing marine habitats.

PMM



SUSTAINABILITY

Maccaferri is deeply committed to sustainability and prioritizes environmental and social responsibility in all aspects of our operations.

Sustainability

A corporate Ethical Policy brings transparency, respect and accountability to our operations and interactions with clients.

Finally, our products are certified in accordance with internationally recognised standards and we are members of key industry organisations.

The Environmental Product Declaration (EPD) certificate quantifies our environmental impact allowing us to perform accurate LCA





We are dedicated to addressing environmental, economic, and social aspects holistically.

We believe in sustainable approaches throughout a project's life cycle. From design to construction and decommissioning, our engineering solutions aim to create long-term benefits beyond the product itself.

Maccaferri solutions mitigate natural and human-made hazards, respect the environment, enhance safety, and improve lives. Inspired by the UN's urgent call to achieve the SDGs, we have committed to meeting these goals step by step.



Thank you

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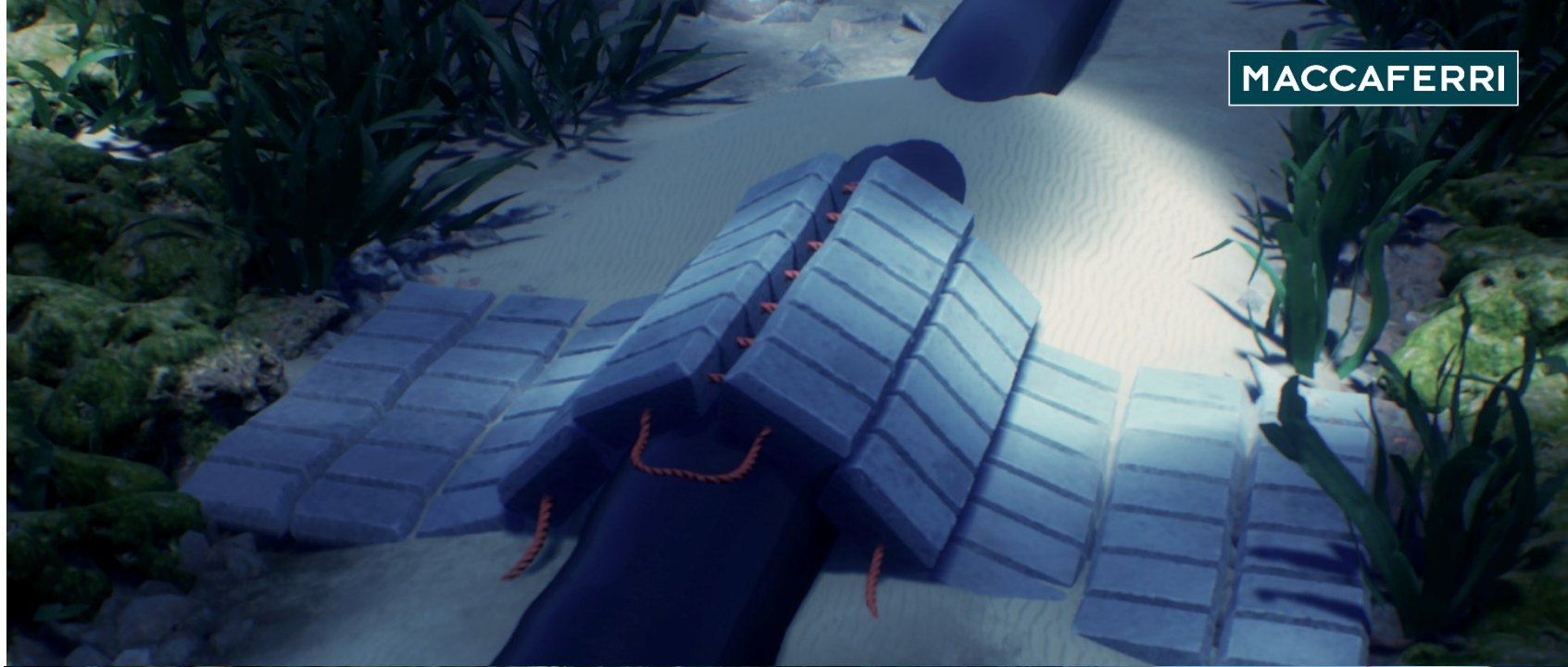
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Sealine & Cable protection

Subsea cable and sealine protection is crucial to ensure the safety and reliability of marine infrastructure. Maccaferri's solutions include ACBM (Articulated Concrete Block Mattress) and SarMac®, designed to provide ballast and protection from erosion or accidental impacts. These flexible systems conform to the seabed profile and can be easily deployed on-site, ensuring high performance and environmental sustainability.

MACCAFERRI



ACBM

SarMac





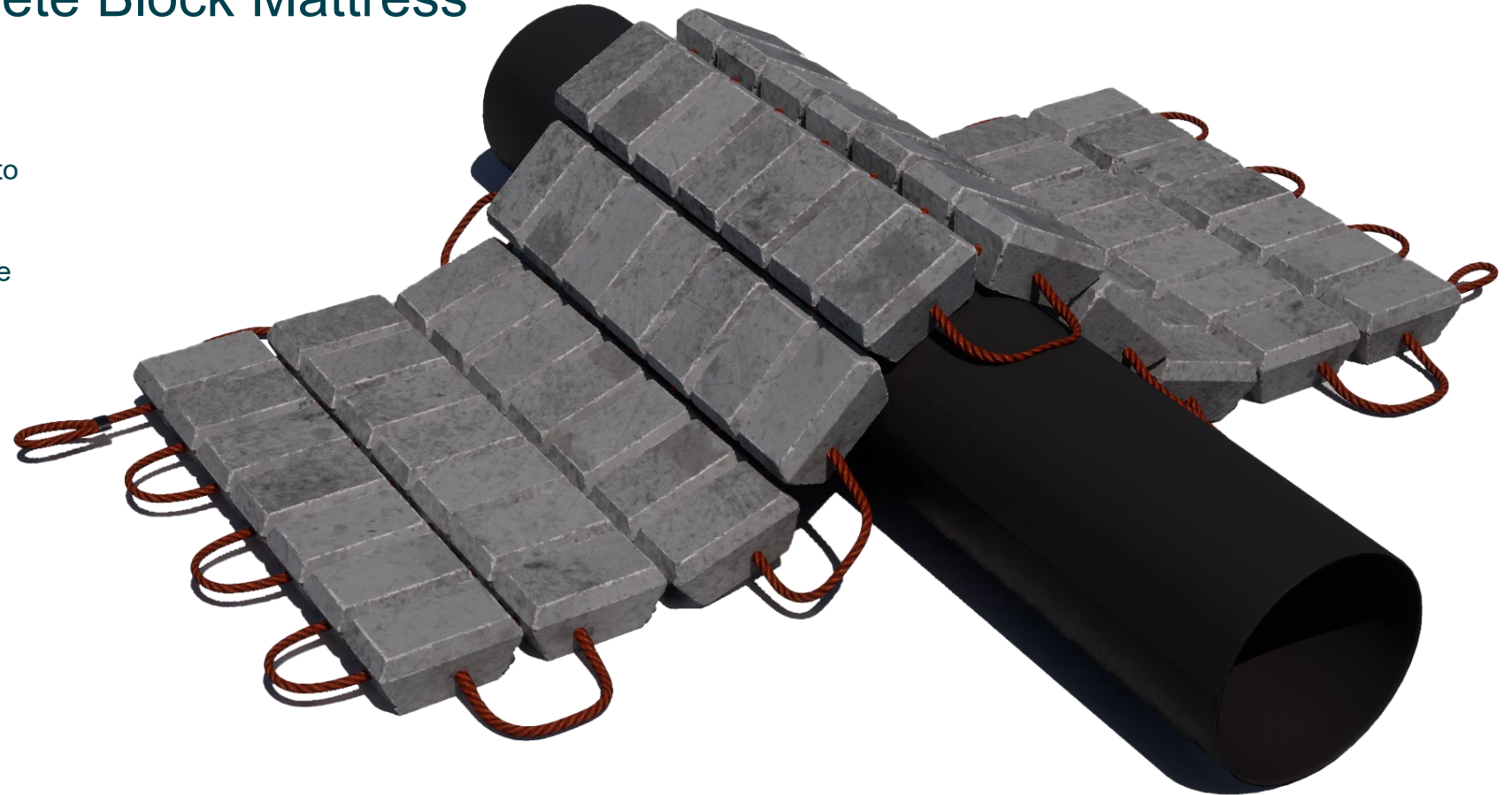


ACBM

The Articulated Concrete Block Mattress

The ACBM is a flexible mattress made of interlinked concrete blocks connected by a rope. It is ideal for protecting subsea pipelines and cables due to its adaptability to uneven seabed profiles.

Maccaferri's patented mobile formwork allows ACBMs to be produced directly at the installation site, significantly reducing transportation costs and environmental impact

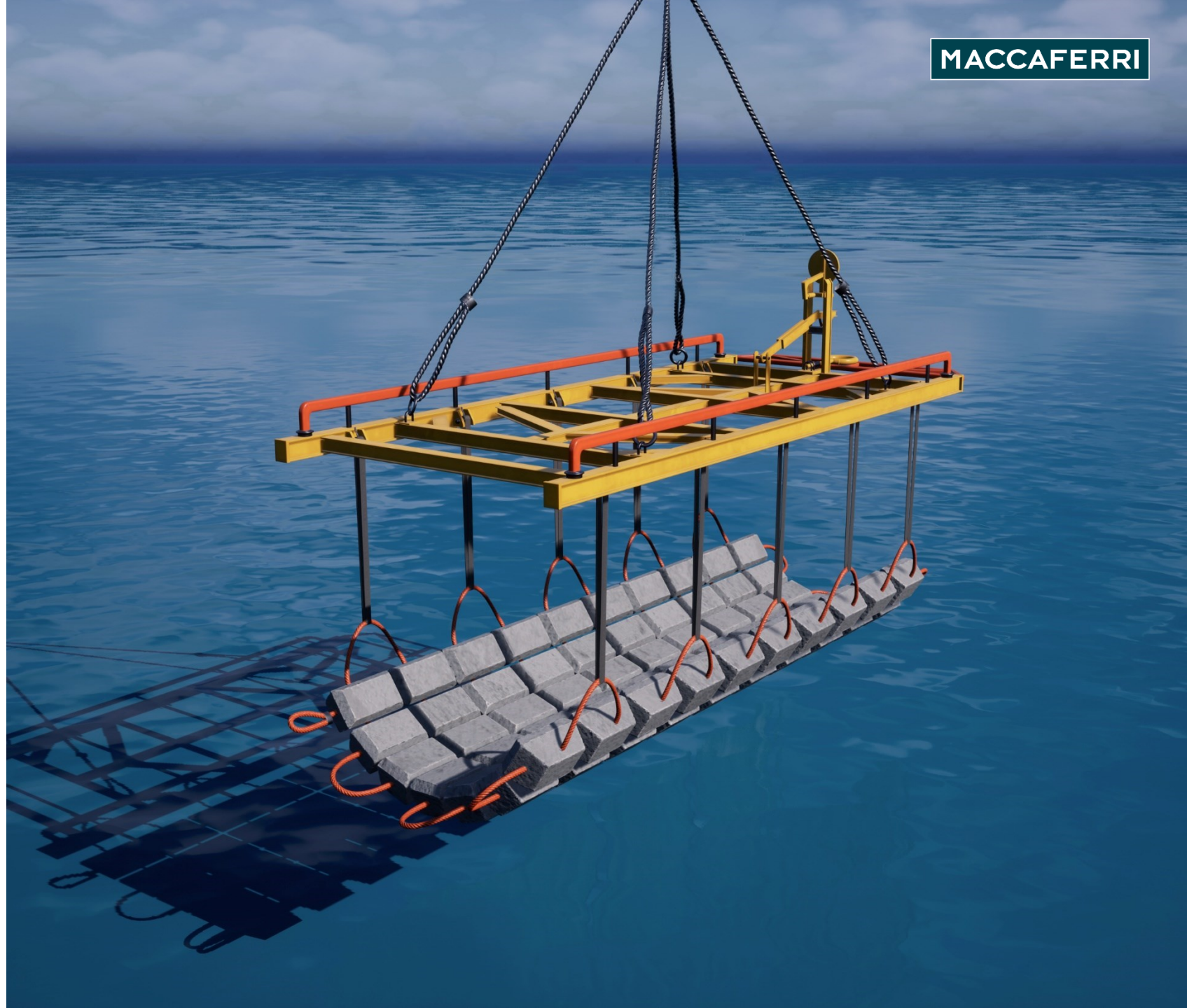




ACBM installation

ACBMs are easily deployed using lifting frames or cranes, adapting to seabed contours. Thanks to Maccaferri's patented mobile formwork, they can be produced directly on-site, reducing transport costs and environmental impact. Their flexible structure ensures fast, safe installation and reliable protection of subsea assets

MACCAFERRI





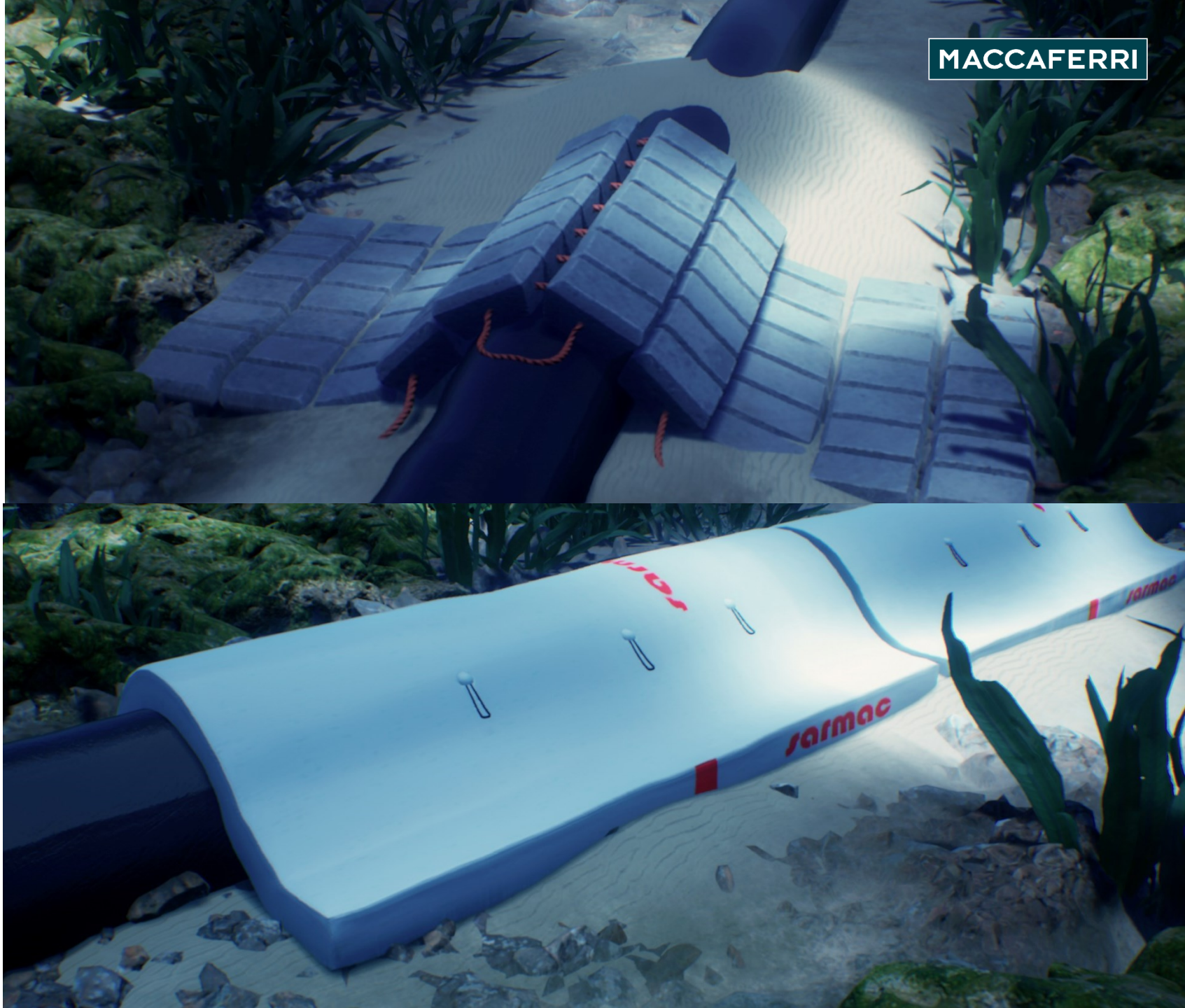
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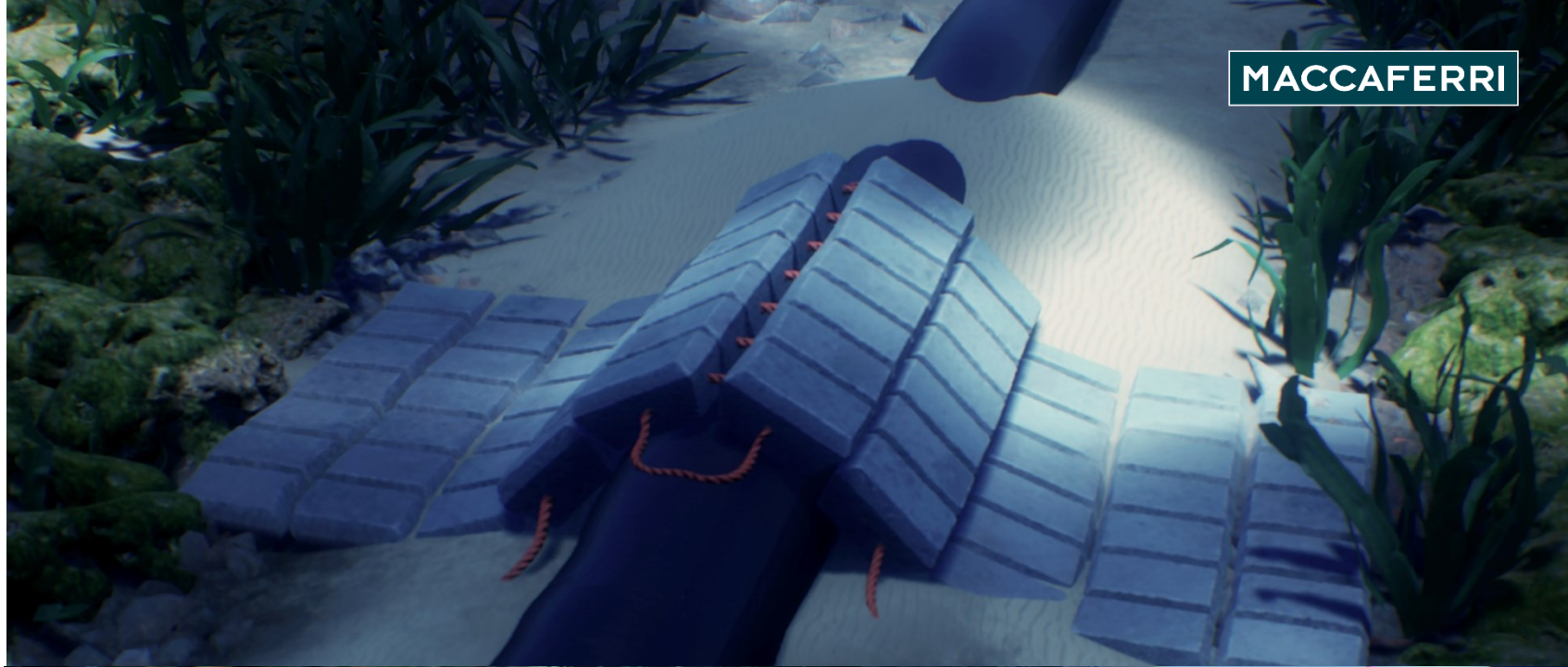




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ACBM

SarMac







Sarmac

SarMac is a flexible, bitumen-filled mattress designed to anchor and protect pipelines and cables in underwater conditions. Its steel wire mesh core and geotextile wrapping ensure durability and safe deployment.

Environmentally safe and highly ductile, it adapts to seabed profiles and offers impact resistance—ideal for pipe crossings, rigs, and jetty protection.





Sarmac Installation

SarMac mattresses are pre-filled and ready for quick deployment using integrated lifting straps. They can be placed directly over pipelines or cables with cranes or lifting frames, conforming naturally to the seabed. Their flexible structure ensures fast installation even in challenging underwater conditions.

MACCAFERRI



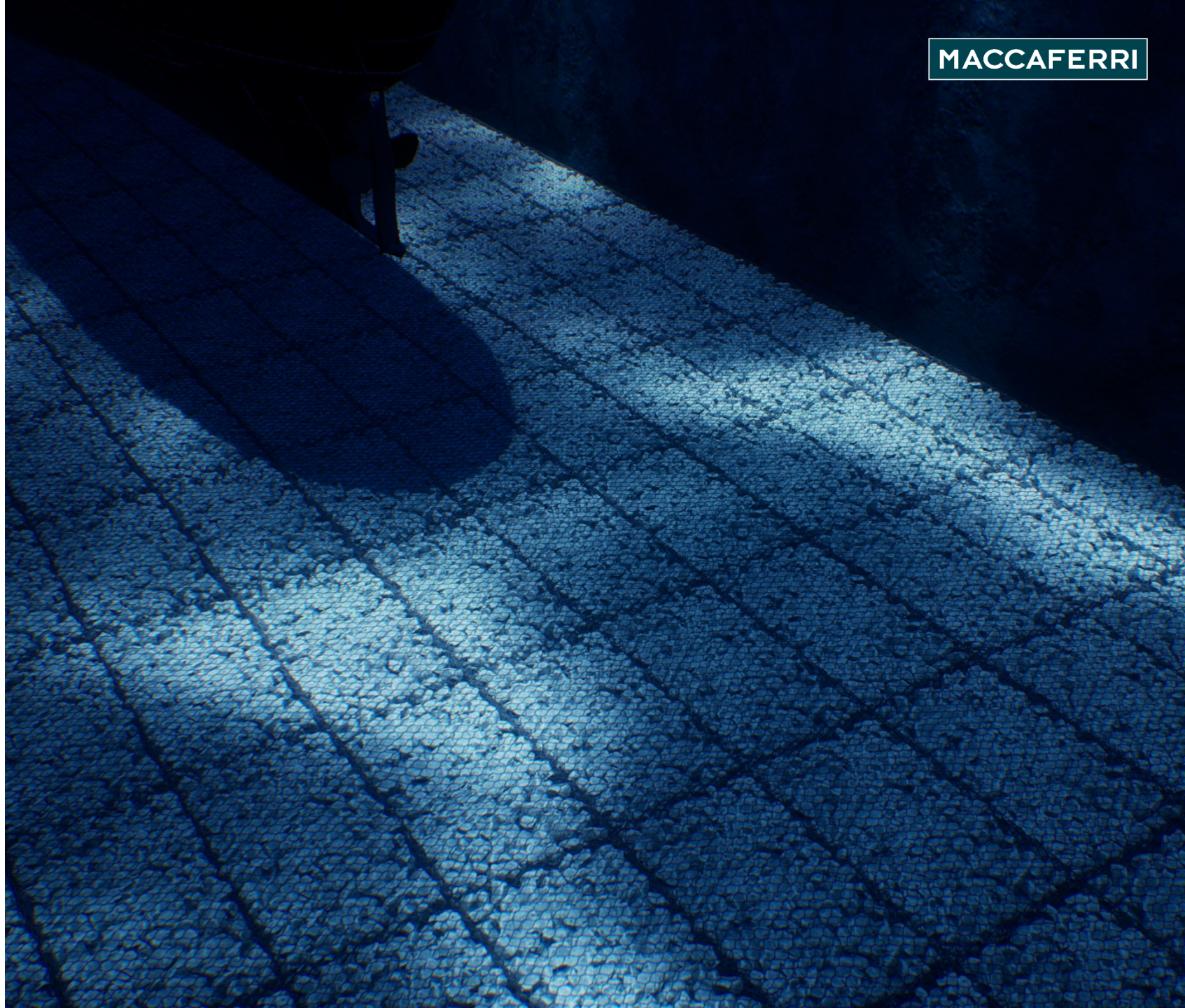


Harbour/On-Shore Scour protection

Scour around harbour structures—such as quay walls, mooring zones, and jetties—can compromise their stability and safety due to propeller action.

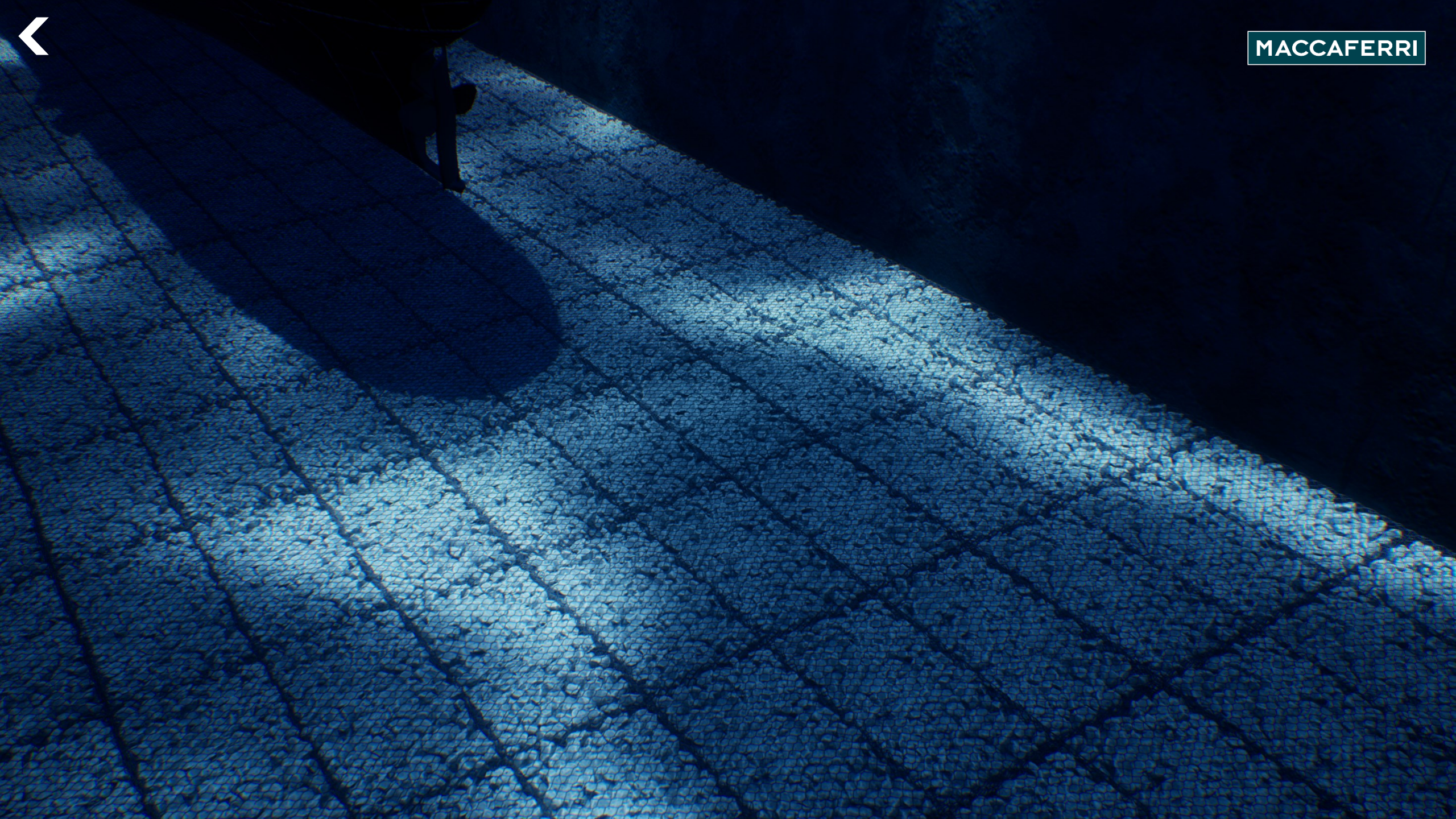
Maccaferri provides flexible, heavy-duty solutions that reduce erosion caused by vessel propellers, tidal flows, and currents, ensuring long-term performance of port infrastructure.

RenoMac Plus





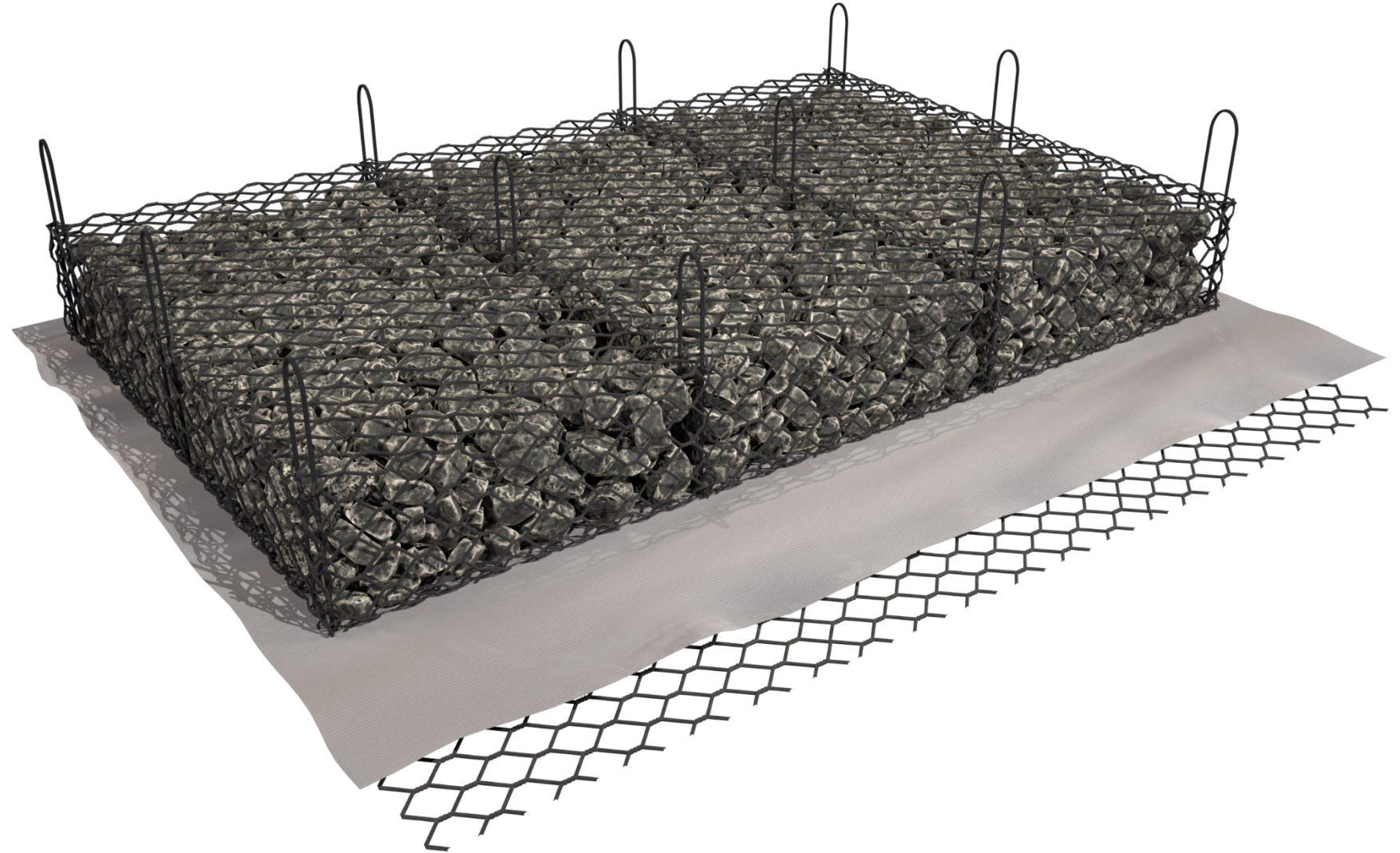
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RenoMac Plus

RenoMac Plus is a prefilled gabion mattress designed for effective scour protection in port and harbour environments. Its robust structure and flexible design allow it to conform to seabed irregularities, ensuring stability around quay walls and jetties. Recent tests conducted at Deltares have demonstrated RenoMac Plus' superior resistance to turbulent flows, validating its performance in demanding marine conditions.

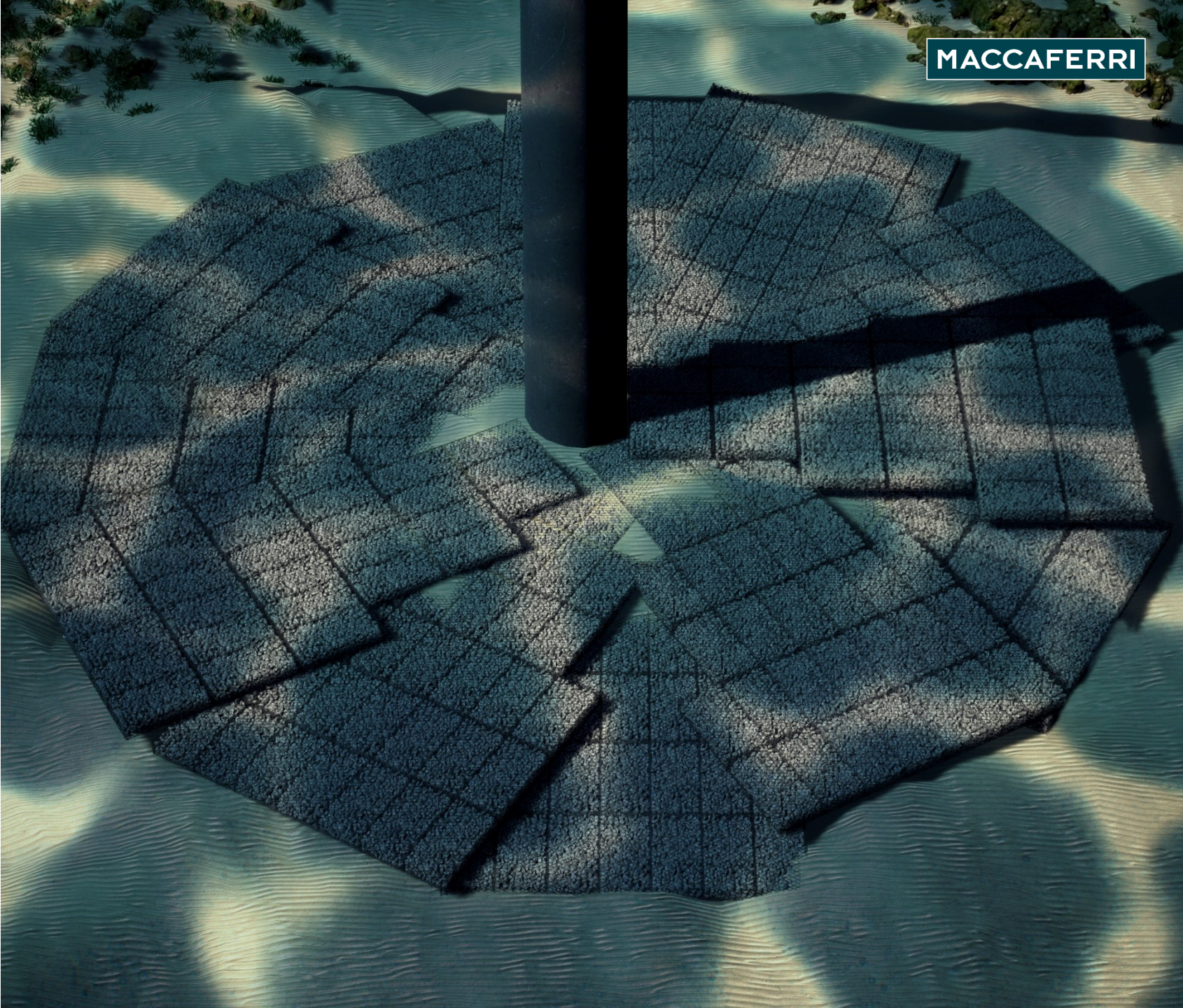




Wind farm/Off-Shore Scour protection

Off-Shore wind turbine foundations are highly exposed to scour caused by waves and current-induced vortices. Maccaferri provides robust seabed protection systems that reduce erosion, preserve structural stability, and extend the life of wind energy infrastructure.

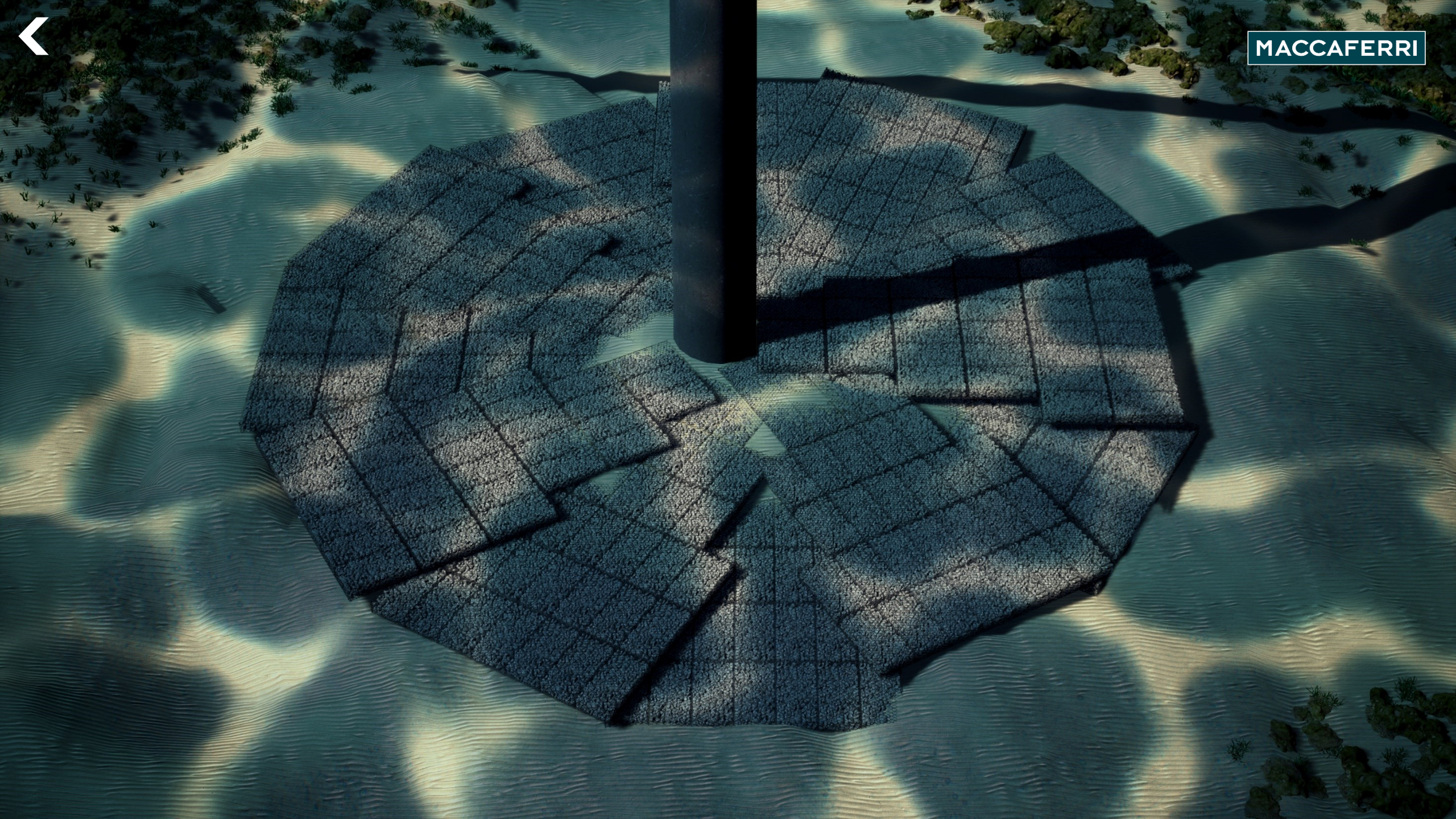
PMM



MACCAFERRI



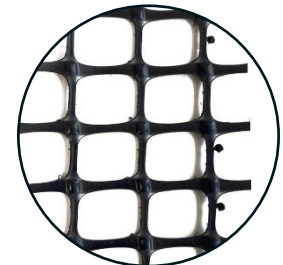
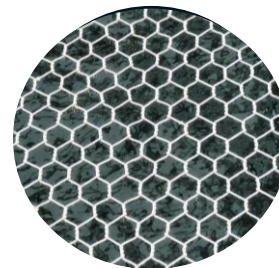
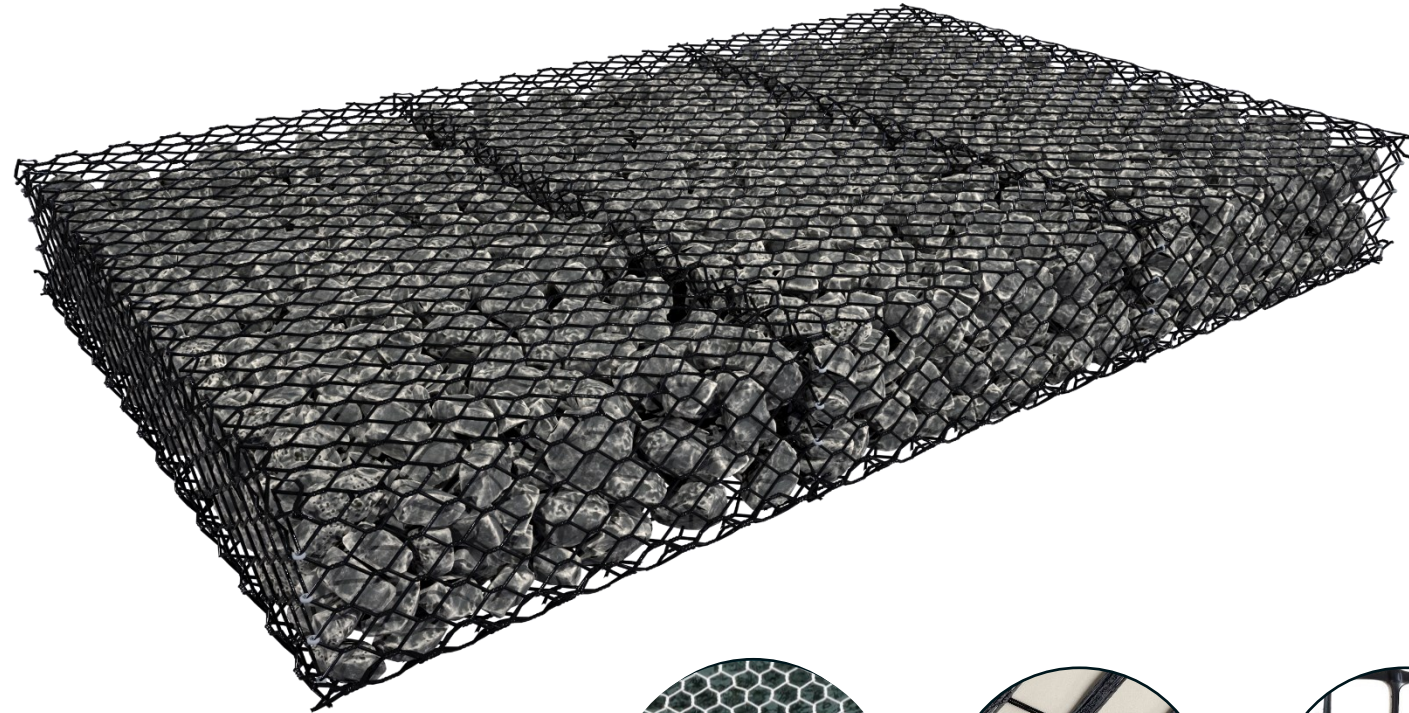
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PMM

PMM (Polymeric Marine Mattresses) is a geosynthetic-based mattress solution designed to protect offshore structures against scour. It is made from polymeric geogrids filled with rocks to ensure protection of the seabed. PMMs are available with different types of geogrids, selected according to hydraulic forces, seabed conditions, and installation depth. Their low visual impact and corrosion resistance make them ideal for wind farm foundations.



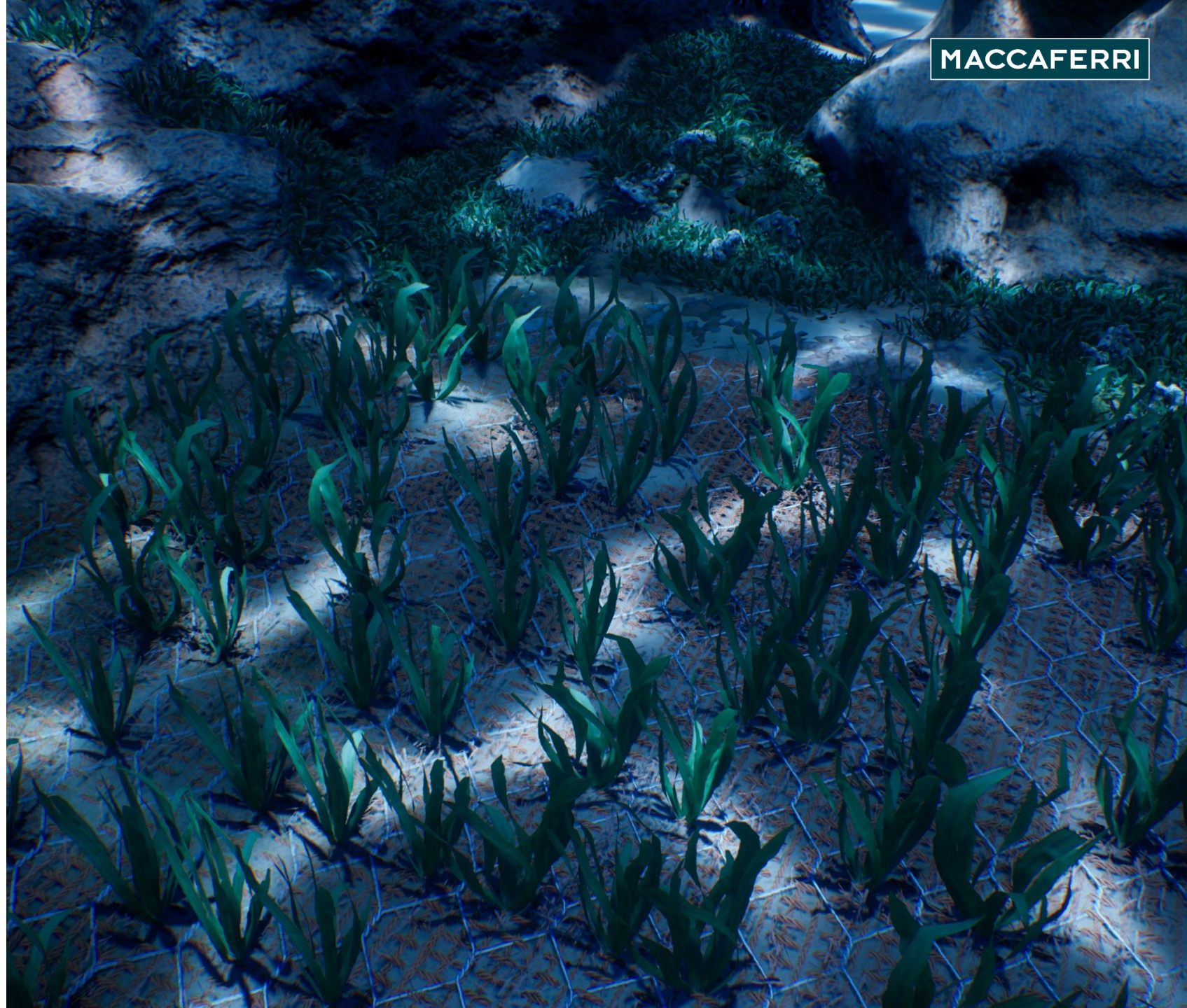


Algae Restoration

Maccaferri supports marine ecosystem restoration with solutions such as MacMat R, a reinforced geomat that acts as a growth base for seagrasses like *Posidonia oceanica*.

These plants are essential for oxygen production, biodiversity, and seabed stabilization. RenoMesh BIO assists in re-establishing healthy marine vegetation, even under challenging environmental conditions

RenoMesh BIO





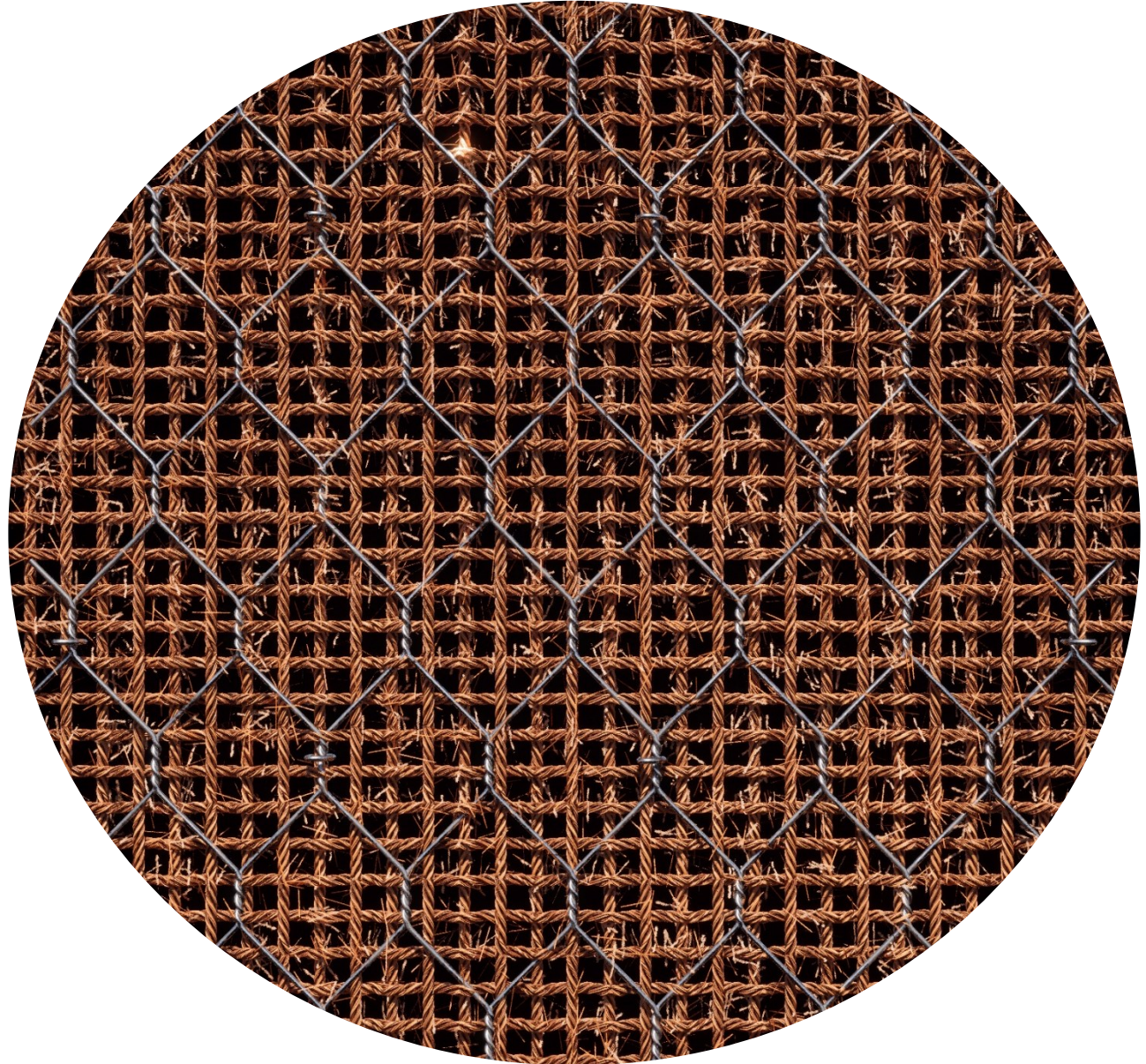
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RenoMesh BIO

RenoMesh BIO supports the restoration of marine vegetation such as algae and seagrass by offering a biodegradable substrate that stabilizes sediments and encourages root anchoring. Designed for minimal environmental impact, it protects young plants during establishment and naturally degrades once the ecosystem is rebalanced.





Aquaculture

Kikkonet is Maccaferri's innovative aquaculture solution, offering high-performance nets and cages designed to improve fish farming operations. Engineered to be durable and resistant to marine conditions, Kikkonet products enhance water flow and reduce maintenance needs, contributing to sustainable aquaculture practices

Kikkonet

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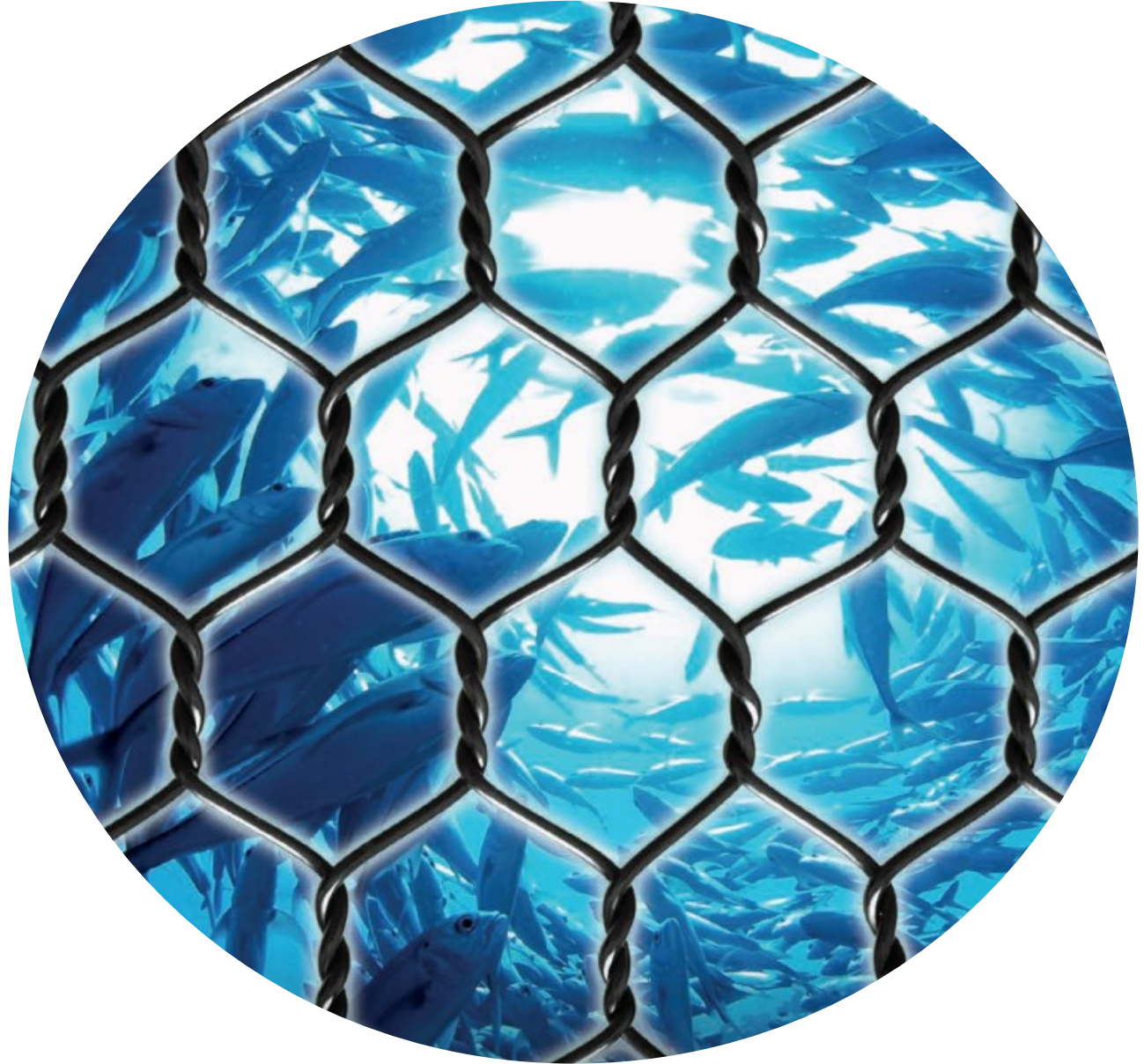






Kikkonet

Kikkonet is Maccaferri's advanced system for aquaculture, designed to create durable and efficient fish farming environments. Made with high-resistance polymeric mesh, it improves water circulation, reduces fouling, and ensures fish safety, supporting sustainable and productive marine farming operations.

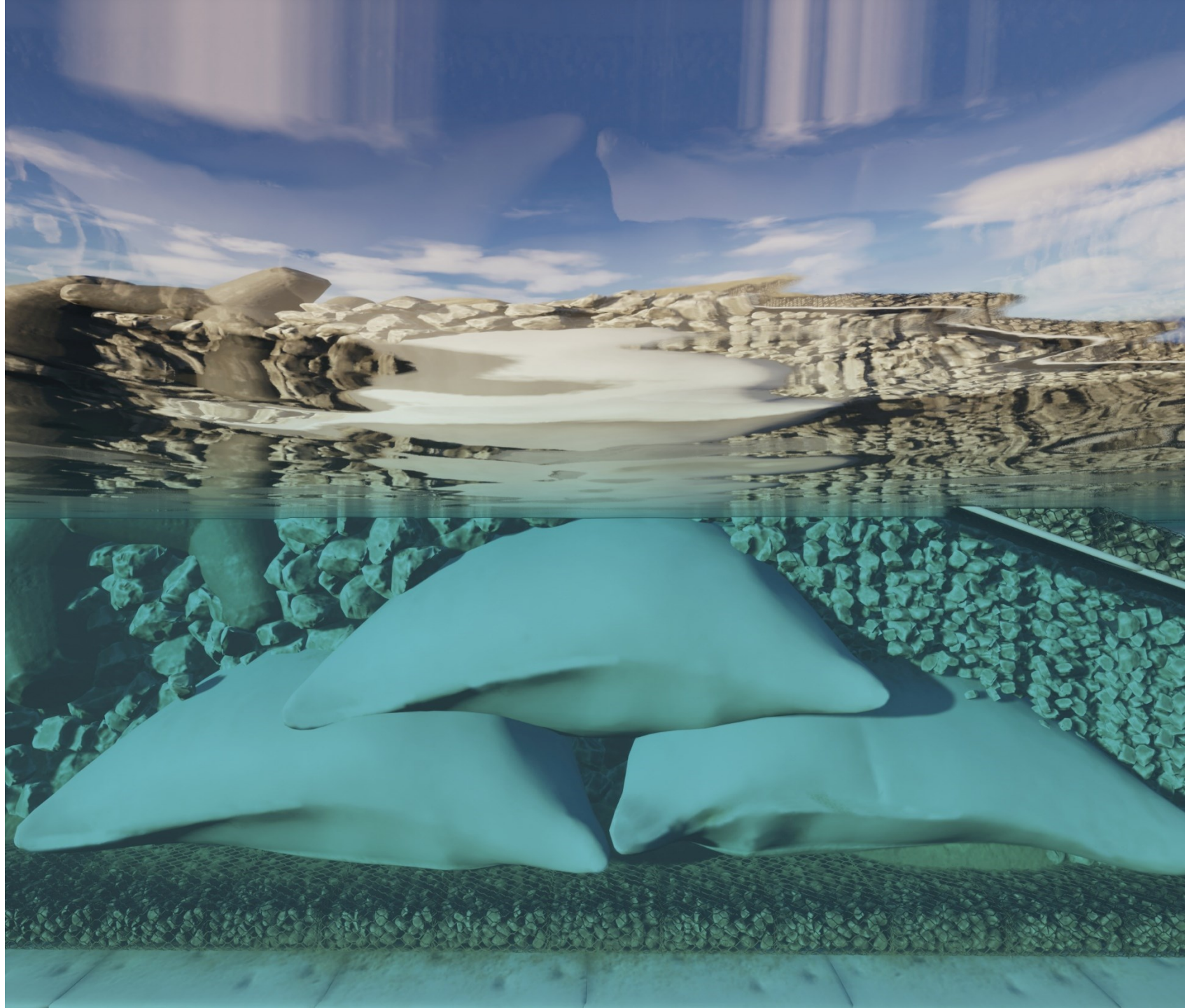




Breakwaters and Groynes

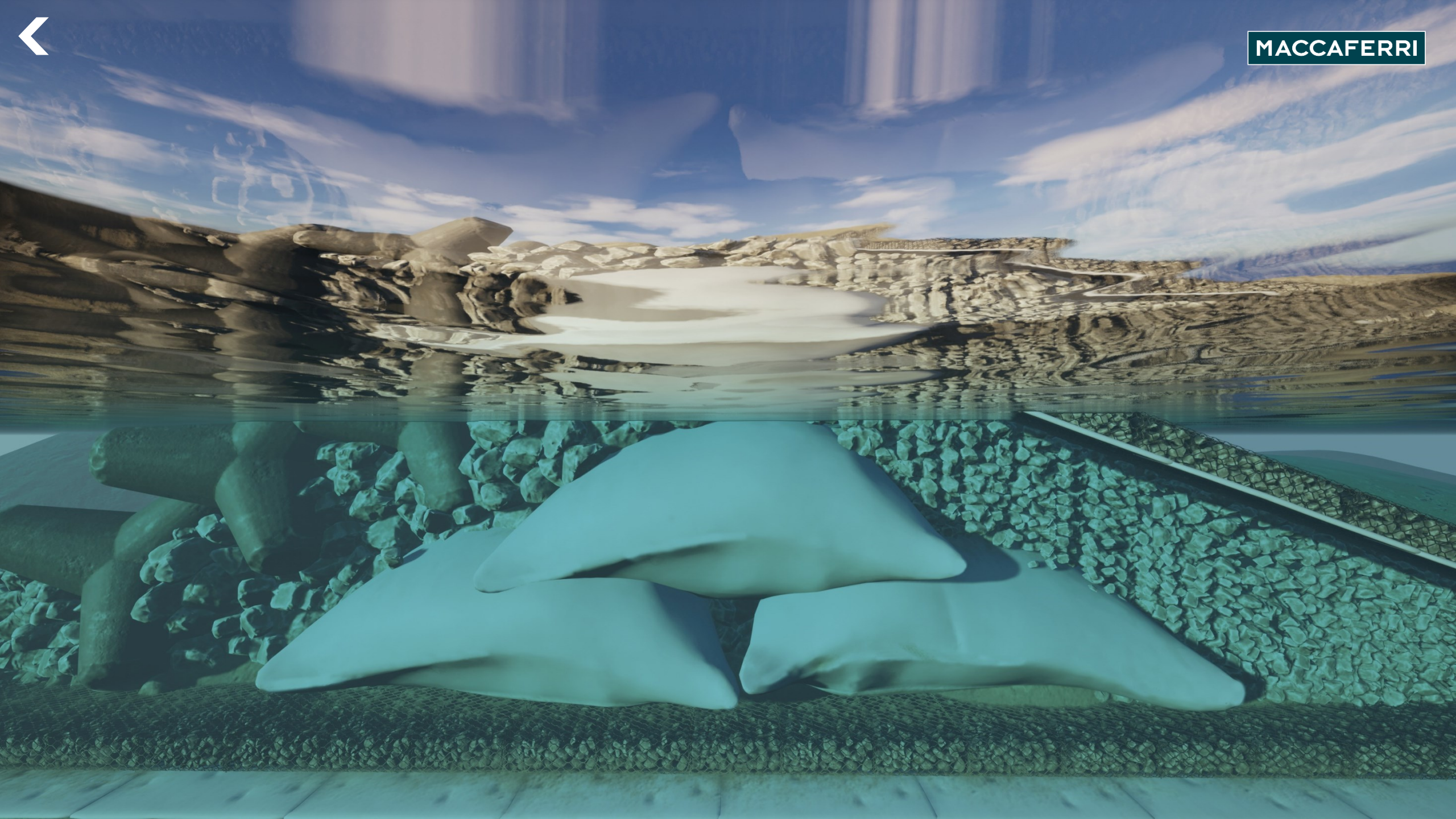
Maccaferri's MacTubes are ideal to form the core of breakwaters and groynes. These geotextile tubes are filled with sand and provide structural integrity while allowing for a reduced use of natural rock. Combined with Reno Mattresses® and gabions, they offer an efficient and adaptable solution for shoreline protection and wave energy dissipation

MacTubes





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MacTubes

MacTubes are high-strength geotextile tubes used to form the structural core of breakwaters, groynes, and dune restoration works. They are filled in situ with a sand-water slurry, creating a stable, cost-effective alternative to traditional rock-based structures.

When used as part of a breakwater or shoreline barrier, MacTubes reduce the need for heavy rock, simplify logistics, and can be installed even in areas where natural resources are limited. Their cylindrical form allows for a more flexible and sustainable approach to wave energy dissipation and sediment retention, while minimizing visual and environmental impact.





Artificial island

Maccaferri marine products are ideal for constructing artificial islands and breakwaters, offering effective storm protection, improved water quality, and valuable environmental enhancements such as mangrove restoration, oyster beds, shorebird habitats, and artificial reefs.

MacTubes

PMM

MacBags







Access Road

For marine infrastructure access routes, Maccaferri provides geogrid solutions such as MacGrid AR and MacGrid EG. These geosynthetics reinforce the road base, enhance load distribution, and improve pavement performance. They allow for the construction of durable, cost-efficient roads, even over weak or variable subgrades, reducing maintenance requirements over time

MacDrain

MacGrid AR

MacGrid EG





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Railways Access

Railway connections are vital for port operations and cargo logistics. Maccaferri's soil reinforcement technologies support the stability of rail embankments and subgrades, especially in coastal or reclaimed areas. Geosynthetics like MacGrid® ensure safe, long-lasting railway access in even the most geotechnically challenging environments

MacDrain

MacGrid AR

MacGrid EG





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Basal Reinforcement

In port areas where soft soils present challenges for supporting static and dynamic loads from operational equipment and container stacking, Maccaferri offers basal reinforcement solutions using high-strength geogrids. These systems are engineered to efficiently distribute loads and mitigate differential settlement, ensuring the safe development of port yards, including container terminals, storage platforms, crane pads, and logistics infrastructure.

ParaLink

MacTex W2







Beach nourishment

Beach nourishment projects benefit from the use of MacTubes, which stabilize shorelines and reduce erosion. Filled with local sand, MacTubes are used to construct submerged or visible barriers that support sediment retention and protect recreational coastal areas from storm impact.

MacTubes

MacBags



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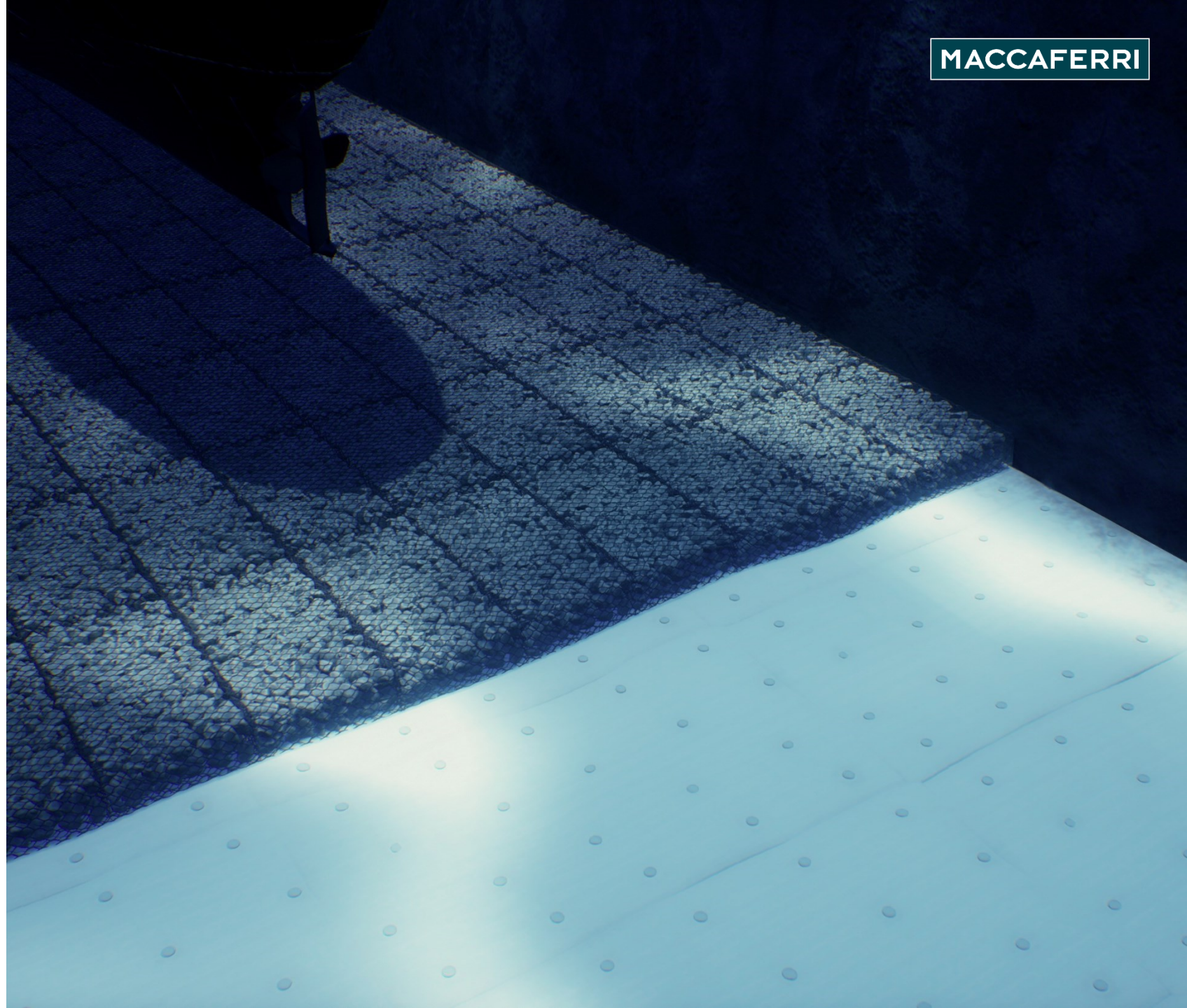
Sedimental capping

To remediate polluted sediments, Maccaferri offers innovative mattress systems such as RFM. These geocomposite solutions stabilize contaminated seabeds and prevent the dispersion of harmful materials. Depending on the application, they may include filtration, sealing membranes, or active layers with materials like organoclay and activated carbon.

RFM

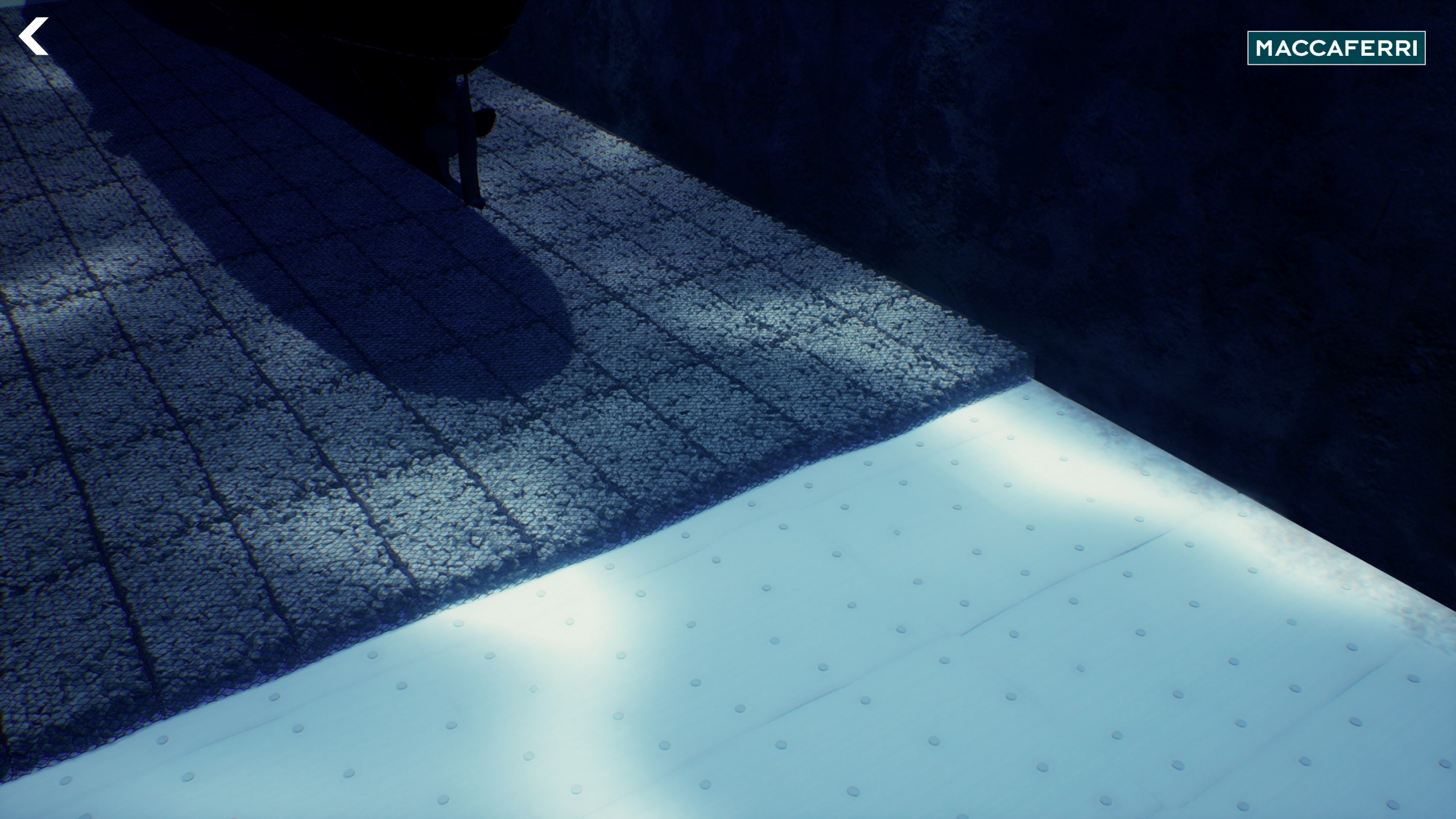
RSM

BFM





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RFM and BFM

RFM (Remedial Filtering Mattresses) are flexible and modular systems used for the protection, stabilization, and filtration of riverbeds, seabeds, and coastal areas subject to erosion or degradation. Made with geotextile filters and filled with sand or aggregates, they ensure separation, energy dissipation, and reduction of sediment transport.

BFM (Ballasted Filtering Mattresses) are heavy geocomposites developed by Maccaferri for underwater use beneath rip-rap and marine structures. Combining filtration and separation in one product, they are denser than water and remain in contact with the seabed, ensuring long-term stability and erosion control.





Land reclamation

Maccaferri provides geosynthetic solutions for land reclamation projects involving the controlled placement of dredged sediments. Our systems include high-strength geotextiles, geogrids, and geotubes that support sediment dewatering, containment, and ground reinforcement, enabling safe and sustainable expansion of usable land.

RFM

MacLine

MacDrain



