



BLUE TECHNOLOGY AGAINST BIOFOULING

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WHO ARE WE

We are combating biofouling without polluting the environment over time and saving millions for our clients in the process.

THE PROBLEM

The problem of biofouling has persisted for over 2,000 years, affecting various marine components submerged in water, with no environmentally-safe long-term solution.

ENVIRONMENTAL AND OPERATIONAL IMPACT

Current solutions, primarily anti-fouling paints, contribute to significant environmental pollution due to the release of chemicals like biocides and heavy metals.

*Biofouling costs the maritime sector
~\$92B annually
in maintenance costs*

*Biofouling on only one vessel's propeller
leads to a 3-5% increase in fuel use and
significant CO2 emissions, costing
~\$1.5M annually.*

AFFECTED COMPONENTS

We are starting by targeting the following components that are affected by biofouling.

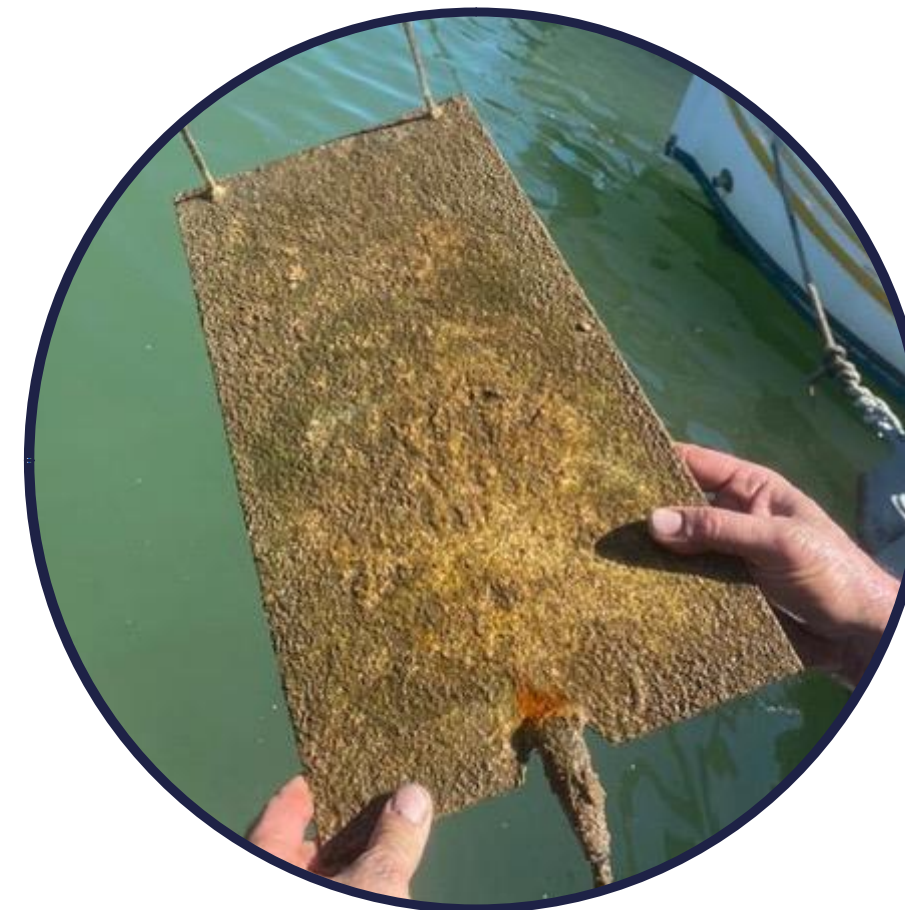


OUR SOLUTION

We bring forth a Nature-Based, long-lasting and effective solution against biofouling without any ecological footprint

We offer a clean technology that remains sustainable over time, with a considerable reduction in maintenance costs.

After 5 months submerged



Without TiTech



With TiTech

OUR THREE CORE ELEMENTS



This innovative technology consists of three main elements:

Ti

TITANIUM SURFACE/COATING

Creates surface conditions that avoid biofouling.



ELECTRONIC SYSTEM

Manages the electrical signal applied to the titanium surfaces, including control over frequencies, voltages and other parameters, ensuring precise biofouling prevention.



CLOUD PLATFORM

To remotely control and monitor the electronic systems of the submerged component or structure.

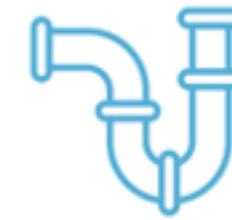
OUR TECHNOLOGY

Titanium Technology is built by scientists and engineers and involves applying small electrical signals to titanium surfaces on marine components, effectively preventing biofouling without releasing pollutants into the environment.

TECHNOLOGY APPLICATIONS



Heat exchange systems



Pipes



Irrigation



Maritime



Propulsion



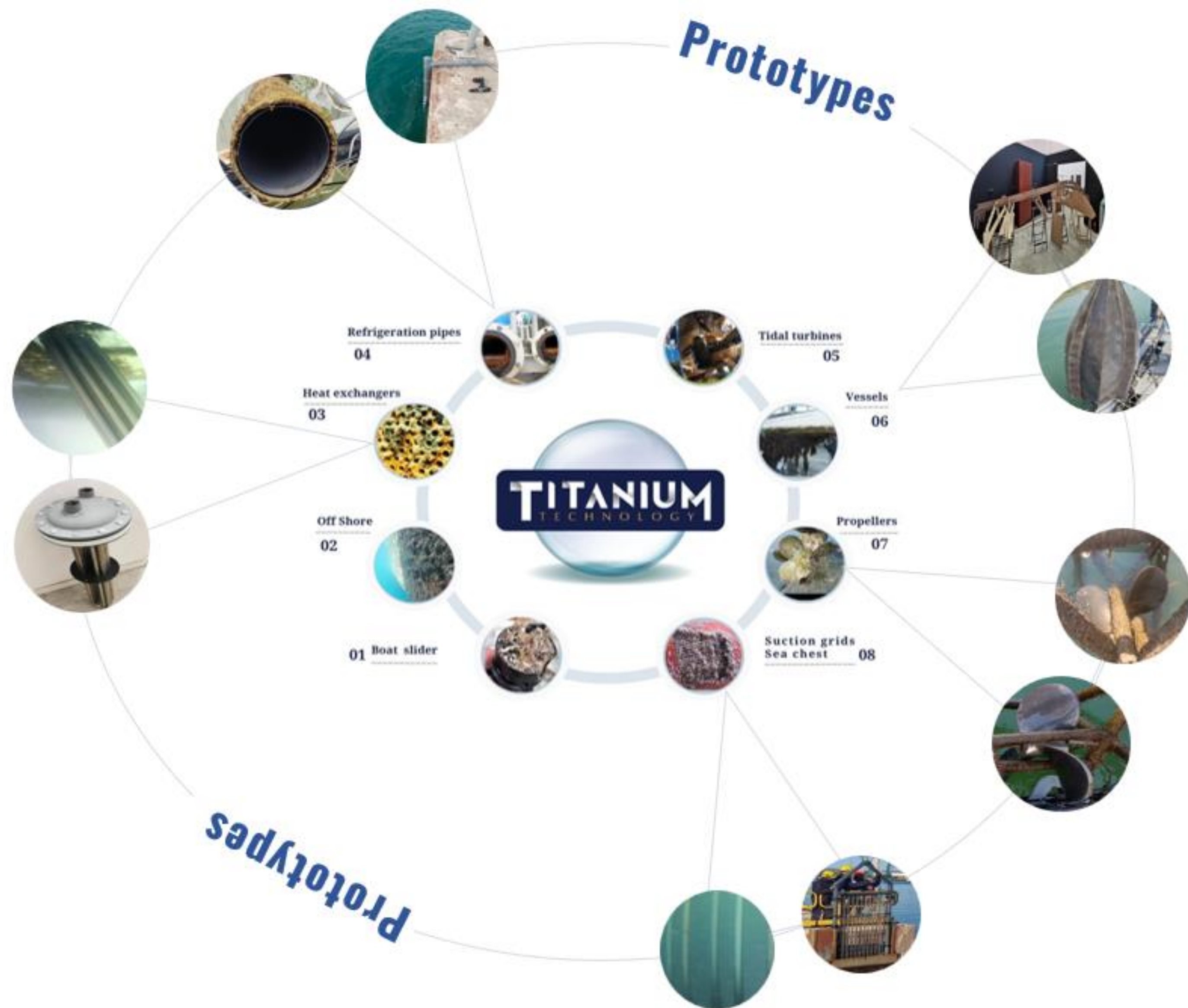
Offshore



Hydro generation

AFFECTED COMPONENTS

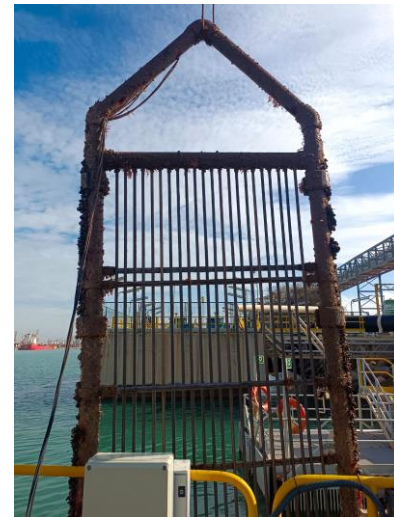
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COMPONENT **FAMILIES**

WATER INTAKE SYSTEMS & HEAT EXCHANGER

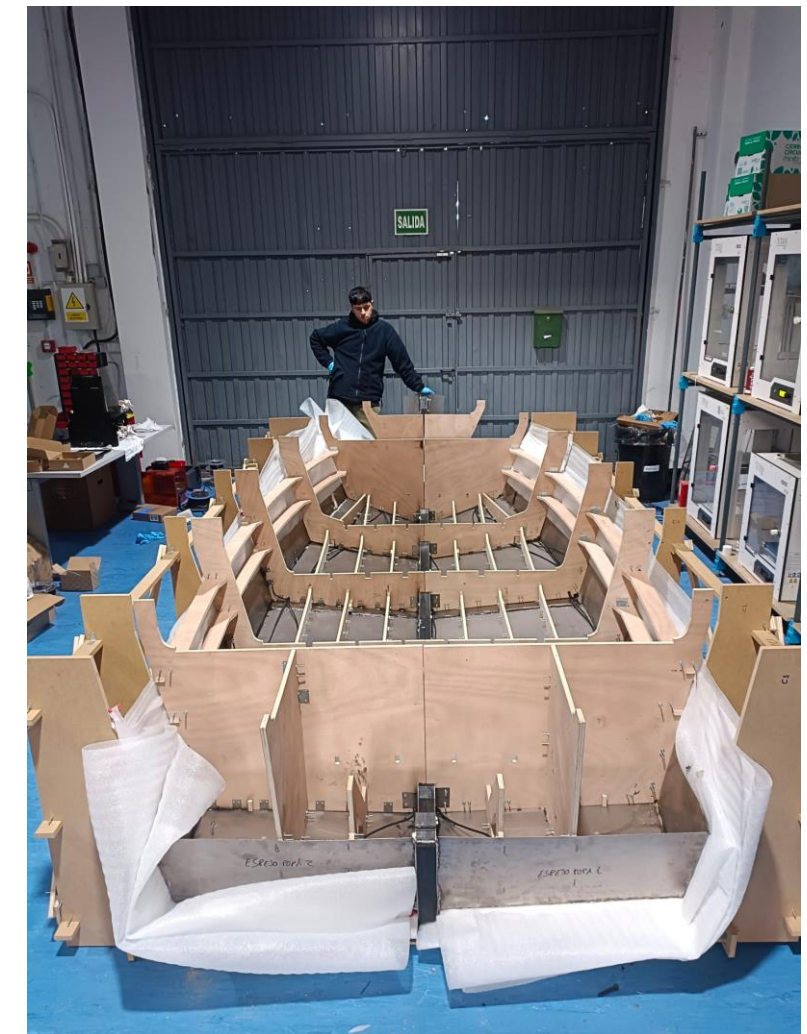
Seachest
Boxcooler
Pipes
Grates



PROPELLERS



BOAT HULLS



PILOTS & PROTOTYPES



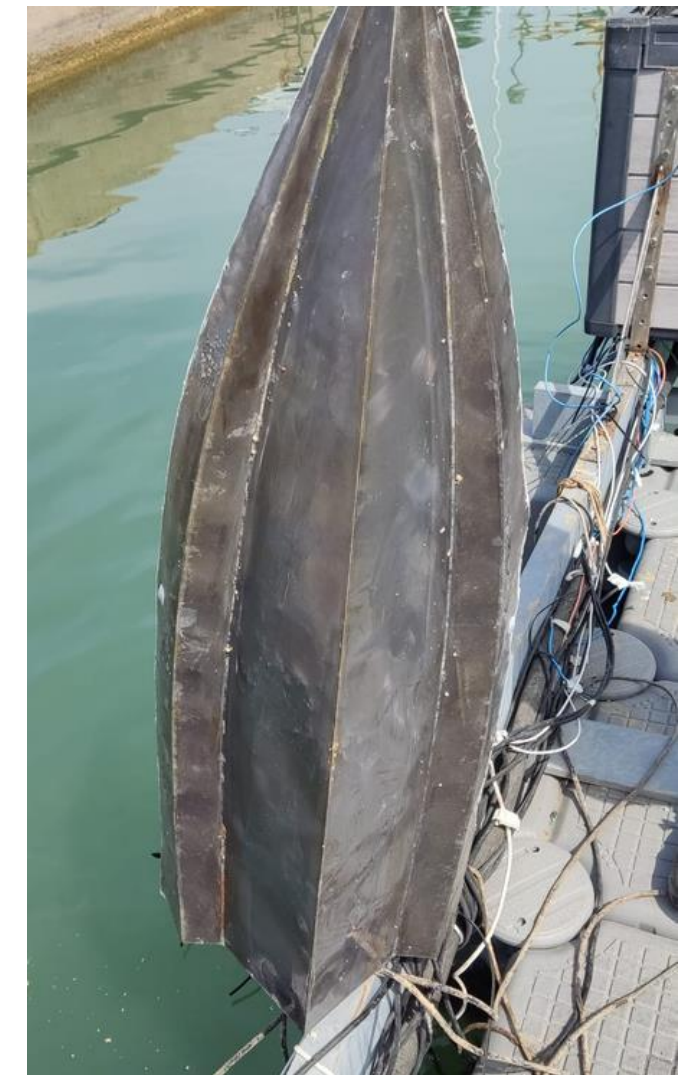
8 months submerged



8 months submerged

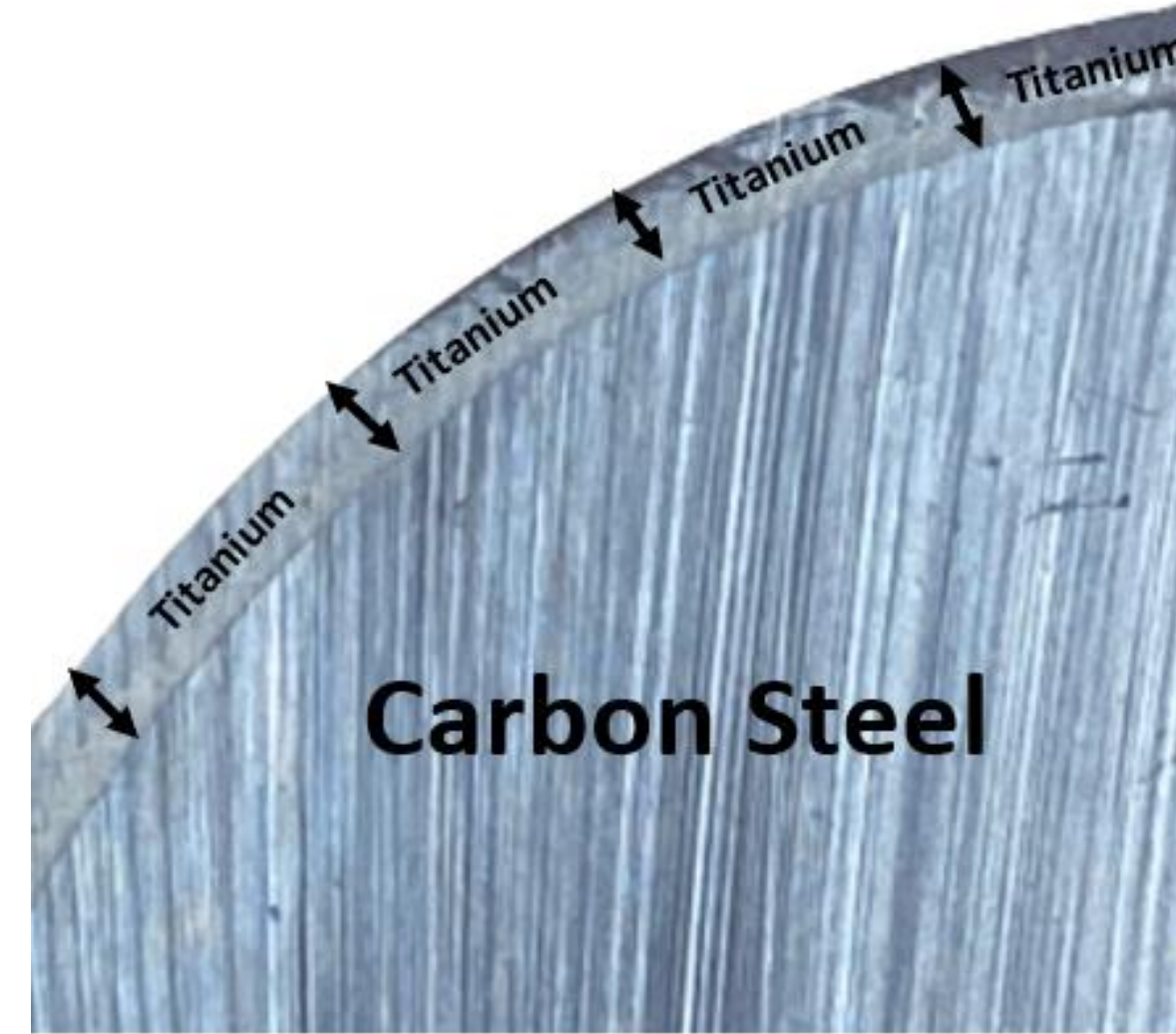


18 months submerged

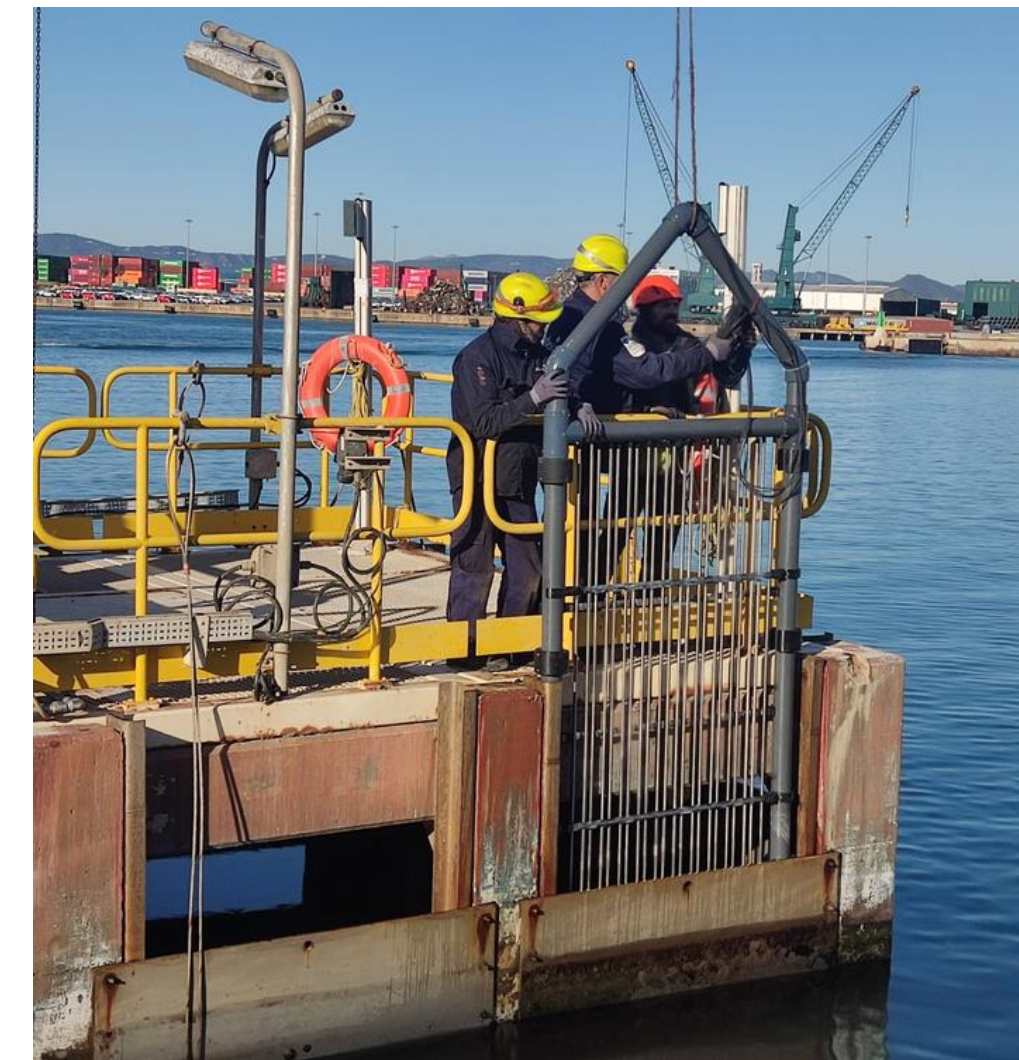


2 months submerged

PILOTS & PROTOTYPES



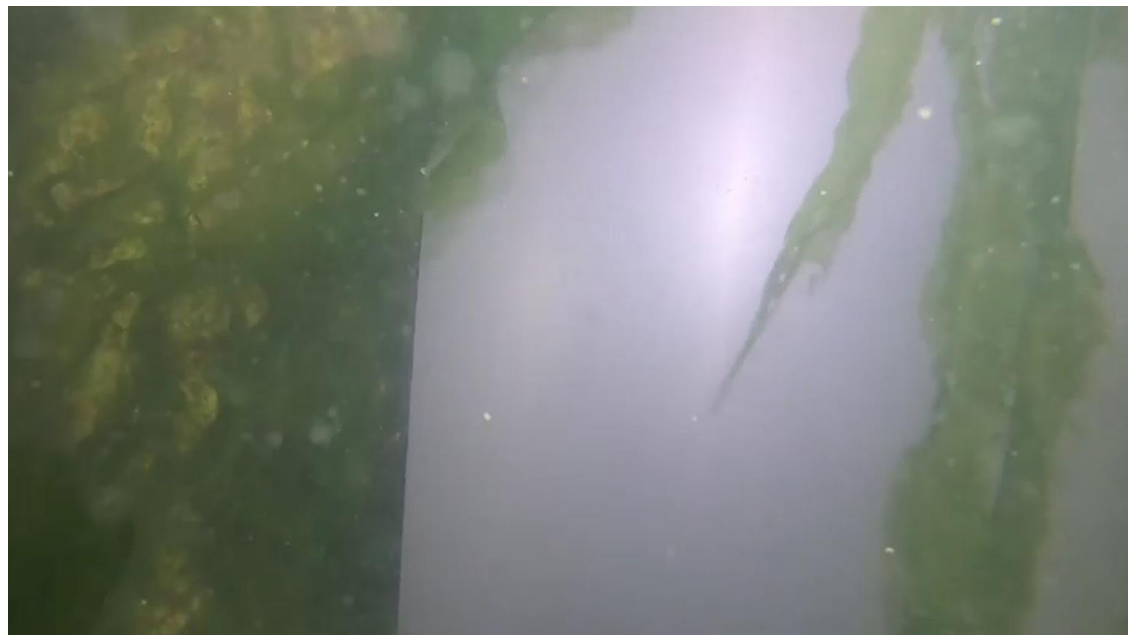
ENAGÁS PILOT



Annual electricity cost for the entire pool ($400 \text{ m}^2 - 1 \text{ Wh/m}^2$) ~ 500€/year

Annual electricity cost for great ($2,8 \text{ m}^2 - 1,5 \text{ Wh/m}^2$) ~ 5€/year

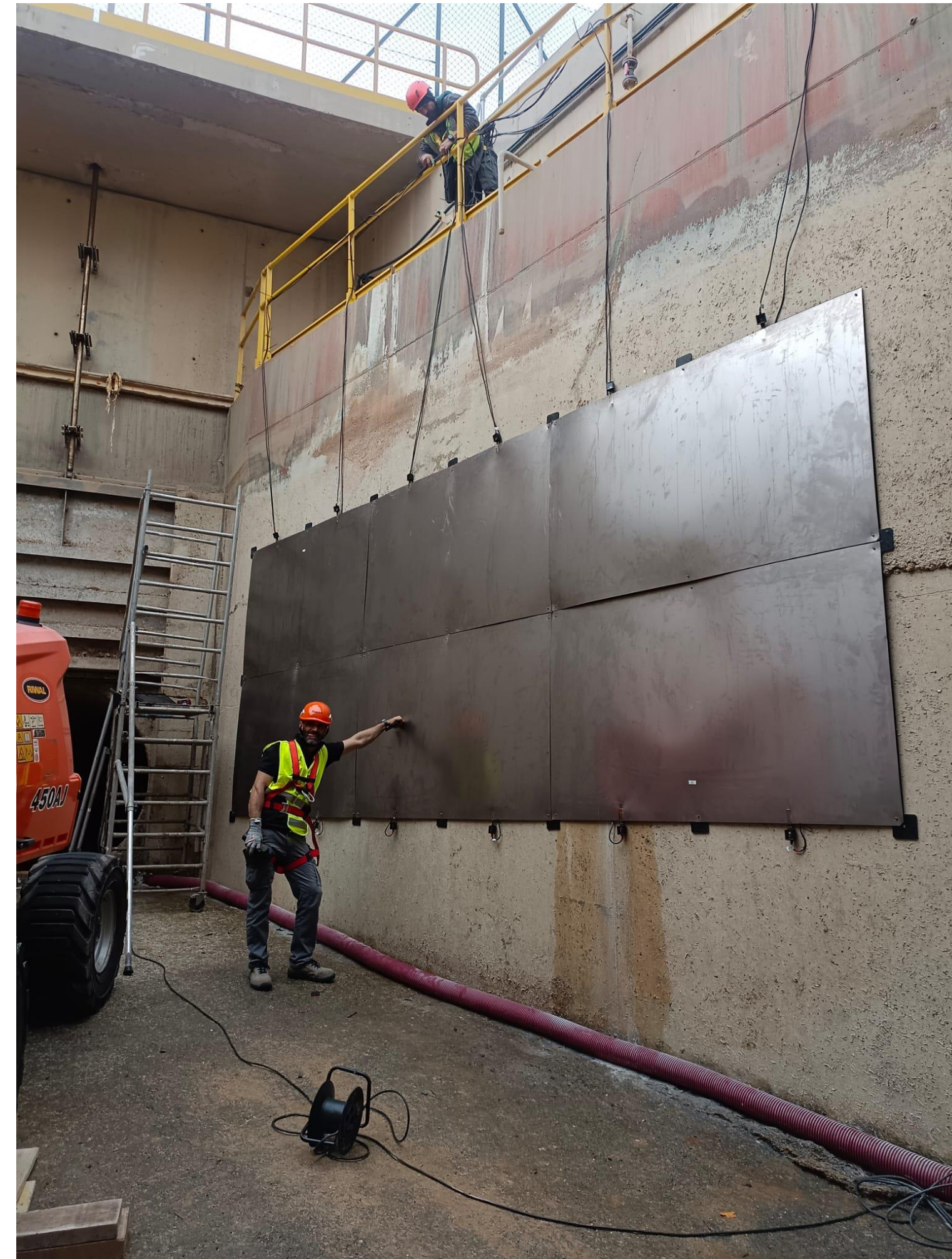
ENAGÁS PILOT



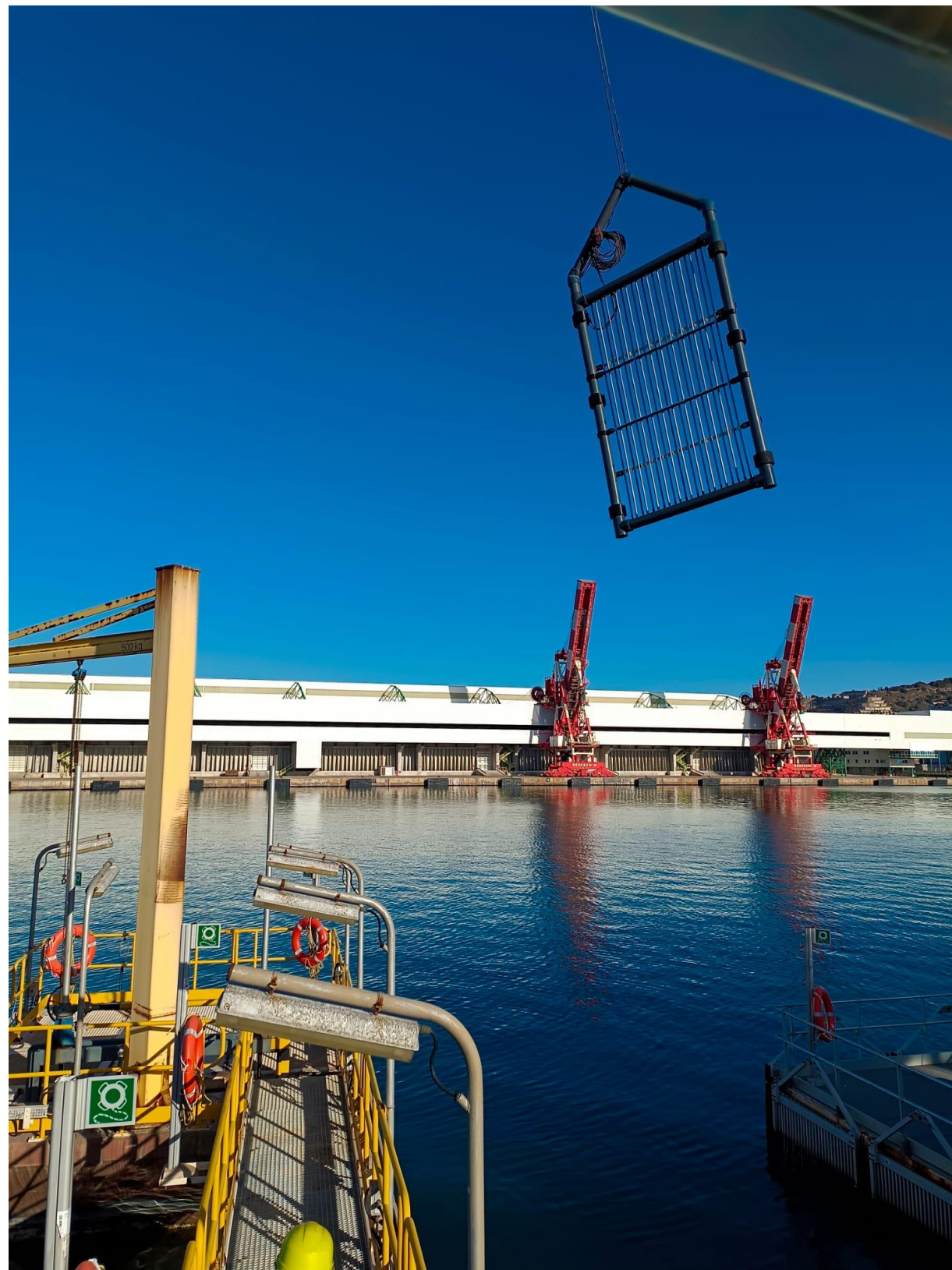
4 months underwater



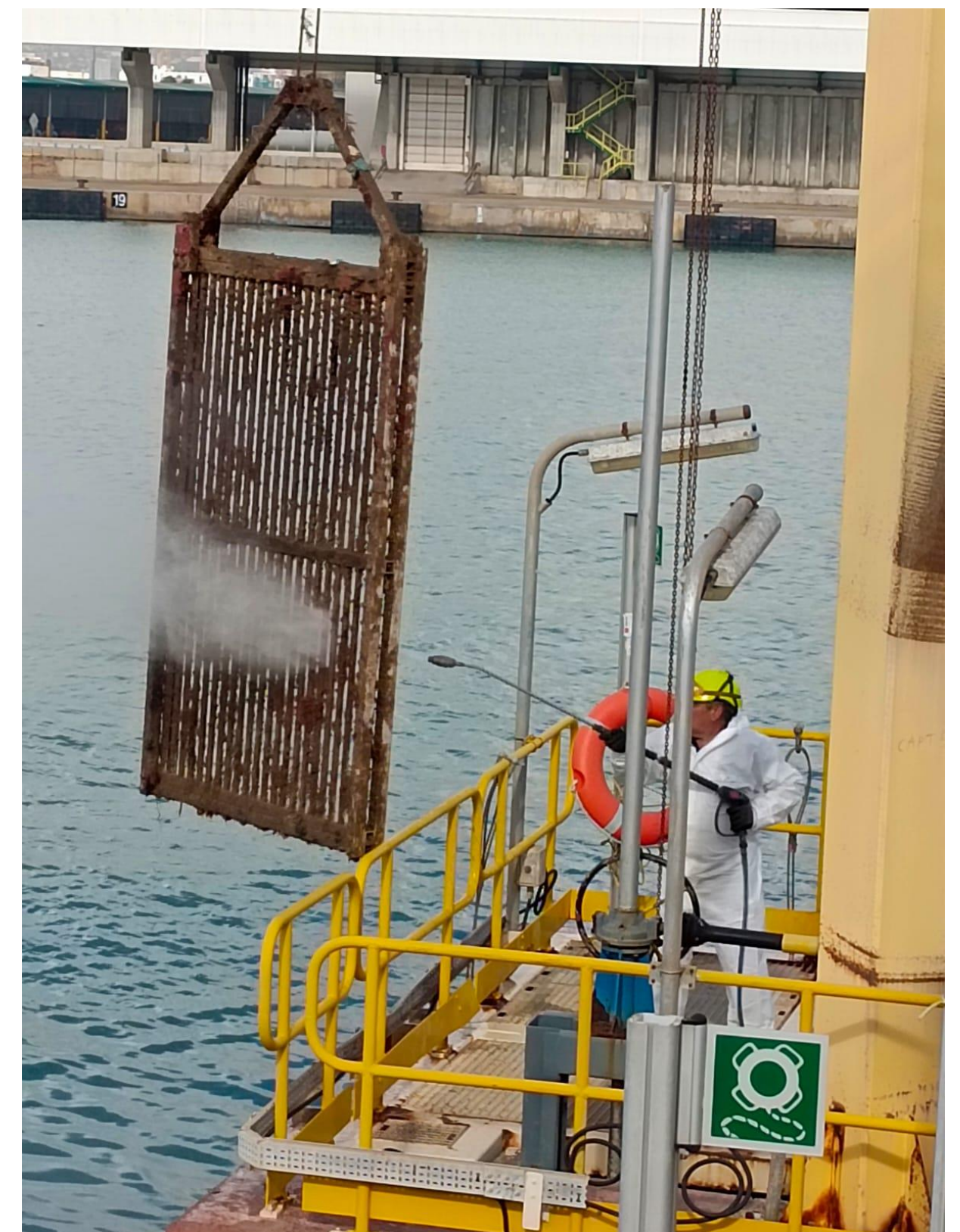
11 months under water



ENAGÁS PILOT



Intake grate with Titech technology in bars

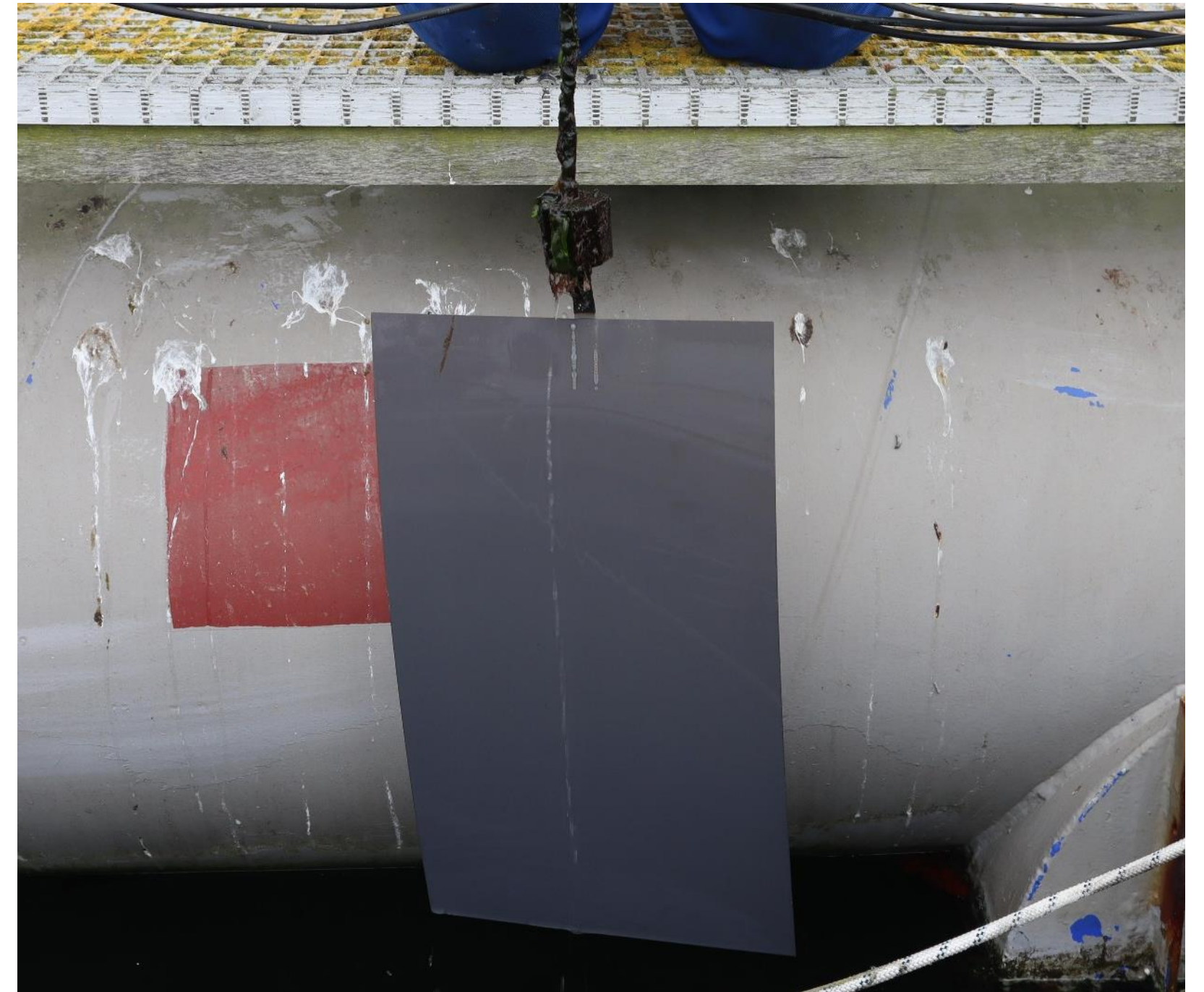


Maintenance of conventional intake grates

MB92 PILOT



AKZONOBEL VALIDATION



VALUE PROPOSITION



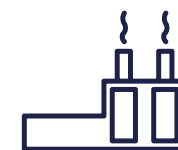
Environmental Friendliness



Permanent Solution



Performance Improvement



Pollution Reduction



Improved Efficiency

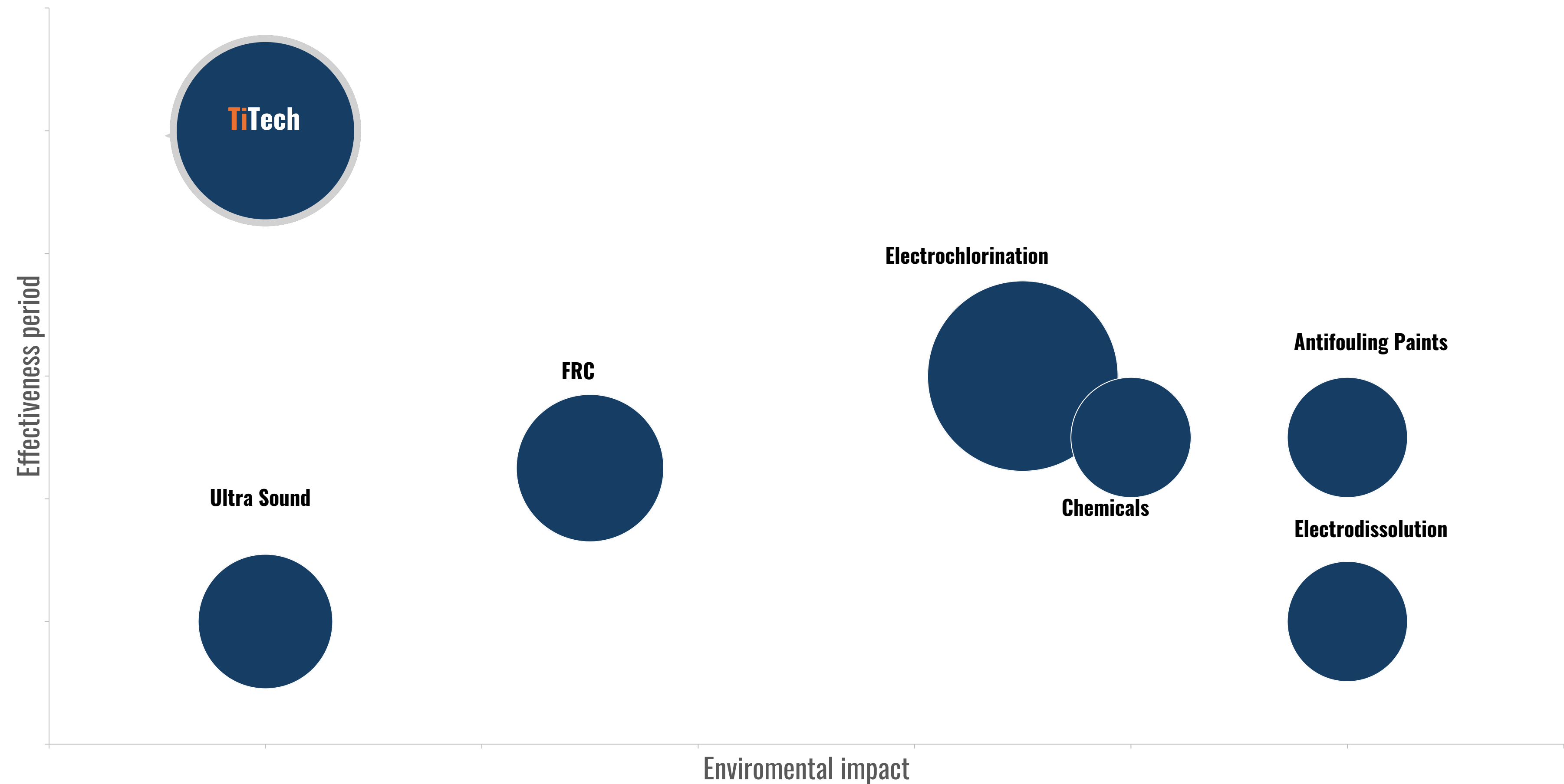


Reduced maintenance

COMPETITIVE ADVANTAGES

Alternative solution	TiTech's advantages
Biocidal Paints	<ul style="list-style-type: none">- No release of toxic chemicals or heavy metals into the ocean- No need for frequent reapplications- No microplastic pollution from coating degradation
Foul Release Coatings	<ul style="list-style-type: none">- No release of microplastics- No toxic during application- No need for maintenance and reapplication
Ultrasound Systems	<ul style="list-style-type: none">- Uses significantly less energy- Does not require large auxiliary equipment- No risk of interference with marine life
Electrochlorination	<ul style="list-style-type: none">- No production of harmful chlorine-based byproducts- No need for complex safety protocols- Minimal maintenance compared to electrode-based
Metal Dissolution	<ul style="list-style-type: none">- No release of heavy metals like copper and zinc into the water- Does not require periodical maintenance- No risk of bioaccumulation – avoids toxic buildup in marine organisms

COMPETITIVE ADVANTAGES

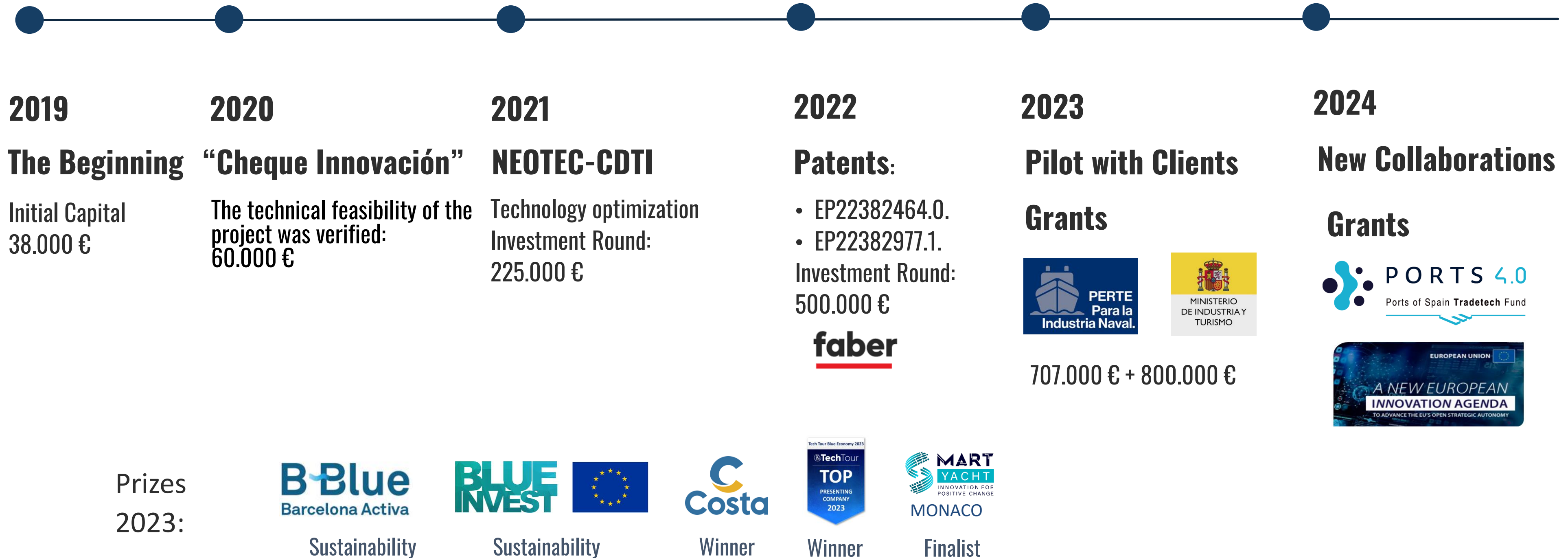




Advancing the Sustainable Development Goals agenda
Direct impact in 9 SDGs



TRACTION **TO DATE**



LETTERS OF **INTENT**



GRUPO SUARDIAZ



KING MARINE



ASTICAN



SEAVENTEN
Naval Design & Architecture



The Wattio
Reimagining smart shipbuilding with efficiency



WHAT THEY SAY ABOUT US



“The performance of TiTech installation at our facilities have been extremely impressive, demonstrating its effectiveness in real-world service conditions. When the test will finish, It seems that this will lead to relevant savings in operation and maintenance in any industrial coast facility”

José Luis García Hernández

Venture Development & Open Innovation



“Titanium Technology's approach will enhance ship operations and reduce their environmental impact. We look forward to implementing it to our customers.”

Marc Hervás

Sustainability Manager



“Titanium Technology is a game changer in the maritime industry, with diverse applications where this solution will create significant added value by addressing the root causes of many issues affecting elements immersed in water.”

Carlos Freire Trigo

Onboard Systems Engineer. American Magic. 37th America's Cup Challenger

OUR TEAM



Alejandro Samaniego
CEO

Production



Salvador Peso
PhD Engineer



Edgar Subirats
Technician



Gonzalo Jarque
Workshop manager



Fernando de la Fuente
Workshop Technician

Technology



Iñigo Palomo
Engineer Development



Víctor Pastor
Engineer Development

Administration, Communication & Finance



María Reid
Communication



Fiorella Migoni
Administration



Sergio Lloret
Finance



THANK YOU

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