VICINAY MARINE and TECNALIA develop a pioneering sensor to monitor corrosion on mooring lines

- **This solution seeks to increase the safety, reliability and service life of offshore systems, whereby this joint development showcases how innovation can address critical challenges in strategic sectors, such as the offshore and naval sectors**

- **This breakthrough presents a wide range of potential applications and marketing opportunities in sectors where the monitoring of corrosion in submerged metallic elements is key in order to guarantee the integrity of infrastructures, reduce operational risks and optimise maintenance strategies.**

- **The sensor will be presented at Navalia, the sector's leading shipbuilding exhibition held in Galicia, in which TECNALIA will be participating from 19 to 21 May at Stand 1C35, alongside the Basque Maritime Forum**

Derio, 11 May 2026 VICINAY MARINE, an international leader in mooring solutions for the offshore industry, and the centre for applied research and technological development, TECNALIA, have jointly developed a pioneering sensor for the remote monitoring of corrosion on mooring lines. It is a solution designed to increase the safety, reliability and service life of offshore systems. The sensor will be presented at Navalia, the sector's leading shipbuilding exhibition, in which TECNALIA will be participating from 19 to 21 May at Stand 1C35, alongside the Basque Maritime Forum.

Corrosion is a key factor in the integrity and durability of the chains and connectors used on floating platforms, such as offshore wind farms and other offshore systems. The extreme conditions of the marine environment, thermal variability and long periods of operation mean that theoretical models are sometimes insufficient to anticipate the real wear of components.

In order to address this challenge, the two organisations have worked together to develop a sensor to monitor corrosion based on the measurement of electrical resistance. This technology enables the section loss of the link to be quantified in real time, its evolution to be modelled and the remaining service life of the mooring line to be predicted.

"Corrosion is a key issue in the management of the structural integrity of mooring systems, as it directly influences the sizing, service life and maintenance strategies of critical elements, such as links and connectors. To date, we have relied on theoretical models and inspections. This sensor enables us to take a decisive step towards continuous and accurate monitoring of the degradation process, which will improve knowledge of actual in-service behaviour, optimise component design and thickness and support more efficient maintenance and cost management throughout the system’s service life", explains Aintzane Expósito, Head of Materials Dept. at VICINAY MARINE Innovación.

Raúl Caracena, Head of Materials for Extreme Conditions at TECNALIA, highlights that "TECNALIA has been developing advanced solutions to combat corrosion in marine environments for decades. We have state-of-the-art infrastructures, ranging from specialised laboratories to HarshLab, our unique floating laboratory, which allows us to validate

technologies in real operating conditions. The collaboration with VICINAY MARINE enables us to use our expertise on materials and performance in extreme conditions in a highly significant industrial challenge. This joint effort shows how innovation can address critical issues in strategic sectors, such as the offshore and naval sectors".

Features of the corrosion sensor

This patented solution has been validated in the real HarshLab environment, the only floating test platform in Europe to assess technology in real marine conditions, which is located 1.6 nautical miles off the coast of Armintza (Bizkaia).

The new system also provides:

- Continuous remote monitoring, reducing the need for costly and complex physical inspections.
- Accurate prediction of the future performance of corrosion-prone components.
- Optimisation of maintenance, enabling interventions to be planned more efficiently.
- Increased operational safety, by detecting degradation before reaching critical levels.

Corrosion in marine environments

In addition to its use in mooring lines and chains, this technology has great potential for transfer to other sectors in which corrosion is a critical factor for the reliability, safety and service life of assets. This solution has a wide range of potential applications and marketing opportunities across in sectors where the monitoring of corrosion in submerged metallic elements is key in order to guarantee the integrity of infrastructures, reduce operational risks and optimise maintenance strategies.

Its potential use covers offshore infrastructures, offshore wind power, the naval sector, port facilities and in general, any submerged metallic system or structure that is that is constantly subjected to harsh conditions. Its ability to continuously monitor degradation and provide useful information for predictive maintenance makes it particularly valuable from both a technical and commercial point of view.

About VICINAY MARINE

Dating back more than 250 years, VICINAY MARINE is a world leader in the manufacture of chains and connectors for mooring systems in the offshore industry. Present in 4 countries with 5 manufacturing plants and its own R&D unit, the company combines industrial tradition and cutting-edge technology to offer solutions of the highest quality and safety.

About TECNALIA

TECNALIA is the largest applied research and technological development centre in Spain, a European benchmark and member of the Basque Research and Technology Alliance. It works with companies and institutions to improve their competitiveness, people's quality of life and achieve sustainable growth, thanks to a team of more than 1,500 people committed to building a better world through technological research and innovation. Its main scopes of action are: smart manufacturing, digital transformation, energy transition, sustainable mobility, health and food, urban ecosystem and circular economy.

TECNALIA's mission is to transform technological research into prosperity while its vision is to anticipate the future as the leading actors of transformation in companies and society, adapting them to the challenges of an ever-faster evolving world. This is why TECNALIA's research has a real impact on society and generates benefits in the form of quality of life and

progress. In the latest brand awareness and positioning study carried out by the European Research Survey (ERS) in 2025, TECNALIA tops the list regarding R&D and Innovation brand awareness.

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