



Talking Blue Sustainability | ISSS Event | 25 October 2022

“Marine Materials in a new European testing mechanism”

The blue growth poses unprecedented sustainability and governance challenges, as marine ecosystems face cumulative pressures from human impacts, the climate crisis and distal socioeconomic drivers. Sustainable materials play a key role in this context to facilitate further exploitation without causing additional harm. The marine environment places unique demands on materials and structures due to saltwater, marine growth, biocorrosion, freeze-thaw and high UV radiation, as well as remote locations, where maintenance accounts for the greatest cost. The study of materials under harsh conditions is essential to meet the range of challenges posed regarding e.g., renewable energy, aquaculture, subsea operations.

Understanding and exploiting extreme environments is critical for addressing major societal challenges. The industry must not only observe and understand the behaviour of materials in such environments – but also adjust and control how materials respond to enhance their performance and lifetime and enable new technologies. Since the ocean is geographically unique, testing is needed in several places, acting as a catalyst for collaboration between the test sites. The infrastructure included in MARINUS covers all the European marine ecosystems and has standalone marine research and innovation environments with the conditions to facilitate the needs in research, business, authorities, and the rest of society to accelerate the safe transition to a circular economy for future sustainable materials for our oceans.

The [Innovation Platform Sustainable Sea and Ocean solutions ISSS](#) unites ten Research and Technology Organisations from nine European countries to provide knowledge and develop intelligent technologies as well as materials for a sustainable blue economy.

Our second edition of the ISSS Talking Blue Sustainability Series focused on the role of material validation for marine applications in the transition to a sustainable blue economy.

“The choice of material is in the center to fulfil the European green deal objectives, Fit for 55, decarbonisation of maritime transport and restoration of the marine ecosystems.”

Pierre Karleskind, Member of the European Parliament and Patron of the webinar

Our experts from RISE and Tecnalia Harshlab left no doubt that testing in real environment in different places is key to validate any materials intended for the marine environment. Strong collaboration between test sites for marine materials in different ecosystems is needed to translate needs into scientific challenges and tailor-made solutions, reduce technological risks, support companies in their product development process, increase awareness and uptake by industry, and enable effective access of relevant stakeholders to know-how and advanced tools/infrastructure.

“Traditionally the industry has focused on the durability of the material in itself but now we also need to focus on what effects the materials have on the marine environment. To really assess and minimise these effects.”

Olivier Rod, Vice President Material & Production Department RISE

“There are some test sites around Europe, but no formal relation between most of them. Where testing sites have their own procedures and methodologies making it difficult to compare results among them”

Pablo Benguria, Manager Tecnia Harshlab

Mimic materials from nature are one key area for research to be adopted in various technologies. Our expert from Fraunhofer explains how the principles from the skins of sharks and dolphins can be realised as a technical solution to contribute to lower drag and hydrodynamic resistance on various maritime technologies. We need to understand the material – environment interaction and the role of regulations.

“We don’t only need material to enhance the sustainability of the products in the sea but these materials need to be sustainable by themselves.”

Dorothea Stübing, Fraunhofer Institute for Manufacturing Technology and Advanced Materials IFAM

We need to establish formal relations between the test sites in Europe on marine materials validation to access reliable data, upscale novel material technologies and establish a persistent dialogue with authorities and governments on regulation and policy.

Our joint endeavours will facilitate impactful policy making and the transformation of the blue economy value chains to sustainability, competitiveness, and resilience. ISSS will realise this goal together with partners from research, industry, politics, and society by sharing knowledge to create perspectives and spark solutions all over Europe and beyond.