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Fraunhofer at the EU Green Week

Marine technologies in harmony with the oceanic ecosystem

Protecting and exploring our oceans, and managing them in a sustainable way, are challenges directly facing each and every one of us. Fraunhofer researchers are working in close collaboration across disciplines and country borders to find future-oriented solutions for a more sustainable use of our oceans. The experts will be presenting information with their Norwegian partner SINTEF Ocean at the virtual EU Green Week Partner Event “The Ocean we want” on June 8.

Our oceans are vital to life on Earth and hold immense potential — especially for sustainable technologies. Exploring this elusive natural habitat and tapping into its depths, however, remains a tremendous challenge and calls for comprehensive field tests to find reliable solutions. Until now, though, there has been little scope for putting complex underwater technology and its synergies to the test in real-life situations.

This is about to change. The large-scale project “Ocean Technology Campus” (OTC) is now turning the Hanseatic City of Rostock into a leading location for technological underwater research. At the core of the project is a coastal testing site: the “Digital Ocean Lab” (DOL). Experts can test, analyze and optimize their solutions and simulations in the Fraunhofer laboratory under controlled conditions.

Working together to find sustainable solutions

By itself, any research discipline involved in developing future-oriented marine technology will soon reach its limits. Which is why in 2016, 13 Fraunhofer Institutes and research units came together to establish “Subsea@Fraunhofer”. In a multidisciplinary competence network, experts in IT, materials science, engineering, electronic systems, sensor technology, power engineering, robotics, aquaculture, automation technology and systems engineering are working on new solutions — the first research alliance for under-water technology of its kind in Europe.

With the “Sustainable Subsea Solutions ISSS” innovation platform, the Fraunhofer-Gesellschaft has pushed the topic into the limelight at European level. The ISSS envisions a sustainable use of the world’s oceans that ensures food and resource sovereignty for Germany and the EU, while protecting the oceans as a core element of the global ecosystem at the same time.

Editorial Notes

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The innovation platform is designed to help drive the development of new technologies and materials and accelerate their use and transfer to the processes in the marine industry. Aquaculture systems and marine offshore energy generation are the focus of attention initially. Other aims are ocean cleanups to remove microplastics and macroplastics, as well as old munitions.

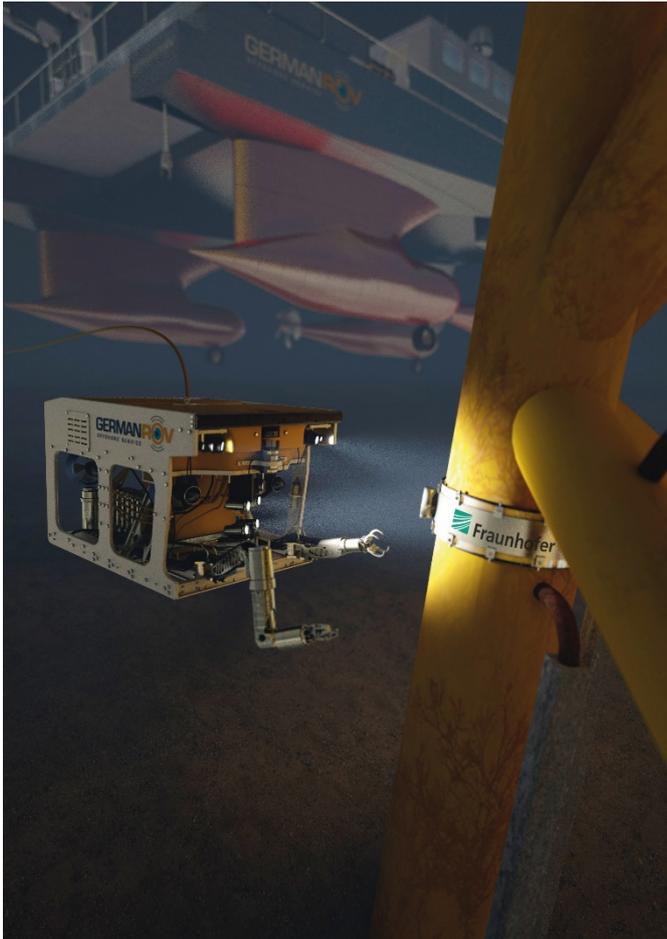
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The idea is to make targeted investments in new infrastructures and intelligently network existing structures and activities to make the innovation platform a leading innovation provider for applied marine research — always working in close collaboration with industry, the policymakers and society as a whole. Alongside Fraunhofer, the Sustainable Subsea Solutions ISSS innovation platform consortium currently comprises a further seven European applied research institutions. Its vision: to be able to operate all solutions for the marine sector reliably and in harmony with the oceanic ecosystems.

“The Ocean we want”

The future of the marine sector hinges on sustainable technologies, as well as on pooling national and European expertise. Only by expanding our knowledge and innovation base can we secure high-tech locations and protect our oceans as a key element of the global ecosystem.

Experts from the marine industry and the scientific world will be presenting their specific contribution at the EU Green Week Partner Event “The Ocean we want”, which the Fraunhofer-Gesellschaft is holding together with its Norwegian partner SINTEF Ocean on June 8, 2021. How can highly developed technologies help achieve a pollution-free economy that will protect the ecosystems and create jobs at the same time? How can we start solving the challenges that our oceans and coastal regions are increasingly facing? And how can research into sustainable underwater solutions contribute to a healthy ecosystem and drive forward the blue economy? At the event, the experts will explain various approaches and provide insights into the creation of digital twins and how they are being integrated into underwater real-life laboratories at Fraunhofer and SINTEF Ocean.



Virtual docking maneuver of an underwater vehicle to an offshore wind turbine.

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