

NOTES overall

UNITED Project Final Event

Technology Roadshow

Date: Wednesday, November 15th, 2023

The MULTI-USE TECHNOLOGY ROADSHOW session at the UNITED final event, moderated by Roderik Hoekstra from Deltares, focused in the technological challenges, lessons learned, and recommendations for future multi-use endeavors, drawing on experiences from the UNITED and EU-SCORES pilot projects. The session highlighted complexities of deploying and maintaining multi-use infrastructures in offshore environments, showcasing the technological adaptations needed to withstand harsh marine conditions and the importance of data-centric approaches to monitoring and assessing environmental impacts.

Multi-Use Infrastructure and Technology Insights

Eva Strothotte (FuE-Zentrum FH Kiel GmbH) and Annelies Declercq (Ghent University) presented the decision-making processes and lessons learned from the German and Belgian pilots. The session emphasized overcoming the offshore environment's challenges, focusing on technology robustness. In the Belgian pilot, for example, 46km offshore at the Belwind site, innovations in longline designs and screw anchors were tested to minimize bottom impact. The importance of seeding techniques in seaweed cultivation in such exposed environments was highlighted, with a two-step direct seeding and a nursery period proving to be more successful compared to a direct seeding method.

The effectiveness of oyster cultivation techniques showed variation, hinging on factors such as fouling, design, weight, and the precise timing of installation. Success in offshore cultivation, especially in exposed areas like the Belgian part of the North Sea, was greatly influenced by these factors, emphasizing the importance of careful consideration and weather-dependent planning.

The opportunity for nature restoration within offshore wind farms was highlighted, especially with the incorporation of oyster cages onto scour protection structures. Despite the modest scale of the restoration cages, they demonstrated success with observed flat oyster settlement on the scour and the presence of reef-building species such as Sabellaria.

Modelling and Monitoring

Ajie Brama Krishna Pribadi (Ghent University) discussed offshore aquaculture system design assessments using a numerical tool. Pedro Galvao from Hidromood presented the HiSeas data platform, highlighting the importance of centralized data in multi-use projects. Contributions from Evaggelia Labrakopoulou (WINGS ICT) focused on various monitoring techniques and ICT solutions for environmental parameters in multi-use settings.

NOTES overall

Renewable Energy Integration

The session also spotlighted the integration of solar and wind energy, with Brigitte Vlaswinkel (Oceans of Energy) sharing insights from the Dutch UNITED pilot, and Irina Temiz (Uppsala University) discussing the EU SCORES project's wind and wave energy combination. These presentations illuminated the potential of such technologies to contribute significantly to renewable energy targets, optimizing space between wind farms for solar or wave energy generation. Pelle van den Heuvel (Ventolines) addressed the industry-related challenges of these multi-use combinations, calling for government action through regulatory incentives. He also announced an upcoming report on the subject to be released on the UNITED website in December 2023. The session concluded with a forward-looking statement about the Netherlands' first commercial offshore solar farm within a wind farm, expected to be operational by 2025 at Hollandse Kust Noord, featuring 200 floaters with a total capacity of 500 kWp PV.