

## Implementing restoration of offshore oyster reefs oyster (*Ostrea Edulis*) in the Belgian part of the North Sea

Stratigaki Vicky<sup>1</sup>, Evenepoel Jelle<sup>2</sup>, Fordeyn Jan<sup>1</sup>, Petit Simon<sup>2</sup> and Cockaert Phara<sup>2</sup>

<sup>1</sup> Project development and conceptual design department, Jan De Nul Group, Tragel 60, 9308 Aalst, Belgium

E-mail: Vicky.Stratigaki@jandenul.com

<sup>2</sup> Marine environmental department, Jan De Nul Group, Tragel 60, 9308 Aalst, Belgium

In the last few decades there has been a decline in the population of the flat oyster (*Ostrea Edulis*) reefs in the Belgian Part of the North Sea due to their overexploitation and due to oyster diseases (*Bonamia* parasite). Oyster beds are highly important, with oysters often being called “ecosystem engineers” because they create and support marine habitats.

Therefore, restoration of oyster reefs is essential, yet a complex operation that requires innovative solutions. The complexity of the logistical support and the sensitivity of flat oysters to handling techniques requires in-depth knowledge covering different fields of expertise. Jan De Nul Group has extensive knowledge on offshore operations and intends to enhance positive impact during its worldwide projects. This is demonstrated by Jan De Nul’s contribution to implementation of oyster reef restoration, in collaboration with scientific and governmental partners, throughout several projects: the Life B4B BELREEFS project, the Horizon Europe BLUECONNECT project, the ICON VLAIO Blue Cluster REEFCOVERY project, and the Horizon Europe ULTFARMS and Horizon 2020 UNITED projects. Following the recommendations of the Native Oyster Restoration Alliance (NORA), Jan De Nul and their partners are focusing on investigating and implementing the most efficient solutions for large-scale, offshore oyster reef restoration.

Especially when it comes to active restoration projects and development of nature-inclusive design of offshore infrastructure, the primary aim lies at kick-starting self-sustaining oyster reefs, which will not require human intervention in the longer-term. Throughout the above-mentioned projects, Jan De Nul primarily focuses on installing oyster facilitating structures or oyster reef substrates, utilizing large industrial vessels or smaller size vessels. The choice of installation vessel depends on the type of substrate, the cost and the precision needed for installation. Once the installation is complete, significant emphasis is placed on monitoring the reef’s development, using ROVs, camera systems or divers to ensure its continued growth.

Together with our expert partners, Jan De Nul is building up extensive experience in flat oyster reef restoration. In the UNITED and ULTFARMS projects, the focus of Jan De Nul’s scope lies on development of Nature-Inclusive-Design of offshore wind infrastructure, using oyster reef facilitating structures. The BELREEFS and BLUECONNECT projects are focusing on active restoration of oyster reefs in areas where previously oyster reefs were present. Finally, the REEFCOVERY project focusses on the upscaling of industrial techniques for the realization of Nature-Inclusive-Design of offshore marine infrastructure and active reef restoration in offshore marine environments.

### Keywords

Flat Oyster (*Ostrea Edulis*); Nature Restoration; Gravel Beds; North Sea; Offshore; Oyster Reefs; Nature-inclusive-design Of Offshore Renewable Energy Infrastructure