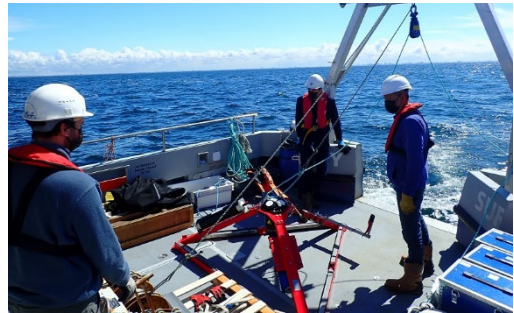
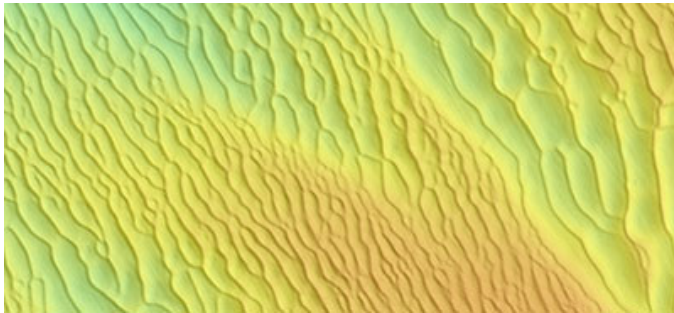


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First results of the scientific measurement campaigns carried out off Dunkirk



Left: Acoustic imaging of underwater dunes off Dunkirk (© FEM) - Right: Deployment of the marine current measurement system (© FEM)

The phenomenon of underwater dunes

Underwater dunes are relatively common in France off Dunkirk and Le Tréport. Formed by the combined action of marine currents and swell, these sedimentary structures, a few metres high, are highly variable in morphology and can shift. In parallel with the development of the future offshore wind farm off Dunkirk and its electrical connection, a collaborative R&D project, called DUNES, has been initiated in 2019 to improve knowledge of the sedimentary and biological dynamics of these ecosystems in the area.

High resolution on-site monitoring

In order to determine the evolution of the underwater dunes with a high spatial and temporal resolution, 8 bathymetric surveys were carried out between November 2019 and July 2021, at 3 study sites, each covering an area of 1 km². In addition, a current measurement campaign lasting more than a month was carried out in the spring of 2021, enabling the hydrodynamic processes at work in the area to be monitored. This in-depth study, carried out as part of the DUNES project, is complementary to the technical and environmental studies carried out by the project owners of the offshore wind projects and their electrical connections in the dune areas.

Strong dynamics suggested by the first results

The various data collected are currently being analysed, but the initial results of morphological monitoring suggest that the underwater dunes in the Dunkirk area are very dynamic: they have moved continuously eastwards over the period studied, with variable migration speeds. Extreme events such as storms seem to influence this horizontal displacement dynamic with a variation in sediment thickness at a given point. These movements will be anticipated in order to optimise the installation and manage the maintenance of offshore wind farms and their electrical connections. In order to deepen the work initiated within the framework of DUNES, the collaborative R&D project MODULLES will start at the end of 2021. It will focus in particular on the modelling of long-term interactions between underwater dunes and the components of future offshore wind farms.

Press contacts:

France Energies Marines: Mélusine Gaillard - melusine.gaillard@ite-fem.org - T. +33 (0)2 98 49 98 27

Shom: Nicolas Weber - nicolas.weber@shom.fr - T. +33 (0)2 56 31 22 44



Partners of DUNES project

This projet is led by Shom and France Energies Marines.



⇒ [Project web page](#)

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