

Environmental R&D: RTE studies the interaction of its structures with marine life

IN ORDER TO BETTER UNDERSTAND THE IMPACT OF ITS UNDERWATER CABLES ON THE ECOSYSTEM, RTE HAS LAUNCHED OR JOINED SEVERAL ENVIRONMENTAL R&D PROJECTS

In May 2017, RTE thus launched an innovative and atypical project using the natural characteristics of the scallop, in partnership with the scientists from the environmental engineering firm, TBM, and the Marine Environmental Science Laboratory (LEMAR, Brest).

For the **OASICE** (scallop tool for monitoring impact of the electrical cables) **project**, the scallops are sampled in the vicinity of the

underwater connections for the connection projects for the Calvados off-shore wind farm (at Courseulles-sur-Mer) and the France-England interconnection IFA2, before and

during the laying works and during the operating phase. Analysis of the ribs on the shell of this sedentary animal provides a robust indicator of stress and alteration of water quality related to laying and operation of underwater cables and any other events (pollution, storm, etc).

This project will thus provide precise answers to the questions related to turbidity induced by the laying works in the sedimentary environment.



Photo credit: TBM environnement

INFO



Just like ice or coral cores which scientists use to reconstruct past climates, **a scallop valve provides valuable information** on the environment in which the animal has spent its life. The quality of this bio-indicator relies on the fact that this species makes its shell by depositing a growth ring every day. The frequency of these deposits combined with advances in analytical geochemistry tools and the cumulative biological understanding of the species make the scallop an extremely powerful tool for the monitoring of water quality.

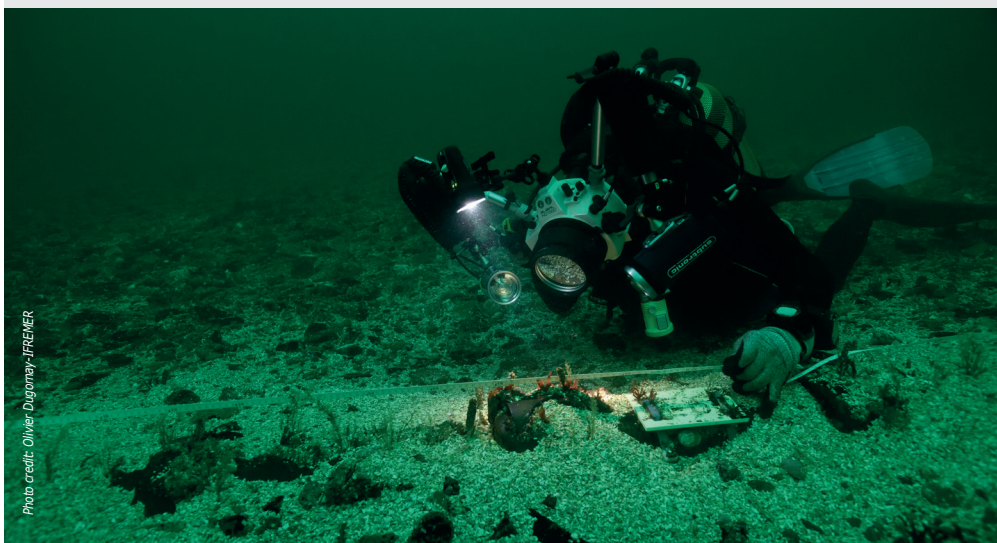
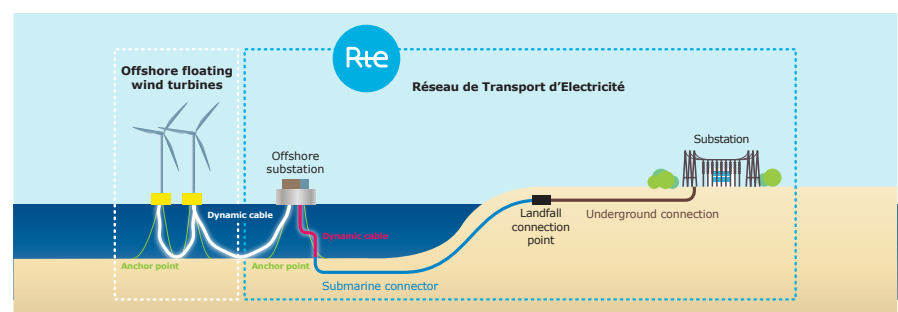


Photo credit: Oliver Dugonay-IRFEMER

CONNECTION DIAGRAM - FLOATING WIND TURBINE



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RTE has also joined the **SPECIES project** (*Submarine Power Cables Interactions with Environment & associated Surveys*), launched by France Energies Marines in 2017 to study interaction of the connection cables for the off-shore wind farm with the benthos. The purpose of the project is to study in situ impact of the electromagnetic fields and temperature caused by the cables, and any reef effects and reserve effects incurred by the cable protection devices (for example, concrete mattresses). Simultaneous monitoring of the species and individual communities in the vicinity of several existing cables, in the English Channel and in the Atlantic Ocean, provides added value for this project targeting coastal ecosystems.

The **APPEAL project**, implemented by France Energies Marines and launched in 2018, focuses on the social ecosystem approach to impact of floating wind farms. The main aim

of the APPEAL project is to apply a multi-disciplinary approach combining natural sciences and human and social sciences, in order to measure the effects of future floating wind power farms on coastal social ecosystems. Before they are installed in the north of the Gulf of Gascoyne, on the Atlantic coast (Groix - Belle-Ile site) and the Gulf of Lion on the Mediterranean coast (Leucate site), the marine ecosystems (composition of the species, food chain, etc) and off-shore human activities (both of a vocational and leisure nature, based on study of user perception and location of their activities) will be described in detail. The scenarios for underwater biodiversity development, running of the ecosystems and activity of the fleets of fishing boats will be built on this data. The social and economic and environmental data will also be used to build the innovative model at the intersection of the biological and social disciplines.



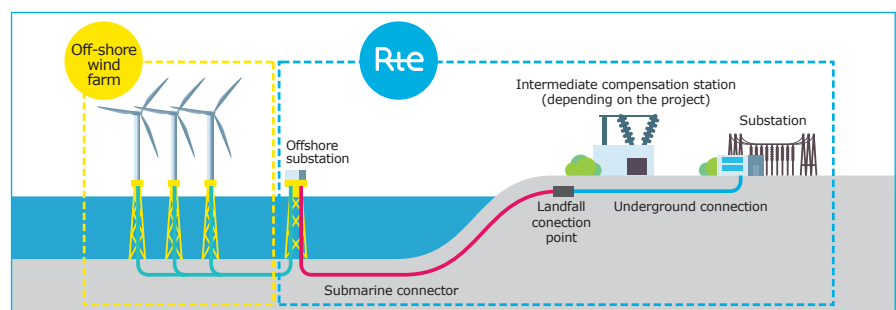
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IMPACTS ON THE BENTHOS: Initial encouraging results

The operation carried out by RTE with TBM Environnement and Ifremer on the **Jersey site** in 2016 produced the first positive results focused on the benthic compartment related to undersea connections Normandie 1 and 2, one of which has been active and the other one inactive for several years.

Within this specific context, the study thus established the **absence of significant impact** incurred by the presence and operation of the undersea connection on the composition of benthic invertebrate populations. Presented during the Seanergy conference in March 2017, it was also validated at the EIMR conference (Environmental Interactions of Marine Renewable Energy) in Scotland in April 2018.

CONNECTION DIAGRAM - INSTALLED WIND TURBINE



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