

Predict and quantify: two pillars of the approach towards underwater noise reduction for offshore projects

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Underwater noise radiated (URN) from anthropogenic activities has been recognized harmful to the marine living ecosystem for several decades now.

International Conventions such as ACCOBAMS or OSPAR have included it in their priorities. The European Union Member States have been committed since 2008 to consider this pollutant in their waters "environmental status" within the enforcement at national level, in 2010, of the Marine Strategy Framework Directive.

The objective is to remediate to the excessive noise affecting marine habitats and species. Various solutions already exist and are being developed. Basically, two types of noise are addressed so far throughout the regulation developments: the so-called continuous noise, which is mainly associated to the ship traffic, and the impulsive noise which includes activities where high amplitudes within short time lapses are input into the water column.

The latter is typically the noise radiated from pile driving (essentially for offshore wind farms), seismic activities (air guns – ships themselves falling into the continuous noise bucket), demining or other coastal civil engineering.

Although Europe has framed it in its directive, the consideration of URN for offshore projects has become one of the essential steps in the offshore projects around the world from wind mill farms to new O&G units deployments and other power production units such as FSRUs.

The heritage from the underwater acoustics methodological developments clearly answers the current need not only for evaluating the underwater noise radiated related to the project but also for testing and further decide the various remediation scenarios.

The outputs in terms of noise are enhanced by coupling with the impacts the project would have, in terms of noise, on the surrounding marine fauna. The presentation will focus on highlighting the key steps of the methodology and its application for the various industrial activities at sea.