



Offshore oil & gas industry



IMARES
WAGENINGEN UR

Moving into extreme areas with respect for ecology

These are challenging times for the oil and gas industry, which needs to move from the shallow, safe North Sea shelf to ever-more extreme environments. While the deep sea and the Arctic are becoming increasingly accessible for extraction, this poses very specific risks to the environment. At the same time, the winding down of activities in the North Sea will allow the existing infrastructure to be used for new activities.

IMARES, part of Wageningen UR (University & Research centre) has a long history as a research partner of choice for the offshore oil and gas industry. Central to our approach is the question of how to access economic benefits while preserving or even expanding ecological value. This is a question for all aspects of oil and gas extraction, from exploration and drilling to production and decommissioning – as well as transport and pipeline construction.

Projects

IMARES plays an important role in the research programme *Symbioses*, an initiative by a consortium of Norwegian oil and gas producers. The goal is to create an ecosystem model that recreates the effects of a potential oil spill far below the surface of the Barents Sea with such precision that all appropriate measures can be taken in advance to prevent serious disruption of the ecosystem.

The north-eastern part of the Atlantic Ocean is covered by the Convention for the Protection of the Marine Environment of the North-East Atlantic (the so-called OSPAR Convention), which aims to protect the seas and oceans in this region. For decades, IMARES has worked with governments and companies in the OSPAR area on a workable way to reduce the environmental impact of oil and gas extraction. An important example of this is the long-standing CHARM model used for authorisations regarding the use of chemical additives in offshore oil and gas extraction. Together with the Norwegian oil and gas industry, IMARES recently developed the DREAM model, which – after a successful implementation in Norway – is now being developed into a *Risk-Based Approach*. This method will apply to all countries in the OSPAR area.

New opportunities for the North Sea

IMARES is also highly active in research into possible alternatives for the declining oil and gas industry in and around the North Sea. This includes examining the possibility for a second life for production platforms. Pilot studies show that these platforms, combined with the appropriate *socio-economic infrastructure*, can be used for

large-scale cultivation of *seaweed* in the future. Studies by IMARES and Wageningen UR Food & Biobased Research show that the particular chemical composition of these crops is very suitable for biorefining, offering major potential as a new source of protein or raw material for chemicals and biofuels. This in turn presents new opportunities to ports such as Den Helder, Stavanger and Aberdeen, which are currently largely dependent on the oil and gas industry.

In another study, IMARES is examining the impact of *CO₂ storage* in empty gas fields in the North Sea. While the relative risks of this seem to be very limited, it is important to identify them clearly.

Strong partnerships

We work closely with the major national and international trade organisations for the oil and gas industry, including NOGEP, IRO, OGP in the Netherlands and their international counterparts. IMARES also works for large corporations, including NAM / Shell, Wintershall, Statoil and BP, and maintains excellent relationships with the relevant authorities in the various North Sea countries.

'The infrastructure in and around the North Sea provides opportunities for new activities.'

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