

Benthic communities on old gas platforms as predictors for new offshore wind farms

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Abstract

Offshore structures in the Southern North Sea provide a habitat for a range of species such as anemones, soft corals, edible crabs and other animals not found elsewhere on the predominantly sandy seafloor. With the development of large amounts of offshore wind farms, new habitat for these species is provided. Extensive monitoring programs are conducted on the artificial reef effect of these wind farms in the Southern North Sea. However, due to the young age of the studied wind farms, still very little is known about the species community of these structures on the long term. With an expected life span of 20 to 40 years, the long term artificial reef effect of offshore structures is relevant for assessment of the impacts on the North Sea ecosystem. Offshore oil and gas structures provide similar structures and have been present over 40 years. Studying the community structure of these platforms gives insight in the long term effects of artificial structures in the North Sea.

To evaluate the effect of artificial hard substrate deployment, we have been sampling the fauna on gas platforms in the North Sea. Our poster presents the preliminary results from the inventory of the L10-A gas platform built in 1975 in the Dutch part of the North Sea. The platform is located at 53°24'7.49"N 4°12' 6.93"E, 27 nautical miles North East of the Wadden island of Texel at a water depth of 30 meters. The epifauna on the platform was sampled by a scientific diver using a surface supplied airlift sampler and an inventory of the mobile demersal megafauna was made from visual observations by a scientific diver and the analysis of ROV images created for technical inspection by the platform operator. Preliminary results show a depth related zonation in the community of the platform. From the intertidal zone to a depth of 20 meters the fauna is dominated by a *Mytilus edulis* and *Jassa spp.* mix changing to *Metridium senile*, *Alcyonium digitatum* and Tubulariidae in the deeper parts. Mobile demersal megafauna observed in situ by the diver and on ROV video images show *Cancer pagurus* and *Necora puber* as the dominant species. Similar distributions have been found on offshore wind turbine foundations.

With the inventory of this first platform complete, we will focus on additional platforms in a transect of increasing distance to shore. It is expected that species zonation and composition changes along this line, depending on total water depth, light penetration and the availability of food.