Offshore Intertidal Hard Substra: a new habitat promoting non-indigenous species in the Southern North Sea

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Introduction

Windmills in the Belgian part of the North Sea (BPNS) create a new habitat of artificial hard substrates in a region mostly characterized by sandy sediments. Given the consequent increase in habitat heterogeneity, the effect of the introduction of these hard substrates is widely regarded as the most important impact of wind farms. This study investigates the colonisation of the macrofouling communities on these newly introduced hard substrates, with special attention to non-indigenous species on the offshore intertidal hard substrata.

Material and methods

Seasonal semi-quantitative sampling of epibiota from autumn of 2008 up to the spring of 2012 at types of two foundations: steel monopile (Belwind - a) and concrete gravity based foundations (C-Power - b). Visual inspection and video transects allowed for the detection of rare, though conspicuous species.

Dominance of non-indigenous species

Eight non-indigenous species present!

Conclusions

Increased availability of artificial hard substrata promotes:
- the spreading of southern species (in conjunction with the effect of climate change)
- the establishment of introduced species
- strengthening of the position of populations of non-indigenous species in the Southern North Sea
- the stepping stone effect, which is highly relevant for the dispersal of species, that lack planktonic larval stages (e.g. Jassa spp.).
- the follow up of response variables such as species richness, species-specific densities and biomass, will allow to investigate and document the successional transitions in detail.

Attention needs to be given to the taxonomic resolution to be able to observe the shifts in species.