

Elucidating flatfish distribution patterns around windfarm turbines using visual diving transects

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Offshore wind farms (OWFs) are built at fast rate in European waters to meet with the imposed targets for renewable energy production. The introduction of hard structures and their scour protection layers in an otherwise sandy environment such as the Belgian part of the North Sea entails various opportunities for reef-associated species. For example, a local attraction effect was found for pouting and cod towards hard substrates in a Belgian and Dutch wind farm, which is thought to be partly explained by an increase in food availability. For flatfish species such as plaice, which often prefer soft sediment habitats, knowledge about their affinity or aversion towards wind farms is still scarce.

A BACI (Before/After-Control/Impact)-study, using beam trawl data from within and outside two Belgian OWFs, showed a small (positive) effect of the presence of a wind farm on the density of plaice on a large scale (i.e. wind farm scale). To study the effect at a small-scale (i.e. turbine scale), standardized visual diving transects were carried out close to the wind turbines. Using Generalized Linear Mixed Models (GLMMs), we could show that the number of plaice is higher at the scour protection layer compared to the surrounding sediment, thus showing an attraction effect. In further studies, we will try to elucidate if this attraction effect is due to an increase in food availability and/or an increase in shelter possibilities from currents and predators.

Keywords: Offshore wind farms; North Sea; Flatfish; Attraction; Plaice