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# Offshore Wind Farms in the North Sea: Is there an effect on the zooplankton community?

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The climate conference in Paris 2015 has resulted in ambitious goals to mitigate the extent of global climate warming within this century. In Germany, the expansion of renewable energy sources is without any alternative to match the own aims of greenhouse gas reductions. Therefore, in the German EEZ of the North Sea around 10 offshore wind farms (OWFs) are already working and more are currently planned or already under construction. At this already substantial level of offshore wind energy production little is known about the effects of OWFs on the pelagic ecosystem. Earlier investigations have shown an increase of benthic organisms settling on hard substrates provided by the power plant foundations. However, the effects of offshore power plants on lower trophic level organisms within the water column are poorly understood. Thus, we investigated the abundance and distribution of zooplankton within and around OWFs. The analysis was based on optical data derived from a Video Plankton Recorder (VPR). The VPR was mounted on a TRIAXUS system including a suite of different sensors, hence allowing to combine zooplankton information with ambient hydrographic parameters. The combination of the VPR and the TRIAXUS system enabled us to analyse continuous zooplankton and hydrographic data with a high spatial resolution. In this study, we present results of transects through the OWFs Global Tech I, BARD Offshore 1, and Alpha Ventus. The analysis exhibits distinct pattern in the spatial distribution both of physical state variables and of plankton organisms within the vicinity of OWFs, especially of meroplankton, the larval phase of benthic organisms.

Keywords: Offshore Wind Farms, Zooplankton, TRIAXUS, Video Plankton Recorder, Meroplankton

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