

Impact and distribution of bottom trawl fishing on mud-bottom communities in the Kattegat - DTU Orbit (08/11/2017)

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The Kattegat in the inner Danish waters has been trawled for at least 80 yr, but so far only few attempts have been made to quantify the trawl effort, its spatial distribution and its potential ecological impact on the benthic fauna. GIS-analyses of VMS-data from trawling in the Kattegat by both Danish (2005-2009) and Swedish (2007-2009) vessels show that 95% of all trawling occurs below 22 m depth. Most activity takes place on homogeneous benthic habitats with muddy sediment at depths below the halocline and with almost the same salinity across the entire area. Furthermore, the estimate of trawled area demonstrated that the habitats are nearly 100% impacted, and frequencies of trawling beneath 100 m depth can reach 20 events per year. Multivariate analysis of community composition could not discriminate between lightly trawled and heavily trawled areas. However, a strong habitat selectivity of the trawl activity and inter-correlation between trawl activity and depth-related community structures complicated interpretation of the results. Species with biological traits previously categorized as sensitive to physical disturbance showed higher abundance in areas with low trawl activity compared to areas with higher activity. Thus, the Kattegat has been impacted to an extent where areas with reference conditions for certain habitats below 22 m no longer exist. Consequently, it is unknown how the benthic communities would have appeared without trawl disturbance and, thus, difficult to determine the impact of continued disturbance.

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