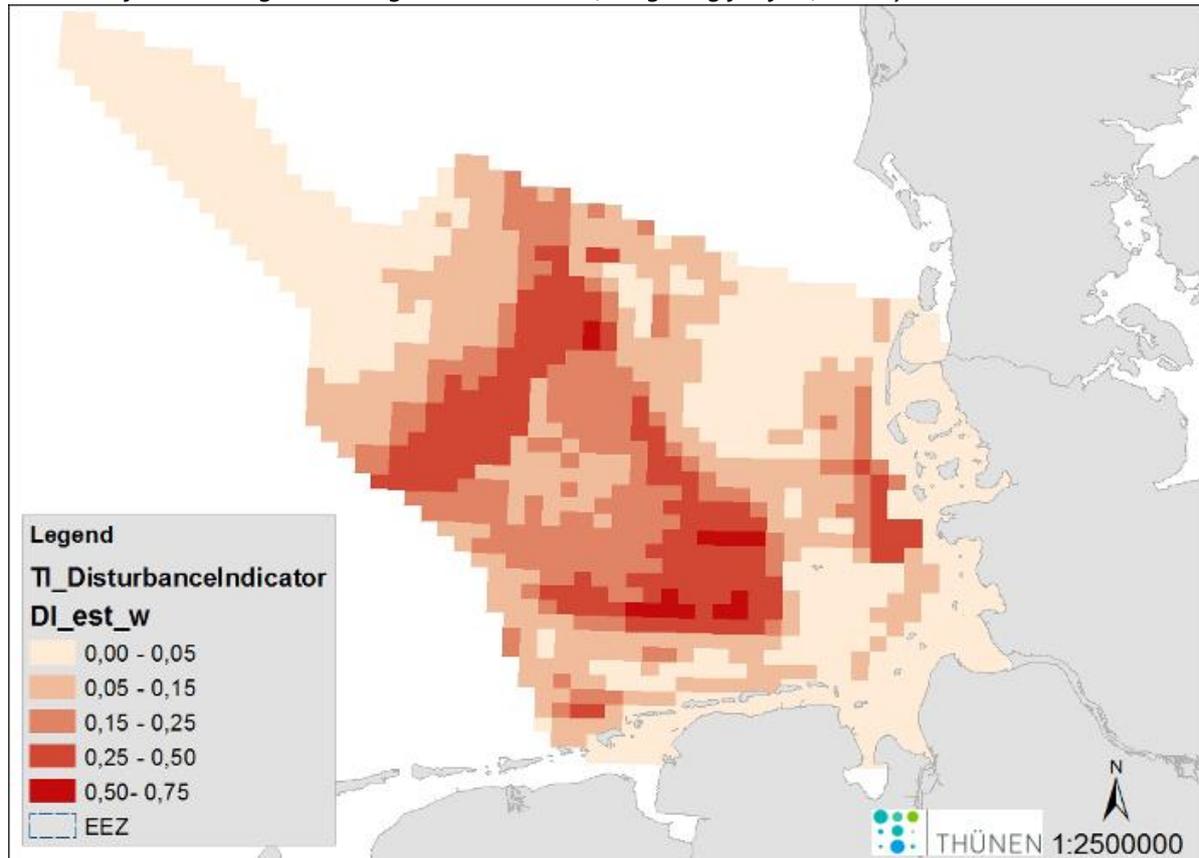


Disturbance Indicator

GENERAL OVERVIEW	
Dataset name: <i>The Disturbance Indicator (DI) of benthic infaunal communities in relation to local fishing pressure</i>	
Project: <i>North Sea – Observation and Assessment of Habitats (NOAH)</i>	
Co-Principal Investigator: Rabea Diekmann, Ulrike Kleeberg (Web Services) [HZG]	
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DATASET SPECIFICATIONS	
Dataset Parameter(s) and supplied Unit(s): <i>DIw (unitless)</i>	
Date(s) available: <i>Static value</i>	
Validated: <i>Yes</i>	Version Date: <i>01.06.2015</i>
Current State: <i>final</i>	
Format: <i>ESRI shape- /layer file</i>	
Citation: <i>Stelzenmüller V, Fock HO, Gimpel A, Rambo H, Diekmann R, Probst WN, Callies U, Bockelmann F, Neumann H, Kröncke I (2015) Quantitative environmental risk assessments in the context of marine spatial management: current approaches and some perspectives. ICES J Mar Sci 72:3, 1022-1042.</i> <i>Rachor E, Nehmer P (2003) Erfassung und Bewertung ökologisch wertvoller Lebensräume in der Nordsee. AWI Abschlussbericht für das F+E-Vorhaben FKZ 899 85 310 (BfN): 175pp.</i> <i>Fock HO (2011) Integrating Multiple Pressures at Different Spatial and Temporal Scales: A Concept for Relative Ecological Risk Assessment in the European Marine Environment, Human and Ecological Risk Assessment: An International Journal, 17:1, 187-211</i>	
DATASET DETAILS	
Abstract <i>In the German EEZ of the North Sea, we distinguished ten benthic communities and six international fishing fleets (averaged over the years 2005-2008). From this we produced spatially explicit estimates of benthic disturbance, which was computed as the ratio between relative local mortality by benthic trawling and the recovery potential after a trawl event. Results showed great differences in spatial patterns of benthic disturbance when accounting for different environmental</i>	

impacts of the respective fleets. Here, the so-called weighted DI is shown, where the largest impact to the seafloor is assigned to large beam trawlers, targeting flatfish, mainly sole.



Acquisition and Processing Description:

The calculation of the DI is based on spatial information about the prevailing infaunal community, the sediment structure and the approximate fishing pressure per fishing métier (only bottom trawling considered). It is computed as the ratio between fishery induced mortality and the recovery potential of the community.

Notes and Limitations:

The DI is a theoretical approach to the quantification of risk to benthic trawling and is not based on experimental data or environmental observations. We used a static infaunal community distribution described by Rachor and Nehmer (2003) and built on a previous study by Fock et al. (2011) and references therein, describing the relationships between mortality due to benthic trawling, recovery time and recovery frequency for each community in relation to the typical sediment category inhabited. The current spatial description of the DI was used as a basis to evaluate the risks to benthic communities induced by e.g. spatial displacement of fishing efforts with the help of a Bayesian Network Analysis (Stelzenmüller et al. 2015).