



## Investigating environmental changes in the German Bight: a combined statistical assessment of climate and biological long-term time-series.

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We composed a homogeneous long-term time-series of data covering up to 30 variables for the overall German Bight ( $6^{\circ}30'E$  to  $9^{\circ}10'E$  and  $53^{\circ}30'N$  to  $55^{\circ}10'N$ ) and for up to 40 years.

A diverse set of variables was selected comprising multiple trophic levels and different environmental forcings.

Previous studies have hypothesized the presence of regime shifts in datasets comprising the entire North Sea.

Focusing on a smaller spatial scale, we investigated the plausibility of these shifts in coastal regions like the German Bight, which are of primary concern to societies.

Based on the results of a Principal Component Analysis (PCA), our investigation of the ecological and climate records reproduces previously identified characteristics of a climatic regime shift in the North Sea in 1987/88. We suggest that in the German Bight the shift in 1987/88 is not only driven by climate (through SST) but also by nutrients like NH<sub>4</sub> and PO<sub>4</sub>. We document some possible ecosystem impacts.