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**Long-term biogeography of key phytoplankton groups in the North Sea in relation to environmental factors and hydrography**

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It is apparent that climate change is having a considerable impact on marine systems and that this is reflected in changes/stressors in marine biological communities. Being located at the bottom of the foodweb phytoplankton can be expected to be particularly sensitive to changes in their physical/ chemical environment. However, while bulk parameters such as chlorophyll or larger species groups have been investigated in a number of studies only few investigations of large scale species-specific differences in abundance of key phytoplankton species exist, although shifts in species composition are likely to also affect foodweb interactions and could lead to match mismatch phenomena. This should be remedied as current legislation at the European and international level require the monitoring of the ecological status of coastal and marine habitats. Here we describe differences in abundance patterns seasonality in key diatom and dinoflagellate species of the genera, *Guinardia*, *Leptocylindrus*, *Tripos* (= *Ceratium*) and their links to underlying drivers particularly temperature and salinity, based on comparisons of time series data at a number of sites in the North Sea from the English Channel to the Scottish coast.