

Mid-to Late Holocene changes in the hydrographic conditions of the Baltic Sea, as inferred from dinoflagellate cyst assemblages

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Dinoflagellate cyst assemblages from marine sediments in the south-central Baltic Sea provide a record of major changes in the Baltic Sea hydrographic system. Beginning just before 8000 BP, dinocyst assemblages show a sharp increase in salinity and decrease in dinocyst abundance and diversity associated with a growing reconnection with the Atlantic Ocean via the Kattegat north of Denmark. The appearance of marine dinoflagellate cysts, cross-referenced with C^{14} dates for the sediment core, indicates the times of transgression. Morphological characteristics such as increased process length for *Lingulodinium machaeorophorum* as well as relative abundances of the dinocyst assemblage correlate with the increase in salinity. This transgression continued the trend of increasing salinity and temperature for at least 1000 years, before dinocyst diversity and abundance declined. Recent brackish water conditions in the last 4000 years are lower in both diversity and abundance than pre-transgression, with assemblages dominated by *Operculodinium centrocarpum*.