

## MUDDY CONTOURITES IN THE BALTIC SEA

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The bottom currents in the Baltic Sea have had a pronounced effect on the nature and distribution of sediments throughout the Holocene. The halocline (depth 60-90 m) controls the sediment type, i.e. below it mud is found while sand dominates above it. Muddy contourites were identified with any certainty by using a combination of lines of evidence including, direct measurement of currents and nepheloid layers, morphological and seismic patterns, and sedimentary characteristics. Impermanence of bottom currents here is specified mainly by intermittent water exchange between the North and the Baltic Seas. Normally the entering saline North Sea waters do not reach bottom layer, but move above halocline and inside it. Major inflows (periodically intensifying, stable in direction contour currents) leave bottom traces in the form of channels. The accumulative bodies (the scale of 1-10 m in height and 10 km in width) are formed to the left of the channels. As a result of strong lateral sediment transport (start of the haline bottom circulation), the thickness of the *Littorina* mud continuously increases towards steep slopes of the sea which are situated on the right-hand of the inflows. Muddy contourites of the Baltic Sea are predominantly terrigenous. The black sulfidic mud is very soft, enriched in organic carbon and manganese. Both enrichments caused by high biological productivity and periodical stagnation of near-bottom waters. Because of the high water content the uppermost mud is easily transported by lateral currents. Well-developed nepheloid layers are commonly associated with bottom currents, and provide evidence that re-suspension and sediment transport takes place.