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REED PLAINS AS GEOLOGICAL ENVIRONMENT AND AN INDICATOR OF  
WATER POLLUTION OF THE BALTIC SEA

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Shallow-water reed plains cover considerable part of the Baltic Sea coasts in Estonia. Reed (*Phragmites communis*) is very widely distributed both in freshwater water bodies and in the brackish Baltic Sea. Reed is the main component of fen peat (together with wood and sedge), formed in the result of overgrowing of lakes. Up to now, reed systems have not been investigated as a geological environment: as a sediment binder and filtrator, a source of organic matter in sediments, the role of reed plains in coastal processes. For hundreds of years, reed has been cut every year and used as roof-cover. During the last 50 years cutting has ceased and thus at present the reed plains are in natural conditions. The spreading of reed plains has been observed in several places on the Estonian coast, especially where pollution of seawater occurs. One of the regions of obvious extension of reed plains is the northern part of Väike Väin (Small Strait), located between Muhu and Saaremaa islands (West-Estonian Archipelago). The dam built in 1896 between these islands divided the Strait into two isolated parts. In the southern part of the Strait, due to the inflow of water from the Gulf of Riga the water quality is close to the natural. In the northern part of the Strait the water-exchange is restricted and the water quality is influenced by the non-treated wastewater of Orissaare village. The expanding of the reed-plains in this area started 30 years ago, when the sewerage of Orissaare village was built.

Samples of bottom mud have been taken from both parts of the Strait to determine the contents of micro-organisms, especially diatoms and to compare the results.

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