

## **TWO-DIMENSIONAL SEDIMENT TRANSPORT MODEL OF ELBE RIVER WETLANDS**

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The River Elbe belongs to the most polluted rivers in central Europe. During floods, an exchange of water, sediments, chemicals and biota takes place between the main channel and the floodplains. Floodplains are often used as pastures and for cultivation and therefore pollutants can be introduced into food web via some contamination of soil or plants.

The main objective of this study was to test a two-dimensional modeling technique to calculate spatial distribution of erosion and deposition of suspended sediment during over bank flooding.

The RMA2-WES hydraulic and the SED2D-WES sediment transport models were used to support a detailed investigation of a floodplain (10 square kilometers) in the German part of the River Elbe. Different flood situations were simulated for the steady-state case. Bed change, bed shear stress and suspended sediment concentration were determined for different discharges. Deposition was measured with sediment traps. Also concentrations of suspended matter were observed. These data and surface water elevations measured within the floodplain were used for model calibration.

No erosion was calculated for the investigated discharges. Largest deposition rates were determined for backwaters. The results can be used to estimate the input of polluted sediments into floodplains.