

## **A SEDIMENT PERSPECTIVE UPON CONTAMINANT FLUXES AND SUSTAINABILITY IN THE GÖTA ÄLV ESTUARY/HARBOUR**

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Since contaminant mobility is linked both to sediment fluxes and to the geochemical conditions that develop within the bottom sediments, these need to be jointly modelled. For this purpose, the H-Sense project has investigated the harbours of Gothenburg (Sweden), Bergen (Norway) and Ventspils (Latvia). The vertical variability of heavy-metal contaminants in dated, short cores are integrated with geographic trends to quantify the geochemical fluxes and storage. Both negative and positive effects can be associated with the exchange across the water-sediment interface, and with the precipitation and dissolution of solid phases. Harbour turbulence can also substantially increase the oxidation of organic matter, but specific components can increase or decrease depending upon their mobility and biodegradability in aerobic and anaerobic conditions. Harbours with low tidal influence are often effective sedimentation traps, and accentuate the value of the sediment archive. These natural sediment traps provide a cleansing function for river and coastal environments that can be optimised with modelling. Further, the vulnerability of the system can be evaluated for specific activities, and the effectiveness of remediation options assessed.