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Historical contaminated sediments at the river basin scale

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Management of environmental risks in river basins needs to address quality aspects of sediment – both because of its storage capacity for contaminants and due to it potential function as secondary source of pollution. Hydrological data have to be combined with concentration of suspended matter and its contaminant concentration to allow assessment of particle bound contaminant load. Each of these kinds of data, however, are subject to uncertainties – e.g. due to natural variability, heterogeneity of the matrix, challenges during sampling and chemical analyses, etc.

Two studies on the impact of contaminated sediments, on the Rhine and on the Elbe, were initiated by Ports and required a practical approach to river basin management. From the theoretical framework, a practical approach was derived which comprised basically three steps: The identification of substances, which are relevant for the specific basin in terms of their hazard and concentration (substances of concern), the identification of those sites which show increased concentration of these substances and theoretically qualify as sources (areas of concern); and the identification of those "areas of concern", that contribute to the overall risk within the river basin through resuspension of their contaminated material and its transport downstream.