

## **Interdisciplinary research on new approaches for future management of the River Elbe**

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**Abstract** The tidal River Elbe, northern Germany, serves as an important international waterway feeding the port of Hamburg and thus indicates its function as a significant economic lifeline for that region. At the same time the estuarine riverscape is a valuable natural habitat, protected by national and European legislation. In recent centuries the estuary has been impacted by manmade changes, e.g. by ongoing river training. There are very limited data about the dynamic interaction between soils, sediment transport and budgets as well as vegetation development. This article compiles ongoing Elbe research that includes: (i) the response of tidal reeds and invasive plants to shifts in hydrodynamics and land use; (ii) the resilience of bank sediments against hydro-mechanical stress; and moreover (iii) the analyses of socio-economic aspects in the context of bank restoration by applying the approach of ecosystems services.

**Key words** soil; vegetation; reed; resilience; ecosystem services; river banks; regional climate change

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