

History and perspectives of storm surge management in Hamburg

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The history of storm surges in Hamburg since about 1750 is reviewed, and perspectives for future measures discussed.

Drivers as well as perspectives for the future are identified. For the time prior to 1850, coastal defence failure was a regular phenomenon; from about 1850-1960 coastal defence was hardly challenged, and after 1962 storm surge heights rose to levels never recorded before. The most likely causes for this change are modifications of the Elbe estuary, related to coastal defence and improving the shipping channel. Anthropogenic climate change may lead in the future to even higher storm surges (mainly because of increased sea level in the German Bight). While for the foreseeable future, conventional measures will be sufficient for ensuring coastal defence, an mitigation option of local mitigation of high water levels seems to be available. This may be achieved through the "tidal Elbe project", which was designed to reduce upstream river sediment transport.