

# Long-term evolution of estuaries and tidal basins: lessons from the Holocene evolution of the Dutch coast

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### Objectives







meer tidal sytem. (d) Remnants of tidal channels creeks and Walcheren. (e Remnants of tidal channels of the Bergen inlet system. Elevation in m O.D., north is up in all panels <sup>2 km</sup> Source: AHN.



- Tidal inlets only persist when there is river inflow.
- Estuaries can develop a stable configuration wherein sediment input equals sediment output.
- Tidal basins are unstable landforms that fill and close over time. They initially aggrade with sand and later with mud, which is trapped by vegetation.

References: (1) Pierik, H., Cohen, K., Vos, P., van der Spek, A., Stouthamer, E., In prep. Late Holocene coastal plain evolution of the Netherlands: human-induced transgression and its interaction with initial conditions. Geomorphology. (2) Van den Berg, J. H., Jeuken, C. J., Van der Spek, A. J., 1996. Hydraulic processes acting the morphology and evolution of the Westerschelde estuary. In: Estuarine Shores: Evolution, Environments and Human Alterations. John Wiley & Sons. (3) Vos, P., 2015. Origin of the dutch coastal landscape. Ph.D. thesis, Utrecht University.

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![](_page_0_Picture_27.jpeg)

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