## **Early Holocene Drowning of the Rhine River Mouth** Marc P. Hijma<sup>1, 2</sup> and Kim M. Cohen<sup>1</sup>

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## **THE RESEARCH**

Worldwide, humanity has faced sea-level rise (SLR) for more than 20000 years now. In the western Netherlands (Rotterdam area) the direct therefore important to understand how coastal and fluvial processes interact under drowning. impact started only 10000 years ago, when groundwater levels started to rise rapidly and Below the surface in the western Netherlands

Today, we face an increase in sea-level rise and present two parts of the study: a sea-level curve river mouths start to drown on a global scale. and a cross-section.



First draft central cross-section: from the Old Rhine to the Hollandsch Diep

## **CROSS-SECTION**

In the cross-section below, the drowning of the delta is visualized. At the base of the Holocene purely fluvial deposits are present, to the top the sediments are from an increasingly wet and brackish environment.

New dates, pollen and diatoms research will further improve our understanding of the fluvial-marine transition zone.

Study area and location of the cross-section



## **SEA-LEVEL CURVE**

During this study we collected new sea-level indicator points by dating peat-layers and were able to extend the existing curve back in time from 7500 to 10000 years ago.

In the figure above a part of the new data is presented. It indicates that SLR was less steep in the period 8000-9000 years ago then earlier was assumed by extrapolating the Van de Plassche-curve.

The Pleistocene surface around Rotterdam lies -17/-18 m below NAP. At this depth the curve flattens (10000-9000 BP). It reflects rising groundwater levels not yet influenced by SLR.

Sea-level in the western Netherlands has always been rising because of continuous subsidence. Between 8500 and ~3000 years ago this rise was enhanced by a global sealevel rise signal.









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