

BURCHTSE WEEL: REDUCING THE TIDE DIFFERENTLY

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Originally the Schelde Estuary was one big area of mudflats and marshes. Along the entire course of the Schelde, big planes were present with a gradual slope from water to land. Throughout the centuries the economic importance of the river has grown. Due to the narrowing and deepening of the Schelde, the tidal volume has changed resulting in larger tidal differences and stronger currents. These changes have an impact on economy, ecology and safety. One of the possible answers to these problems is the construction of Flood Controlled Areas (FCAs) and Controlled Reduced Tides (CRTs), a solution that combines safety with ecology.

In Lippenbroek, the FCA-CRT technique is implemented for the first time, with success. With high inlet and low outlet sluices the flooding regime of natural marshes is reproduced in an enclosed polder area. Based on the results of this pilot project, many other FCA-CRT are planned, designed or under construction.

Inspired by Lippenbroek, also in Burchtse Weel tidal influence will be restored by 2011. However, here another sluice design will be implemented, using a low inlet and low outlet. Burchtse Weel is situated at the outskirts of the city of Antwerp and has a total surface area of approximately 50ha. It is a part of the 'Oosterweel'-project. The totally different approach of the sluice construction, compared to previously built CRTs, makes this area interesting for monitoring: will the same ecosystem goals be achieved using this different approach?

Here we present a comparative study of Burchtse Weel and Lippenbroek. We looked into abiotic parameters which have direct or indirect impact on the overall picture of the landscape. The nutrient contents of the Schelde River at Hamme-Lippenbroek and Burchtse Weel have been evaluated based upon their influence on the future vegetation.

Based on the tidal curves and the topography of both areas, inundation frequencies were calculated. These are one of the most important factors for the development of mudflats and marshes. Based on these inundation frequencies, maps of different ecotypes are made.

Finally a forecast of the expected vegetational development was made, based on different vegetation models, taking into account salinity and tidal characteristics. This allows us to present maps with probabilities for a certain vegetation cover.