**Design of Flood Control Areas: Conflict between nature development planning and potentials .**

*A case study in the Scheldt estuary (Belgium)*

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Flood control areas (FCA) are allocated to reduce the flood risk from storm surges in urban areas along the Scheldt estuary in Flanders. The FCA of Kruibeke, Bazel and Rupelmonde is under construction and its 600 ha were mainly intensive agricultural land. With de designation as FCA the land use in the area is reoriented towards nature development and recreation. Meadow bird habitat and alluvial forests, both protected under the Bird and Habitat Directives will be created as compensation for lost habitat elsewhere. Optimal conditions for the development of these habitats should be created through the establishment of an optimal and more natural hydrologic regime.

Groundwater heads and surface water levels in the area were intensively monitored through a network of piezometers and staff gauges. In an ecological model flooding probabilities, surface water and groundwater levels were combined with a Digital Terrain Model to predict development potentials for the target vegetation types across the area. The ecological model was calibrated with data from a total survey of the actual vegetation and the current distribution of plant species which characterise the target habitats. Maps of the ecological potentials under different abiotic conditions, such as increased groundwater levels and inundations were drawn.

In search for a sustainable new landuse map, the results were then confronted with different land use scenarios. The scenarios differed in the allocation and the ratio of areas designated for agricultural use and for development of the target habitats. Together with the modelling results they served in the societal debate in order to define the optimal cost/benefit scenario that would fulfil the compensation obligations in a sustainable and societaly acceptable way.

It appeared that the locations with the best potentials for the target habitats conflicted with the originally planned and legally designated locations for compensation. The results of this research could be used to justify changes in the spatial allocation for the compensation habitats in the FCA.