

Ecological assessment of physical changes in the Scheldt estuary.

Jaap Graveland, National Institute for Coastal and Marine Management/*RIKZ*

The relationship between morphodynamics and ecology is a major research topic in the Scheldt estuary. The discussion about access to Antwerp harbour and the implementation of strict EU-legislation for nature conservation are responsible for this. Another development is the quest for indicators that summarize the physical and ecological state of water systems in a way that managers and policy makers can understand.

The paper presents two studies by *RIKZ* tackling these two issues.

One study explores physical parameters at the scale of a complete water system (such as the Western Scheldt) that characterize the potential of the system for the maintenance or development of habitats such as tidal flats and salt marshes. A graphical presentation of these parameters should allow immediate assessment of the physical state of the system in for ecology relevant terms. A promising combination of parameters is the total cross section of tidal channels and the amount of water that moves in and out at each tide.

Another study focuses on the potential importance of the curvature (vertical profile) and sediment composition of tidal flats, apart from the density of benthos (the birds' food supply), for the food intake of waders such as Oystercatchers. Present impact assessments (e.g. *MOVE*) only consider changes in available foraging area at low tide, while other studies show that sediment characteristics and emergence period determine foraging opportunities of waders as well.

The studies are placed in the context of the present discussion on increased dredging of the shipping channel to Antwerp.