

ABSTRACT

The amount of mud present in the Schelde estuary between Antwerp and the Dutch-Belgian border

Frederic FRANCKEN¹, Stanislas WARTEL² & Reg PARKER³

¹francken@kbinirsnb.be – ²wartel@kbinirsnb.be – ³reg@blackdown.demon.co.uk

The study area is situated between a cross-section positioned near Galgenweel (upstream of Antwerpen) and the Dutch-Belgian border. Previous determinations of the amount of mud were carried out in the same area (Bastin, 1993). The total quantity of mud was determined on the basis of data provided by the lithological map of the area of interest (Wartel *et al.*, 2000). The data was collected by means of an acoustic survey which classified the sediments into five groups (mud, sandy mud, muddy sand, sand and hard bottom). For each bottom type a mud coefficient was determined, representing the percentage of mud present.

In a first approach the sediment types were extrapolated to a depth of –1 m, using a mean sediment density of 1.3 tons/m³ in the access channels to the different locks of the Antwerp harbour and 1.45 tons/m³ in the main gully of the Schelde. At that time, reliable measurements of the upper bottom layer were not available. The second approach, which took the accurately measured thickness of the erosion sensitive layer for each sediment type into account, used specific densities for each sediment. The first approach yielded a total amount of 11.240.376 m³ of wet mud, representing a total amount of 7.572.585 tons of dry mud. The second calculation method produced a total amount of 5.245.756 tons of dry mud.

The difference between the two approaches is that in the first approach the bottom sediment was assumed to be uniform over a thickness of one meter and to have an even sensitivity to erosion. The second approach, on the contrary, is based on a reliable measurement of the properties of the erosion sensitive layer, which thickness' appeared to be variable and less than one meter.