

Detailed model Lower Sea Scheldt



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The Lower Sea Scheldt model was developed by Flanders Hydraulics as part of an accessibility study. Among other things, the model is used for nautical and hydro-morphological research in the Lower Sea Scheldt, such as for a study on the influence of bridge piers for the left-right bank connection upstream of the Kennedy Tunnel on local flow patterns and impact on the nearby mudflats and salt marshes (Stark et al., 2023). The TELEMAC2D model of the Lower Scheldt is a two-dimensional (2Dh) model developed in the TELEMACMASCARET software (Hervouet, 2007). The figure shows the model domain, which extends from Liefkenshoek (downstream) to Hemiksem (upstream). The average grid resolution is 20 m, but along the banks and in certain areas of interest such as near Melsele, the grid resolution is locally refined to about 5 m. The grid is flexible and can be locally refined according to the area of interest. Figure 6 shows an example of a project-specific local refinement at the Kenedy Tunnel where the geometry of two bridge piers were built into the model (De Maerschack et al., 2023).

The upstream and downstream edges of the model are forced with observed water levels from tide stations Liefkenshoek and Hemiksem. The model was calibrated to represent water levels for all intermediate tide stations and for flow velocities at Oosterweel (Kolokythas et al, 2020), both the fixed gauging station and for a sailed transect during a spring tide.

